

# Curriculum for Upper Primary Classes (VI – VIII)



*Research Development and Consultancy Division*  
**Council for the Indian School Certificate Examinations**  
**New Delhi**

***First Edition***  
***November, 2016***

**Note:** The Council reserves the right to make modifications in the syllabi as and when it deems necessary.

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***Published by:***

Research Development and Consultancy Division (RDCD)

Council for the Indian School Certificate Examinations

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# Preface

The introduction of a Curriculum for Preschool to Class VIII is a pioneering endeavour undertaken by the Council to usher an exciting and dynamic dimension in the field of Education. The new Curriculum incorporates all elements of academic interests that cater to the challenging requirements of present day educational needs.

In order to allow for holistic and coherent planning and to provide greater flexibility and choice for schools and teachers, the Council has developed a Curriculum framework that aims at facilitating the teaching-learning process. It also serves to make learning purposeful and progressive while promoting the achievement of educational aims and objectives in a planned and positive manner. All efforts have been made to incorporate the latest trends in the field of Education, while ensuring that flexibility is provided to teachers to adapt the curriculum as per their requirements and contexts.

To prepare the future generation of learners to meet the challenges of an ever advancing knowledge-based society and a dynamically changing environment, it is imperative that children are equipped with a repertoire of skills and a positive attitude with a sensitized perspective to become successful citizens in a globally competitive society.

The Curriculum caters to a varied and diverse range of individual differences, intelligences and abilities and provides a plethora of opportunities to enjoy the learning experience through integration of generic skills, values and attitude in key learning areas.

Development of Curriculum is an ongoing process, subject to continuous change and revision, and it is hoped that this Curriculum will bring about a uniformity in the teaching learning process in Council affiliated Schools. To ensure the successful implementation of this Curriculum, it is imperative that Schools maximize their participation in this endeavour to achieve academic excellence. In this context, we invite schools to send their comments, suggestions or contributions on the Curriculum.

I take this opportunity to acknowledge the contribution of subject experts from leading International and National educational institutions and subject teachers from schools affiliated to the Council. The RDCD team of the Council deserves special mention for diligently and meticulously developing this Curriculum.

**November 2016**

**Gerry Arathoon  
Chief Executive & Secretary**



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## ACRONYMS

<b>2D/3D</b>	2 Dimensional/3 Dimensional
<b>4GPL</b>	Fourth Generation Programming Language
<b>BP</b>	Blood Pressure
<b>CAN</b>	Controller Area Network
<b>CCD</b>	Computer Controlled Display
<b>CD</b>	Compact Disc
<b>CNS</b>	Central Nervous System
<b>CUI</b>	Character User Interface
<b>DBMS</b>	Data Base Management System
<b>DNS</b>	Domain Name System
<b>DOS</b>	Disk Operating System
<b>ECG</b>	Electro Cardio Gram
<b>EVS</b>	Environmental Studies
<b>FTP</b>	File Transfer Protocol
<b>GUI</b>	Graphical User Interface
<b>HCF</b>	Highest Common Factor
<b>HCG</b>	History, Civics & Geography
<b>HIV</b>	Human Immunodeficiency Virus
<b>HTML</b>	Hypertext Markup Language
<b>HTTP</b>	Hypertext Transfer Protocol
<b>ICT</b>	Information and Communication Technology
<b>ILO</b>	International Labour Organisation
<b>IMAP</b>	Internet Message Access Protocol
<b>IMD</b>	India Meteorological Department
<b>INA</b>	Indian National Army
<b>IP</b>	Internet Protocol
<b>ISP</b>	Internet Service Provider
<b>IWB</b>	Interactive White Board

## ACRONYMS

<b>LAN</b>	Local Area Network
<b>LCM</b>	Lowest Common Multiple
<b>MAN</b>	Metropolitan Area Network
<b>MODEM</b>	Modulator-Demodulator
<b>NGO</b>	Non-Government Organisation
<b>OS</b>	Operating System
<b>PAN</b>	Personal Area Network
<b>PNG</b>	Portable Network Graphics
<b>PPT</b>	Power Point Presentation
<b>RBC</b>	Red Blood Corpuscles
<b>RAM</b>	Random Access Memory
<b>SMPS</b>	Switched Mode Power Supply
<b>SMTP</b>	Simple Mail Transfer Protocol
<b>SST</b>	Social Studies
<b>SUPW</b>	Social Useful Productive Work and Community Service
<b>TCP</b>	Transmission Control Protocol
<b>TSA</b>	Total Surface Area
<b>TV</b>	Television
<b>UN</b>	United Nations
<b>UNESCO</b>	United Nations Educational Scientific and Cultural Organisation
<b>UNICEF</b>	United Nations Children's Fund
<b>URL</b>	Uniform Resource Locator
<b>WAN</b>	Wide Area Network
<b>WBC</b>	White Blood Corpuscles
<b>WHO</b>	World Health Organisation
<b>XLS</b>	Excel Spreadsheet



# INTRODUCTION



## Overview

The Council for the Indian School Certificate Examinations (CISCE) is committed to serving the nation's children, through high quality educational endeavours, empowering them to contribute towards a humane, just and pluralistic society, promoting introspective living, by creating exciting learning opportunities, with a commitment to excellence.

As a premier National Examination Board of the country, the Council conducts the Indian Certificate of Secondary Education Examination (ICSE – Class X), the Indian School Certificate Examination (ISC – Class XII) and the Certificate of Vocational Education Examination (CVE- Class XII). The Council has always strived to incorporate the very best in its prescribed syllabi at the secondary and senior secondary levels, with Council affiliated schools being the cornerstone in the achievement of many an educational milestone.

It is a well-known fact that a strong foundation in the lower classes plays a vital role in forging life-long learning competencies. The Curriculum developed by the Council for Preschool – Class VIII, has been designed so as to enable children to be well-prepared and future ready and to lead them in a progressive and phased manner to derive full advantage of the ICSE and the ISC syllabi. The curriculum has been planned and organized in a systematic and scientific manner,

### **Ethos of the Council**

- Trust and Fair Play
- Minimum monitoring
- Allowing schools to evolve their own niche'
- Catering to the needs of the children
- Giving freedom to experiment with new ideas and practices – the school must continuously evolve
- Diversity and Plurality – the basic strength for evolution of ideas.
- Schools to motivate pupils towards the cultivation of:  
Excellence - the Indian and Global experience;  
Values - Spiritual and Cultural, to be the bedrock of the educational experience.
- Schools to have an 'Indian Ethos' with strong roots in the national psyche and be sensitive to emerging national aspirations.

keeping in view the prevalent trends and requirements in the field of education. The curriculum aims to provide a holistic and broad based education, taking into account all aspects of child behaviour, so as to equip them to meet the challenges in life and to develop their potential for lifelong learning. All efforts have been made to



incorporate components that are vitally and organically related to the child's life and his/ her immediate environment, interpreting for the child, its salient and significant features and permitting him/her to come in contact with some of its important activities.

## **Aims of the CISCE Curriculum**

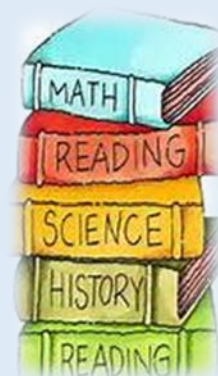
### **The curriculum aims to enable children to:**

- become successful learners who enjoy learning;
- successfully apply core concepts learnt from various subjects;
- understand texts of different subjects so as to communicate knowledge and ideas in ways specific to the subject;
- articulate thoughts and ideas effectively using oral, written and nonverbal communication skills in a variety of forms and contexts;
- use technology to access and provide information and to communicate with others;
- understand cross-curricular linkages- connect learning across subject areas;
- become confident individuals who are able to live safe, healthy and fulfilling lives;
- become responsible citizens who make a positive contribution to society;
- understand and apply knowledge to real life experiences;
- develop a sense of responsibility towards others;
- function successfully in the local and world community;
- respect diversity (in terms of religion, gender, regions, etc. and differences of opinions and beliefs);
- exhibit sensitivity towards environmental issues;
- learn to manage and utilise resources judiciously.

# Process of Curriculum Development

The process of curriculum development was initiated in the year 2016, wherein the Council felt that there was a need to develop a comprehensive curriculum which had the potential to be contextualized by teachers as per their requirements. The development of the curriculum was a gradual process.

In order to gain a better understanding of the existing syllabi (Preschool – Class VIII) being followed in Council affiliated schools, a questionnaire was designed to elicit information from schools. The questionnaire sought information on the subjects being taught, the syllabus content for various subjects, innovative practices adopted, etc. The syllabi/ information received from schools was studied to understand the level at which various subjects are being transacted in different schools. This was a criterion that was constantly kept in mind while developing the syllabi for various subjects. A review was also done of the various National and International curricula, so as to understand the existing trends in school education.



Another key aspect kept in mind while developing the content was the knowledge and the level of competency that would be required by children at the completion of Class VIII so as to prepare them to take up studies at the ICSE level. Accordingly, 'backward designing' was done for all subjects, with the ICSE syllabus being the reference point.

In order to ensure that the curriculum is relevant and in alignment with what is being transacted in the schools, all efforts were made to ensure that subject teachers, teaching at the levels of Preschool - Class VIII are involved in the process of development of the curriculum. In-depth discussions were held with subject teachers to identify the requirements so that a need based and process oriented curriculum could be developed.

The curriculum was developed through collaborative efforts of subject teachers from schools affiliated to the Council, as well as educationists and experts from leading national and international educational institutions.

# Salient features of the Curriculum

## ■ The Curriculum is Theme based

The present curriculum follows a 'theme based' approach in all the curricular areas rather than a 'topical approach'. Thus, it does not proceed with a list of topics while transacting the curriculum from different subjects. The theme facilitates in addressing the issues related to the area under study in a holistic manner.

## ■ The Curriculum is Child Centred

The approach of the curriculum is 'child centred'. The identified concepts, skills, issues and concerns are age-appropriate so that the understanding of the child develops gradually from self to the immediate surrounding and further to the wider environment. For example, information related to the child and his/her family members may be given before introducing him/her to the neighborhood. Thus, the child moves from simple to complex, concrete to abstract, informal to formal concepts in a logical and phased manner.



## ■ Focus on using a wide range of learning experiences

Recognising the fact that there are different learning styles and individual children learn in different ways, the curriculum suggests a range of transactional processes varying from classroom discussions, case studies, field visits, surveys, hands-on experiences, experimentation, model making, poster making, slogan writing, etc. The curriculum aims to ensure that learning is a joyful experience for all children and that children are able to understand not only what they learn, but also how this learning is relevant in their lives, both present and future.

## ■ Sequential arrangement of learning experiences (Spiralling)

An attempt has been made in this curriculum to design a sequential arrangement of learning experiences, that will provide a spiral of cumulative learning. As they progress through classes, children will revisit certain topics or themes several times, but the depth and complexity of the theme or topic/concept will increase with each revisit. The new knowledge gained will be put in the context of the pre-existing knowledge which will serve as a base or the foundation.

## **The Curriculum encourages an Integrated approach**

The curriculum encourages an integrated approach to teaching-learning, so as to enable children to comprehend learning experiences as a unified whole, to help them see meaningful linkages within and across various subject areas. Instead of moving from one topic/subject area to another, learning information in a disconnected, compartmentalised manner, the curriculum aims to help children make sense of life's experiences by helping them connect and correlate knowledge and experiences across various topics within as well as across subject areas.

### **Including *ALL* Children**

The suggested activities/ experiments/ project work and experiences need to be adapted keeping in view the individual differences among children and their innate potentials, as well as the children with special needs. The teaching-learning material, equipment, games, puzzles need to be adapted so that '*ALL*' children can be equally involved in the transactional process. Teachers must do away with the approach of labelling children which can cause them to be singled out and ridiculed - rather, they should be taken into the ambit of the teaching and learning process with other children by devising and designing appropriate learning strategies. In this process, *ALL* children will learn from each other. In order to create inclusive classrooms, teachers must develop their knowledge and skills and an understanding of key strategies to achieving success. However, work done in this area needs to be referred to by teachers who also need to be oriented.



- \* Value *ALL* Children
- \* Respect individual differences
- \* Provide equal opportunities
- \* Meet learning needs of *ALL* Children

## ■ **The Curriculum provides scope for Contextualization**

Within the framework of the curriculum, flexibility has been provided to schools to adapt and contextualize as per their own unique requirements and the needs of the children. Hence, while the key concepts/ areas have been spelt out for each subject theme in the curriculum, it is expected that the teachers will adapt and use appropriate transactional processes, based on the resources available, the interests and aptitude levels of the children, as well as their geographical locations and the socio-economic and cultural contexts.

## ■ **The Curriculum follows a Social Constructivist approach**

This approach lays emphasis on learning by doing (I do, I understand much better). Also, children learn better while interacting/discussing with elders/others. Thus this approach provides opportunities for children to construct their knowledge rather than placing them as recipients of information in the transactional process. The knowledge gained by them is thus an outcome of the children's own activity. Engaging/involving children in exploring, observing, inventing the world around them helps in the process of construction of knowledge. In this curriculum, ample scope has been created for children to construct their knowledge through the social interaction (social constructivism).

## ■ **The Curriculum encourages development of Life Skills**

The curricular approach encourages development of skills as well as life skills by using age appropriate identified themes. These skills and life skills are not to be developed in isolation and are not 'add on' activities, rather, these are to be developed in an integrated and infused manner. The age appropriate skills and life skills have been mentioned in the curriculum as a reference point for teachers.



# The Curriculum Document

The Curriculum document comprises of three parts, Part 1, Preschool Curriculum (covering Preschool 1 and Preschool 2), Part 2, Curriculum for Primary Classes (I-V) and Part 3, Curriculum for Upper Primary Classes (VI-VIII).

<b>Part - 1</b>	<b>Part - 2</b>	<b>Part - 3</b>
<b>Preschool</b> <ul style="list-style-type: none"><li>• PS -I</li><li>• PS -II</li></ul>	<b>Primary</b> <ul style="list-style-type: none"><li>• English</li><li>• Hindi</li><li>• Mathematics</li><li>• Environmental Studies (I &amp; II)</li><li>• Science (III - V)</li><li>• Social Studies (III-V)</li><li>• Computer Studies</li><li>• Arts Education</li></ul>	<b>Upper Primary</b> <ul style="list-style-type: none"><li>• English</li><li>• Hindi</li><li>• Mathematics</li><li>• History &amp; Civics</li><li>• Geography</li><li>• Physics</li><li>• Chemistry</li><li>• Biology</li><li>• Computer Studies</li><li>• Arts Education</li></ul>

# Preschool Curriculum

Research and educational experiences underline the crucial importance of early years in the child's developmental experience. The rate of maturation and development and the pace of learning, is greater during these years than at any subsequent period in the child's life. The child's experience of learning in the early years, has a profound influence on later learning.



Young children enter preschool with a lot of curiosity, a sense of wonder and an eagerness to learn. They are attracted towards learning experiences that are engaging and pleasurable. Positive, concrete and hands-on experiences encourage young children to make choices, decisions, and explore their immediate environment. This helps them feel competent and confident.

The Preschool curriculum developed by CISCE, is meant for an early childhood setting where three to five-year-old children receive age and developmentally appropriate early education. The curriculum is divided into two sections, namely, Preschool-I and Preschool-II. The curriculum follows a holistic approach where practitioners support and scaffold children's learning through enriched play experiences. The pedagogical and transactional processes / strategies suggested in the curriculum include engaging and enjoyable play activities and learning experiences that awaken / ignite children's thinking processes and help build their confidence. The activities and play based experiences connect young children's fascination with learning in every domain so that they can enjoy, learn and make the most of their time in preschool.

## Curriculum for Primary Level (Classes I-V)

At the primary stage, subject areas dealt with are English, Hindi (Second Language), Mathematics, Environmental Studies (EVS), Science, Social Studies, Computer Studies and Arts Education.

English has been treated as the first language and presented in a manner which takes into account multilingualism as a learning resource. Hindi is one of the Second Languages up to the elementary stage (I - VIII). The teaching-learning of languages would provide language as a tool to structure thought processes and to explore different realms of knowledge and imagination.

Mathematics focusses on reasoning and conceptual at every stage. The approach of this subject would facilitate hands on experiences and enable children to link Mathematics with day to day life experiences.

The Environmental Studies (EVS) curriculum (Classes I-II) is presented as an integrated curricular area following the thematic approach. The focus is on learning *about* the environment, *through* the



environment and *for* the environment. In Classes III-V, Science and Social Studies have been identified as core areas. At the primary level, a multi-disciplinary approach of Science and Social Studies learning has been followed and the concepts and concerns have been addressed through various themes, identified from different discipline in these areas.

Computer Studies, another core area of this stage has been developed with the focus on use of technology in Education.

Last but not the least, the curriculum for Arts Education at the primary level has been developed as a core area and follows a theme-based approach. The learning of this subject would provide scope for creative expression, appreciation and working together.

## **Curriculum for the Upper Primary Level (Classes VI-VIII)**

The curriculum for the Upper Primary Stage covers English, Hindi (Second Language), Mathematics, Physics, Chemistry, Biology (under Science), History & Civics, Geography (under the subject History, Civics & Geography), Computer Studies and Arts Education.

Being the medium of instruction (first language) the focus of English language learning at this stage is on oral and written expression, in a creative manner. This would help develop a sense of appreciation and critical vision for different forms of literature among children. The emphasis of Second Language learning at this stage is to hone the skills and develop an interest in the language and literature.

The focus of Mathematics learning at this stage is to consolidate and expand the learning through problem solving techniques.

Science at this stage branches out into Physics, Chemistry and Biology, so as to help children understand the issues and concerns of these areas. In Social Studies, two core areas, History & Civics and Geography, have been identified. Computer Studies curriculum focuses on acquisition of knowledge and skills in ICT so as to enable students to use common software applications and technology to access and utilize information.

The emphasis of Arts Education at this stage is on development of creative expression and expression through visual art forms. Arts Education follows a theme based approach in this curriculum, wherein efforts have been made to provide suggestions for integration of Arts Education with other curriculum areas.

## Subjects to be studied at the Primary Level

Classes I-II	Classes III – V
<ul style="list-style-type: none"><li>– English</li><li>– Second Language*</li><li>– Mathematics</li><li>– Environmental Studies (EVS)</li><li>– Computer Studies</li><li>– Arts Education</li></ul>	<ul style="list-style-type: none"><li>– English</li><li>– Second Language*</li><li>– Mathematics</li><li>– Science</li><li>– Social Studies</li><li>– Computer Studies</li><li>– Arts Education</li></ul>

## Subjects to be studied at the Upper Primary Level

Classes VI - VIII
<ul style="list-style-type: none"><li>– English</li><li>– Second Language*</li><li>– Mathematics</li><li>– Science (Physics, Chemistry, Biology)</li><li>– History, Civics &amp; Geography (History &amp; Civics, Geography)</li><li>– Computer Studies</li><li>– Arts Education</li></ul>

**NOTE:** In addition to the above, the following should also be taken up at the Primary and Upper Primary levels:

- Third Language\*\* (at least Class V -VIII)
- Physical Education/ Yoga
- Education in Moral and Spiritual Values
- Socially Useful Productive Work and Community Service (SUPW) (VI -VIII)

### **\*Note on the Second Language**

*One/two* of the Languages listed below to be offered:

Ao Naga, Assamese, Bengali, Dzongkha, Garo, Gujarati, Hindi, Kannada, Khasi, Kashmiri, Kokborok, Lepcha, Malayalam, Marathi, Manipuri, Mizo, Nepali, Odia, Punjabi, Sanskrit, Tamil, Tangkhul, Telugu, Tenydie, Urdu or any other official Indian language.

OR

One of the Foreign Languages provided the school has the required infrastructure and experienced teachers/ resource persons.

### **\*\*Note on the Third Language**

The third language to be studied should be determined as under:

Subject to the State requirements, the schools are free to introduce suitable Third Languages, Indian or Foreign, for study from Class V to VIII provided the school has suitably qualified staff and necessary teaching aids that may be needed especially for the teaching of foreign languages as a Third Language.

However, students taking a particular Third Language, Indian or Foreign, cannot offer that Language as a Second Language.

### **Medium of Instruction**

The medium of instruction in schools must be English. Special importance must be given to English (including oral and aural English, for which a high standard is required to be maintained

### **School Year**

The beginning of the academic year in Schools affiliated to the Council shall be from the middle of March and the first week of June each year. However, the Hill schools may begin the academic year from February each year.

### **Academic Hours**

Schools affiliated to the Council are required to put in, during an academic year, hours of instruction as follows:

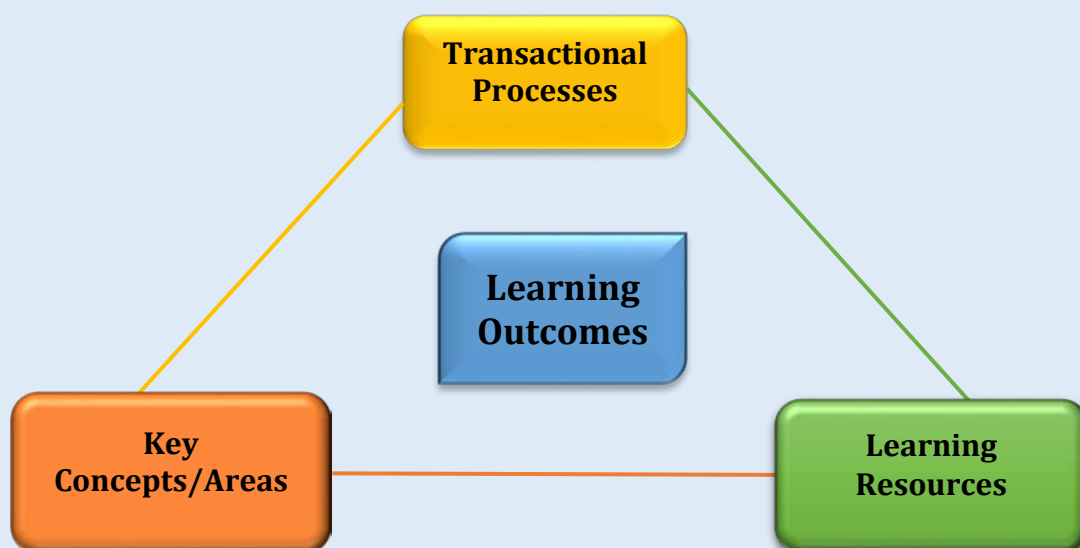
- ☛ For Classes I to V: 900 hours (each class)
- ☛ For Classes VI to VIII: 1000 hours (each class)

### **Textbooks**

The Council does not prescribe textbooks for Preschool – Class VIII. Schools, therefore, are free to choose the books, which they find suitable for the purpose of competent teaching and efficient learning. The Council reserves the right to declare a particular book or books unsuitable for use in Schools affiliated to it.

## Presentation of the Curriculum in the document

The subject areas in the curriculum have been organised in a matrix format. Each subject follows a theme based approach. For each theme, Learning Outcomes have been identified. These have been given in the beginning, after each theme description.



In order to attain these Learning Outcomes, necessary components of teaching learning processes i.e. Key Concepts/ Areas, Transactional Processes and Learning Resources have been discussed in the matrix for each theme as given below:

Key Concepts/ Areas	Suggested Transactional Processes	Suggested Learning Resources

Each theme has been dealt with as follows:

- ➔ **Introduction to the theme:** Each theme begins with a brief introduction about the key concepts to be covered under the theme.
- ➔ **Learning Outcomes:** For each theme/ area, Learning Outcomes have been identified, which cover various aspects of the child's behaviour, i.e. knowledge, comprehension, skills and dispositions (attitudes, values). These have been given in the beginning, after each theme description.

- ➔ **Key Concepts/ Areas:** The key concepts/areas have been identified theme-wise. The concepts may be repeated as children learn in a spiral manner and therefore, the extent and depth of content increases progressively as the grades/ classes go up.
- ➔ **Suggested Transactional Processes:** The suggested transactional processes are based on the various ways in which children learn and construct their knowledge. These include learning from individual/small/large group activities, learning through observation, discussion, experimentation, classification, project work, written and oral work, etc. The transactional processes are suggestive rather than being prescriptive and can be adapted according to the child's needs and contexts.
- ➔ **Suggested Learning Resources:** Suggested learning resources have been given for each theme/area. The learning resources range from learning materials (concrete objects/used by children, teaching aids/ demonstration material used by the teachers, children's own work - their drawing, worksheets) to activities which provide opportunities for interaction. The learning resources are also suggestive, and can be expanded/ adapted as per children's needs and contexts.
- ➔ **Suggestions for Integration:** Wherever applicable, suggestions for integration have been provided for different themes across various curricular areas. These have been given at the end of each theme. During the teaching learning process, individual teachers may discover may more ways of helping children to see linkages across various curricular areas.
- ➔ **Life Skills:** Life skills have been spelt out theme wise, wherever applicable. Strong emphasis is placed on developing the ability to question, to analyse, to investigate, to think critically, to solve problems, and to interact effectively with others.

## Assessment and Evaluation

In school education, it is a common practice for the terms 'Assessment' and 'Evaluation' to be used interchangeably most of the time. It has also been observed that generally, teachers consider both processes to be external activities, which are to be performed separately after the completion of a lesson/topic/theme/unit in different subjects. Teachers are also seen to be engaged in compiling /recording assessment or evaluation data of children in their class at the cost of *opportunity time* for teaching- learning.

In this curriculum framework, assessment and evaluation are viewed as different processes that are both necessary, important and an integral part of the teaching learning process in all classrooms.

## **Assessment**

Assessment during the teaching learning process is referred to as *Assessment for learning* or formative assessment. This provides teachers and children important information about children's learning gaps, strengths, weaknesses and difficulties so that timely action can be undertaken and corrective measures adopted by teachers. The value of assessment lies in ensuring that the process is continuous, comprehensive and not a one- time affair, so that it helps teachers plan better and in an ongoing manner for improving children's learning, performance and contributing to their holistic all round development. It also implies that the process should focus on collecting information on all aspects of the child's development and not be only subject or text-book based.

The purpose of assessment for learning is to:

- identify strengths, weaknesses /learning gaps and problems faced by children;
- provide timely, corrective teaching - learning inputs to children to ensure their better learning in the future;
- monitor the progress of each child with reference to his/her previous performance so as to develop every child to her/his full potential;
- improve/modify teaching learning practices and methods and use of materials by teachers based on each child's requirement and need;
- monitor children's learning and performance and
- provide data on children's learning to each child/ parents/ school.

### **Tools of Assessment**

Assessment can be undertaken in multiple ways – it may include oral /written forms or teacher's observation or child centred classroom activities such as discussion /dialogue, project work, model making /posters/charts, experimentation, group and individual activities, games /quizzes and maintaining every child's portfolio, etc.

## **Evaluation**

Evaluation is a process of collecting information- evidences regarding progress of the child. It focuses on the actual level attained by a child in a particular class after a certain period of time. It refers to judging the quality of a child's work on the basis of an established set of criteria (learning outcomes) and assigning value (i.e. grade or mark) to represent that quality. Evaluation is thus the process of finding out the extent to which a child has attained what he/she should have within a specified time period and against expected learning outcomes. It is therefore important that it is based on reliable and valid evidences so as to arrive at precise conclusions about children's achievement and performance.

The Council's Curriculum believes, advocates and focuses on each and every child's holistic development and not only his/her attainment/achievement in various subjects. Evaluation should

also not only be based on knowledge/ information based questions, but extend much beyond this. In the curriculum, evaluation is thus to be necessarily viewed as broader and more comprehensive taking into account different aspects of the child's total behaviour i.e. knowledge, skills, interests, attitudes and values. It should therefore not be based only on written work but also include different forms of assessment keeping in view how children learn. These could be apart from written tests /exams based on other tasks such as, project work, experimentation, oral work, aural work, etc. Evaluation should thus provide a more complete picture of a child's accomplishments and should also be based on multiple sources/evidences.





*ENGLISH*



# English



**E**nglish language occupies a central place in the school curriculum because it is the medium for learning. Proficiency in the language is a pre-requisite for effective communication and knowledge acquisition. Language learning does not necessarily take place only in the language classroom. It cuts across the curriculum of different disciplines. English plays an important and integral role in the domains of education, medicine, business and international relations, judiciary, industry, etc. It is central to children's intellectual, social, and emotional growth and all round development.

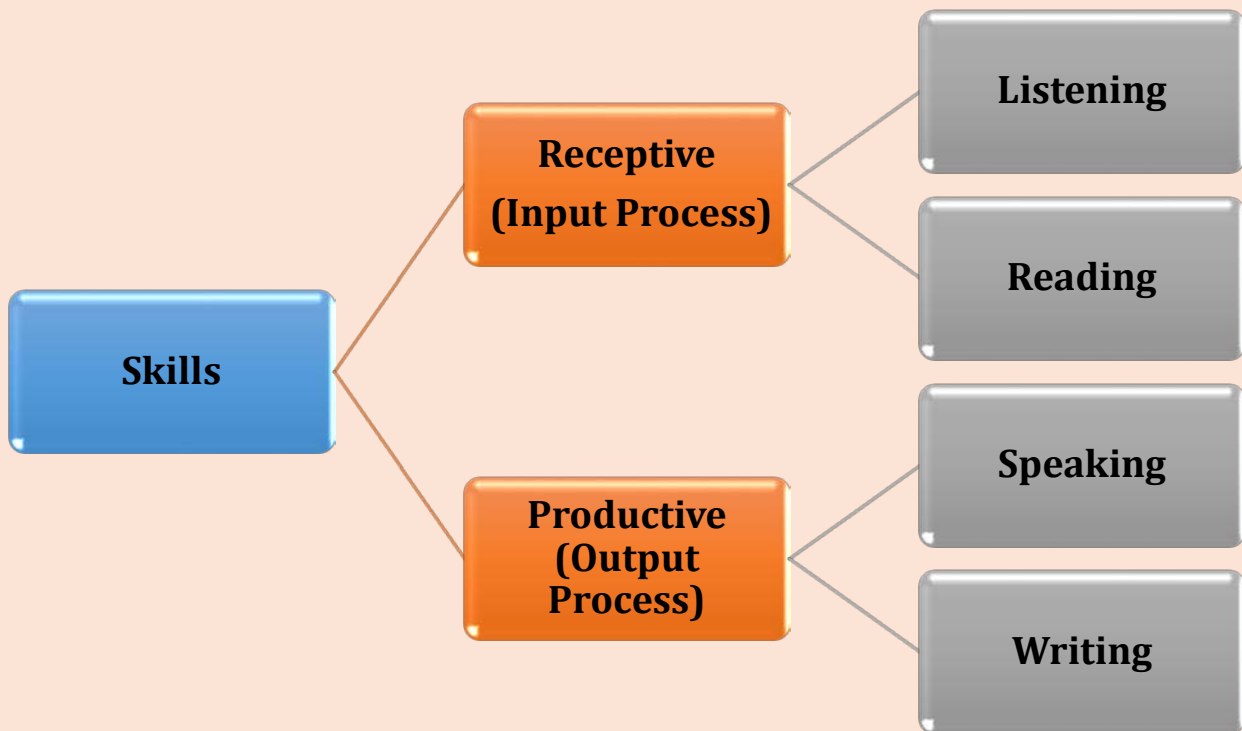
The content of the language curriculum should be broad enough to encompass the needs and interests of children. Classroom activities need to be linked to life outside the classroom. Socio-cultural contexts that encourage children to participate actively in understanding and creating appropriate communicative practices should be promoted through development of linguistic skills. English as a language should be developed progressively through meaningful experiences rather than a mere drill or rote exercise.

Children need to be able to use language to express their feelings, ideas and later to express their opinions based on extensive readings and research. As they gradually become aware of the various purposes for which language is used and the diverse forms it can take, they learn to use language appropriate to context. They also develop an awareness of how language is used in different formal and informal situations. Language is also the basis for thinking, communicating, learning and developing life skills. Children need language skills in order to comprehend ideas and information, interact socially, inquire into areas of interest and study, and express themselves clearly and fluently with confidence

Learning to communicate with clarity and precision, orally, in writing, and through a variety of media, helps children understand the world around them. Through a rich variety of literary, academic, and media related texts, children learn to read and reflect on the world around them and appreciate different worldviews and critically interpret a range of texts. Importantly, through language children can be sensitized to the physical and social environment, life skills and values.

Life skills such as communication skills, critical thinking, sharing, caring, becoming aware of the self, showing concern for others and developing sensitivity to the world around them, should be an inbuilt component of an English Classroom. It is important to nurture these life skills among children by giving them ample opportunities for experiencing such situations. Texts and tasks in the classroom need to have scope for developing the desired life skills as per the topic/theme, which may be linked across the curriculum.

Since language development refers to the skills used in expressing and communicating ideas, it involves the four basic aspects of listening, speaking, reading and writing, which would also inculcate elements of critical thinking.



At the primary level, children’s process of learning gradually and progressively moves from hearing to listening, to speech to reading and finally writing. With progression of time children continue to develop and refine their skills in these aspects of language. The emphasis on the development of skills in a language class is not to be viewed as a mechanical activity devoid of life but as the cornerstone of experience, appreciation and creative expression. Feeling, expression and its application all move together, so when a child acquires proficiency in reading and writing, the door to literary appreciation and creativity is opened.

By the time they reach Class VI, children would have acquired basic proficiency in English language and hence opportunities must be provided to further hone their skills. They need to interact with social media, have diverse exposure and develop independent thinking. Their experiences need to be channelled as creative expressions in the English classroom.

The English language curriculum has been planned to develop language skills. The broad **objectives of language teaching and learning** are:

**(a) To develop listening skills:** Children learn to use verbal and non-verbal cues in a non-linear way to comprehend and draw inferences.

**(b) To develop speaking skills:** Children develop effective communicative skills and are able to engage in meaningful conversation in various situations. They engage in discussions in a logical, analytical, and creative manner.

**(c) To develop reading skills:** Children develop the habit of independent reading and are able to construct meaning by drawing inferences and relating the text to their previous knowledge. They also develop the confidence of reading the text critically and are able to pose questions accordingly.

**(d) To develop writing skills:** Children develop the confidence to express thoughts effortlessly and in an organized manner. They follow the process approach to writing that enables them to write for a variety of purposes and situations, ranging from informal to formal.

To achieve these objectives children are to be provided with an environment to facilitate language learning. This could take shape in the form of textbooks, story books, magazines, newspapers, audio/visual aids, children chosen texts etc. according to the interest, age and cognitive levels of children. All modalities like visual, auditory and kinaesthetic may be used in pedagogical processes. Care must be taken by teachers to provide support to differently abled children in the classroom transactional processes. For example, material in Braille for the sight impaired and sign language devices for hearing impaired children i.e. adopting and adapting the curriculum according to the learning abilities of children with special needs.

Though skills have been outlined and graded, textual material that are used at a school and the time spent at each level may vary. However, we urge teachers to maintain the experiential background of children and ensure the availability of materials. The curriculum provides space to teachers to use their initiative to supplement and substitute matter according to their contexts.

## Guidelines for English language learning:

### Content/ Themes

The language classroom is a place where contemporary concerns and issues can be included as the curriculum ranges from non-literary to literary texts, from local to global covering a wide range of areas like environmental issues, sustainable development, maintenance of resources, concern for animals and plants, human rights, etc. The selection of the materials can draw upon the following and additional themes in an integrated manner:

*Self, family, home, friends, neighbourhood, environment, animals, plants, arts, culture sports, travel, tourism, mass media, science and technology, health and hygiene, peace, life skills etc.*

## Integrating Language Teaching with other Areas



Along with the above themes the choice of texts should also focus on myths, legends, and folktales to develop appreciation for socio-cultural and linguistic heritage. Translated texts from Indian languages and the other languages of the world may be included in classroom teaching to encourage children to experience the rich diversity of language.

**(a) Guiding Principles for English language:**

- ➔ Connecting learning to the outside world.
- ➔ Integrating English with other subjects across the curriculum
- ➔ Adopting multilingualism as a learning resource.
- ➔ Using contexts to develop language as a whole.
- ➔ Making assessment for learning a part of the teaching learning process.
- ➔ Ensuring an active participation of children by using a variety of activities and tasks.

**(b) Suggested Generic Classroom tasks that can be included as classroom procedures (Classes VI to VIII)**

**LISTENING AND SPEAKING**

- Circle time
- Picture/ photograph description, etc.
- Story narration
- Role play, dramatisation, mime
- Elocution/ Recitation - Singly and in a group
- Intra-class debates
- Group discussions on specified topics.
- Dramatisation of poems/ prose
- Music– to be used to teach poetry, speech and drama
- Language Games – Word building, Pictionary, dumb charades, Guess the word etc.
- Build and use a class library
- Puzzles and crosswords, Scrabble
- Project presentations (oral)
- Film and audio clips

**READING AND WRITING**

- Reading – Loud, Group and silent (Literature)
- Word Wall (Literature)
- Vocabulary tree
- Completing a story
- Picture composition
- Poetry writing – limerick, doggerel, haiku, cinquain, Tanka, jingle
- Poster making, slogan and caption writing
- Writing newspaper reports and travel brochures
- Writing advertisements/ posters/ notices
- Recording a process (How I taught someone to cook/ read/ cycle/ swim, etc.)
- Maintaining a diary/ journal/ log book

- Book Talk, book review (Literature)
- Film review
- Restaurant review
- Illustrations of characters from texts (Literature)
- Comprehension – Seen text (Literature) and Unseen text.
- Comprehension of poems - seen (Literature) and unseen.
- Music to be used as a stimulus for aural comprehension.
- Comprehension/ literature questions must allow scope for
  - (i) inference,
  - (ii) personal response. Dissenting voices must be encouraged.
- Spell Check
- Pictogram
- Word search
- Spot the differences, unscramble the scrambled words
- Mind mapping
- Word Games
- Contributions to School magazine / Newsletter / Soft boards / Newspaper

### VOCABULARY AND GRAMMAR IN CONTEXT

- Grammar activities in context
- Worksheets to consolidate grammatical concepts in context.
- Use of internet as a resource

### CREATIVE WRITING

**It is recommended that children write 10 - 12 written assignments / tasks in an academic year.**

- The stimuli could be a picture, object/s or a set of words.
- Picture compositions must be conducted at all levels. The Picture should be in colour and depict a story having a human interest appropriate to the class level. Each child should have access to the picture.
- All writing exercises must begin with a class level conversation and words arising from the discussion must be noted on the blackboard (The words may be suggested by children). This scaffolding as pre-teaching helps children undertake their written tasks independently.
- Argumentative essays to be introduced in Class VIII, on issues that the children can identify with (e.g. “School Uniforms must be abolished”, “Homework must be made compulsory”).
- Classes VI & VII to write informal letters. **Topics for letters should be within the range of children’s experiences (example- letters to Parent, friends, relatives, neighbours etc.).**
- Formal letters to be introduced in Class VIII. **Topics for letters should be within the range of children’s’ experiences (example- letters to Principal, Teacher, Editor, Librarian, community function, etc.).**



## Listening and Speaking

Listening at this stage is crucial so that children listen carefully to views put forward, reflect on them, and respond accordingly. They listen to a range of texts with comprehension. From this stage onwards listening to radio, film, television and other media occupy a major space. Appreciation of non-verbal clues are also developed. While speaking children express themselves with confidence that reflects a sense of persuasiveness and interpretation.

### Learning Outcomes:

Children will be able to:

- ✓ **understand and answer** a variety of questions on a given passage for aural/written comprehension;
- ✓ **comprehend** issues/topics raised in spoken texts (public address, guest speaker, televised interview, social media/internet videos) and ask for clarification or elaboration of ideas;
- ✓ **participate** in group discussions as leader or facilitator, enhancing the levels of discussion by asking probing/ reflective questions;
- ✓ use class-level appropriate vocabulary to express their point of view;
- ✓ **apply** their understanding from the use of multi-media to make presentations adding perspective to texts/issues. (the use of visual aids is accompanied by a commentary citing sources of information or diverse points of view);
- ✓ **develop** a sense of confidence and self-control while making presentations or challenging a stated opinion;
- ✓ **evaluate** and respond to opposing points of view logically using appropriate language and physical gestures;
- ✓ **develop** the ability to analyse, interpret and evaluate the use of language in different contexts (newspapers, television, billboards and advertising campaigns).
- ✓ **adapt** speech to a variety of contexts and tasks;
- ✓ **accustom** language as appropriate to the purpose: to persuade, explain/provide information, or express an opinion;
- ✓ **include multimedia components** (e.g., graphics, images, music, sound) and visual displays in presentations;
- ✓ **interpret information presented in diverse media and formats** (e.g., visually, quantitatively, orally) and explain how it contributes to a topic, text, or issue under study.

## Listening and Speaking

Suggested areas/Content	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>▷ Listen to a range of texts such as story, poems, narratives, lecture etc. for aural/written comprehension.</li> <li>▷ Listen and comprehend issues/topics raised in spoken texts (public address, guest speaker,</li> </ul>	<ul style="list-style-type: none"> <li>▷ Reviewing and building on previous learning</li> <li>▷ Reading aloud/ playing audio recordings of poems, narratives, anecdotes, dialogues, etc. and asking children to identify the main aspects (e.g. listen to the story and talk about the main character)</li> </ul>	<ul style="list-style-type: none"> <li>▷ Online resources including /audio/video clips/cartoons /poems/narratives / autobiographies /biographies/ famous speeches, debates, drama etc.</li> </ul>

## Listening and Speaking

Suggested areas/Content	Suggested Transactional Processes	Suggested Learning Resources
<p>televised interview, Social media/internet videos) and asks for clarification or elaboration of ideas.</p> <ul style="list-style-type: none"> <li>➤ Group discussions, debates, speech, drama, presentations etc.</li> <li>➤ (use of graphics, images, music, sound and visual displays in presentations.)</li> <li>➤ Analyse and evaluate the use of language in different contexts (newspapers, television, billboards and advertising campaigns) and its interpretation.</li> <li>➤ Adapt speech to a variety of contexts and tasks e.g.               <ul style="list-style-type: none"> <li>☛ <i>tone</i></li> <li>☛ <i>gestures</i></li> <li>☛ <i>stress</i></li> <li>☛ <i>facial expressions</i></li> <li>☛ <i>body language</i></li> <li>☛ <i>voice modulation</i></li> </ul> </li> <li>➤ Dictation of Chunks of language.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Providing issue based texts/ topics across the curriculum and encouraging children to have discussions on it. e.g. What is understood by “Gender Equality”?</li> <li>➤ Creating opportunities to lead/ facilitate group discussions etc.</li> <li>➤ Creating situations that require the learner to note down main ideas/ points based on text that is read out/ speech that is delivered.</li> <li>➤ Providing chances for children to express their personal opinion/ views through activities such as role-play (assigning specific roles/ perspectives from which to approach the topic under discussion. E.g. ‘No Home work for students’ – to be discussed from the point of view of the Principal/ teacher/ School leaders/ Students etc.).</li> <li>➤ Encouraging children to use multi-media clips and inputs along with commentary to add depth and perspective to class presentations.</li> <li>➤ Creating opportunities and situations for children to listen to, respond and question/ challenge others’ views in a well-reasoned/ logical and polite manner.</li> <li>➤ Creating opportunities to question/ challenge claims made by an author and put forward an alternate view through class room discussions and debates.</li> <li>➤ Ensuring that children have ample opportunities to speak/debate/ express their opinions and thoughts in the class.</li> <li>➤ Encouraging the children to observe and emulate the body language/ intonation/ clarity etc. of effective speakers.</li> <li>➤ Giving dictation on chunks of language.</li> </ul> <p><b>NOTE:</b> <i>The examples given above are intended merely as guidelines. The teachers are welcome to be as</i></p>	<ul style="list-style-type: none"> <li>➤ Posters/Models/ advertisements/ Charts etc.</li> </ul>

## Listening and Speaking

Suggested areas/Content	Suggested Transactional Processes	Suggested Learning Resources
	<p><i>innovative as the classroom situation allows.</i></p> <p><i>The activities / tasks suggested above are not necessarily restricted to listening and speaking. As the language teacher is well aware, all four language skills are inter-related and often overlap.</i></p>	

**NOTE:** Recitation should form an integral part of the school class-table and may be evaluated and included for Internal Assessment.

## Reading

Children develop extensive and intensive reading skills that involve a variety of texts. They discuss and express their views based on their reading via their speaking/ writing.

### Learning Outcomes:

Children will be able to:

- ☑ understand the text, draw conclusions and make inferences;
- ☑ **comprehend the** central idea of a text and how it is conveyed through particular details including how characters in a story or drama, respond to challenges or how the speaker in a poem reflects upon a topic;
- ☑ **understand and appreciate the narrative and poetic structures** to comprehend and predict outcomes;
- ☑ **identify the salient points in the text** as distinct from personal opinions or judgments;
- ☑ **determine the meaning of words and phrases as they are used in a text**, including figurative and connotative meanings;
- ☑ read and **comprehend literature**, including stories, dramas, poems, travelogues, autobiographies, reports, speeches, articles, features, etc (graded reading).

Reading		
Suggested areas/Content	Suggested Transactional Processes	Suggested Learning Resources
<p>▷ Texts (Literary and Non-literary) covering different themes and registers for comprehension and inference. The themes may include:</p> <ul style="list-style-type: none"> <li>☛ <i>Self, Family, Home, Friends,</i></li> <li>☛ <i>Neighbourhood and Community at large</i></li> <li>☛ <i>The Nation – diversity (socio-cultural, religious and ethnic, as well as linguistic), heritage</i></li> <li>☛ <i>Myths/legends/ folktales)</i></li> <li>☛ <i>The World – India's neighbours and other countries (their cultures, literature and customs)</i></li> <li>☛ <i>Adventure, Imagination and creativity</i></li> <li>☛ <i>Sports and Yoga</i></li> <li>☛ <i>Issues relating to Adolescence</i></li> <li>☛ <i>Science and Technology</i></li> </ul>	<p>▷ Reviewing and building on previous learning</p> <p>▷ Introducing different types of seen and unseen texts such as prose, poetry, drama to enhance the learner's understanding and appreciation of different forms of literature.</p> <p>▷ Providing opportunities for the learner to read, evaluate and objectively sum up the ideas expressed in the passage.</p> <p>▷ Providing a range of texts to facilitate appropriate interpretation of mood/ tone/ use of figurative language/imagery etc.</p> <p>▷ Encouraging children to raise questions based on their personal reading.</p> <p>▷ Discussing concepts such as rhyme, rhythm, metre, imagery, metaphors, simile etc. in a poem.</p>	<p>▷ Self / teacher created materials (audio-video)</p> <p>▷ Magazines, newspapers</p> <p>▷ Activities for relating ideas of the text with their lives.</p> <p>▷ Text types: Very short stories, poems and songs, texts with visuals, etc. Age appropriate magazines, newspapers, picture books, story books etc. for reading and connecting it to their own experiences.</p> <p>▷ Realia/ Flashcards/ Posters/ puppets/ Charts etc. to stimulate language.</p> <p>▷ Group/ pair work</p> <p>▷ Build a class library</p>

- ☛ *Peace and Harmony*
- ☛ *Travel and Tourism*
- ☛ *Mass Media*
- ☛ *Art and Culture*
- ☛ *Health and Reproductive health*
- ☛ *experience of children,*
- ☛ *Personalities & achievers,*
- ☛ *Environmental concerns – water conservation, cleanliness and sanitation, Safety –personal safety & awareness about child abuse, conservation energy*

▶ Extensive and intensive reading of the texts

## Writing

Children write independently following the process approach to writing. They write with a sense of audience and follow the rules of the mechanics of writing.

### Learning Outcomes:

Children will be able to:

- ☑ write real or imagined experiences or events using relevant descriptive details, and well-structured sentences and sequence;
- ☑ **write arguments** to support ideas with clear reasons and relevant evidence;
- ☑ produce clear and **coherent writing keeping in view** the organization and style that are appropriate to task, purpose, and audience;
- ☑ **collect relevant information** from multiple print and digital sources; collates the data;
- ☑ **use precise and descriptive vocabulary** to create tone and voice and varied sentence structure;
- ☑ **follow process approach to writing by planning, revising, editing, rewriting;**
- ☑ write at least three paragraphs of about 200 words at a more advanced level on any given topic;
- ☑ write narratives that recount a well-elaborated event or short sequence of events; include details to describe actions, thoughts, and feelings;
- ☑ **organise and structure** meaningful sentences in a sequential manner;
- ☑ make correct use of linkers such as 'firstly', 'then', 'later', 'finally', etc. to link sentences to indicate passage of time and provide a sense of closure;
- ☑ draw from personal experiences or real life situations;
- ☑ **demonstrate** the ability to use words and phrases to the grade appropriate level, including those that convey emotions, actions, etc.;
- ☑ write basic notices/ messages/letters.

Writing		
Suggested areas/Content	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Simple messages, invitations, short paragraphs, letters (formal and informal) applications,</li> <li>➤ Short compositions based on pictures</li> <li>➤ simple narrative and descriptive pieces, etc.</li> <li>➤ Creative writing: stories, poems, dialogues, etc.</li> <li>➤ organise and structure thoughts in writing.</li> <li>➤ Organise and structure meaningful sentences in a sequential manner.</li> <li>➤ use of linkers such as 'firstly', 'then', 'later', 'finally', etc. to link</li> </ul>	<ul style="list-style-type: none"> <li>➤ Reviewing and building on previous learning</li> <li>➤ Creating situations/context to write letters /narratives/ First Person accounts/ imaginative accounts/ e-mails/ etc.</li> <li>➤ Providing rubric / checklists to revise and edit written material</li> <li>➤ Facilitating team work and collaborative activity through assignments and projects that require children to work in groups and produce written assignments.</li> <li>➤ Providing opportunities to write on a specific topic to produce a well sequenced, cohesive piece of writing</li> </ul>	<ul style="list-style-type: none"> <li>➤ Age appropriate worksheets / activities / Flashcards/ Posters/ puppets/ Charts etc. to stimulate language.</li> <li>➤ Group/ pair work</li> <li>➤ Newspaper/ magazines/ articles/ pictures/ advertisement etc.</li> </ul>

sentences to indicate passage of time and provide a sense of closure.

- ▶ Age appropriate use of words and phrases
- ▶ Follow process approach to writing i.e. planning, revising, reviewing, editing, rewriting.

making appropriate use of linkers, grade appropriate vocabulary and register.

- ▶ Providing stimuli either through a picture, object/s or a set of words.
- ▶ Introducing all composition exercises as a whole class activity.
- ▶ Helping develop relevant vocabulary for the topic via discussion, brain storming and conversation.
- ▶ Creating situations for children to write notices for the class e.g. (information about an excursion, loss of pencil box etc.)
- ▶ Providing topics for letter writing appropriate to the level, interest, age of children, their experiences (example- letters to Parent, friends, relatives, community etc.).

*Providing Topics for the letters from the children' context such as letters to Parent, friends, family, relatives, community, etc.).*

## Grammar and Vocabulary in Context

Children use context to understand and develop vocabulary and grammar. They use basic grammar appropriately while speaking and writing.

### Learning Outcomes:

Children will be able to:

- ☑ **use English according to the basic** conventions of English grammar and usage when writing or speaking;
- ☑ **use** pronouns in the proper case and reflexive pronouns appropriately;
- ☑ **recognise correct and** incorrect / inappropriate shifts in pronoun number and person;
- ☑ **follow the basic conventions of English language** when writing, speaking, reading, or listening using varied sentence patterns for meaning, reader/listener interest, and style;
- ☑ **use context as a clue** to the meaning of a word or phrase;
- ☑ **use** common, grade-appropriate affixes and roots as clues to the meaning of a word;
- ☑ **consult reference materials**, both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning or part of speech;
- ☑ interpret figures of speech in context;
- ☑ **use subject-verb** agreement with intervening phrases and clauses;
- ☑ **learn the use of and the difference** between transitive and intransitive verbs;
- ☑ **use pronoun - antecedent** agreement to include indefinite pronouns;
- ☑ **follow consistent** tense inflections across paragraphs;
- ☑ use the **correct spelling** for frequently used words;
- ☑ form and use perfect verb tenses to convey time, sequence, state, and condition.
- ☑ recognise correct and inappropriate shifts in verb tense.

## Grammar and Vocabulary in Context

Suggested areas/Content	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Pronouns in the proper case, reflexive pronouns, pronoun number and person, pronoun - antecedent agreement to include indefinite pronouns.</li> <li>➤ Subject-verb agreement with intervening phrases and clauses.</li> <li>➤ Transitive and intransitive verbs.</li> <li>➤ Tenses to convey time, sequence, state, and condition.</li> <li>➤ Recognition of correct and incorrect /inappropriate</li> </ul>	<ul style="list-style-type: none"> <li>➤ Reviewing and building on previous learning.</li> <li>➤ Providing examples of grammar in context to make children understand its various aspects that include a focus on the use of pronouns, reflexive pronouns, phrases, clauses, transitive and intransitive verb etc.</li> <li>➤ Creating activities / tasks for children to use grammar in context/ identify and use figurative language (e.g. irony, pun, personification, alliteration, metaphor, simile, assonance, onomatopoeia).</li> <li>➤ Providing worksheets/ contexts to use tenses showing/using time line.</li> <li>➤ Providing audio - visual aids and verbal clues to reinforce the use of grammar</li> </ul>	<ul style="list-style-type: none"> <li>➤ Self / teacher created materials e.g. worksheets, activities on grammar in context.</li> <li>➤ Audio, video, print / text</li> <li>➤ Authentic tasks and activities of short duration which would bring in an engagement with                             <ul style="list-style-type: none"> <li>👉 words,</li> <li>👉 word chunks,</li> <li>👉 formulaic use</li> <li>👉 collocations</li> <li>👉 expressions in dialogue.</li> <li>👉 Word / Language games.</li> </ul> </li> </ul>



shifts in verb tense.

- ▶ Vocabulary in context as a clue to the meaning of a word or phrase.
- ▶ Age-appropriate affixes and roots as clues to the meaning of a word.
- ▶ Dictionary and reference materials, print, digital and tactile, to find the pronunciation of a word or determine or clarify its precise meaning or its part of speech.
- ▶ Figures of speech in context.

and develop language skills.

- ▶ Providing a variety of contexts for children to use language in speech and writing.
- ▶ Encouraging children to refer to dictionaries (print, digital and tactile) to understand the meaning, pronunciation, different uses of the word etc.

▶ Vocabulary in context

- ▶ Realia / Flashcards/ Posters / puppets/ Charts etc. to stimulate language.

## Listening and Speaking

Listen to different text across the curriculum, discourses (verbal & nonverbal) through various media and respond accordingly. Speak on a wide range of topics / situations both in school and outside.

### Learning Outcomes:

Children will be able to:

- ✔ **listen** keenly, answer accurately and respond with appreciation to a variety of questions on a text (seen and unseen) for aural/ written comprehension;
- ✔ **participate** in group discussions taking on the role of leader, facilitator, or listener, with the ability to critique;
- ✔ **collate** ideas and seeks clarification to keep discussions relevant;
- ✔ **apply** strategies for making listening effective in the classroom;
- ✔ **record** / recollect the understanding of the flow of ideas by taking notes;
- ✔ compile information/ share ideas in texts, discussions, and uses class-level vocabulary to make a presentation;
- ✔ **display** analytical and persuasive skills through debates and discourse on contemporary issues or current affairs;
- ✔ use/ apply multi-media to make presentations on issues and social messages;
- ✔ **develop** techniques of becoming an effective speaker with the right modulation of voice, physical gestures, choice of words, informal/technical language.

## Listening and Speaking

Suggested areas/Content	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>▷ Listen to a variety of texts from different genres and registers such as story, poems, narratives, lecture, speech, dialogue etc for aural/written comprehension.</li> <li>▷ Listen and comprehend issues/topics raised in spoken texts e.g.                             <ul style="list-style-type: none"> <li>☛ <i>speech</i></li> <li>☛ <i>lecture</i></li> <li>☛ <i>discourse</i></li> <li>☛ <i>debate</i></li> <li>☛ <i>discussion</i></li> <li>☛ <i>Group discussions,</i></li> </ul> </li> <li>▷ Use of graphics, images, music, sound and visual displays in presentations.</li> <li>▷ Analyse and evaluate use of language in different contexts (newspapers,</li> </ul>	<ul style="list-style-type: none"> <li>▷ Reviewing and building on previous learning</li> <li>▷ Reading aloud/ playing audio recordings of poems, narratives, anecdotes, etc. and asking them to identify the main ideas (E.g. listen to an autobiography read aloud and create your own.)</li> <li>▷ Providing issue based texts/ topics and encouraging children to have discussion on it. E.g. Child rights and privileges / Global warming</li> <li>▷ Creating opportunities to lead/ facilitate group discussions etc.</li> <li>▷ Creating situations that require children to identify the main ideas/ points based on text that is read out/ speech that is delivered.</li> <li>▷ Providing opportunities for children to express their personal opinion/ views through activities such as role-play (assigning specific roles/ perspectives</li> </ul>	<ul style="list-style-type: none"> <li>▷ Listening to authentic themes / situations based on:                             <ul style="list-style-type: none"> <li>☛ <i>poetry, songs, stories etc.</i></li> <li>☛ <i>in contexts, (e.g. at the post office, at the railway station)</i></li> <li>☛ <i>speech, conversation, lecture.</i></li> <li>☛ <i>Group Discussion</i></li> <li>☛ <i>Role play, dramatization etc.</i></li> <li>☛ <i>Decoding difficult sounds (Pronunciation)</i></li> </ul> </li> <li>▷ Use audio / video programmes (5 – 20 minutes' duration)</li> <li>▷ Posters/ Models/ advertisements/ Charts etc.</li> <li>▷ Articles, current affairs etc. from magazines,</li> </ul>

## Listening and Speaking

Suggested areas/Content	Suggested Transactional Processes	Suggested Learning Resources
<p>television, billboards and advertising campaigns) and its interpretation.</p> <p>➤ Speak in a variety of contexts and tasks e.g.</p> <ul style="list-style-type: none"> <li>☛ <i>tone</i></li> <li>☛ <i>gestures</i></li> <li>☛ <i>stress</i></li> <li>☛ <i>facial expressions</i></li> <li>☛ <i>body language</i></li> <li>☛ <i>voice modulation</i></li> <li>☛ <i>choice of words</i></li> </ul> <p>➤ Collect and collate ideas and seeks clarification to keep discussions relevant.</p> <p>➤ Use multi-media to make presentations on issues and social messages.</p>	<p>from which to approach the topic under discussion. E.g. 'Why do we need rules in school' – to be discussed from the point of view of the Principal/ teacher/ School leaders/ Students etc.).</p> <p>➤ Introducing texts in different areas and focusing on developing positive attitudes, values and life skills.</p> <p>➤ Encouraging children to use multi-media clips and inputs along with commentary to add depth and perspective to class presentations.</p> <p>➤ Creating opportunities and situations for children to listen, respond and question/ challenge others' views in a well-reasoned/ logical and polite manner.</p> <p>➤ Creating opportunities to question / challenge claims made by an author and put forward alternate views through class room discussions and debates.</p> <p>➤ Ensuring children have ample opportunities to speak/debate/ express their opinions and thoughts in the class.</p> <p>➤ Encouraging children to observe and emulate the body language/ intonation/ clarity etc. of effective speakers.</p> <p>➤ <i>NOTE: The examples given above are intended merely as guidelines. The teachers are welcome to be as innovative as the classroom situation allows.</i></p> <p>➤ <i>The activities suggested above are not necessarily restricted to listening and speaking. As the language teacher is well aware, all four language skills are inter-related and often overlap.</i></p>	<p>newspapers focusing on drug abuse, discrimination etc.</p>

**NOTE:** Recitation should form an integral part of the school class-table and may be evaluated and included for Internal Assessment.

## Reading

**Children read, analyse and evaluate a range of texts (seen /unseen) and raise questions on pertinent issues and themes.**

### Learning Outcomes:

Children will be able to:

- ✔ **read, comprehend and analyse** literary/ non-literary texts, cull out salient points of what the writer states with textual evidence to support claims;
- ✔ **identify** central ideas in a text and **evaluate** the connections with less important issues dealt with in the text, collate those into an objective summary without personal opinion/judgment;
- ✔ **comment** on the choice of vocabulary/figurative language and tone/mood used in the text;
- ✔ **deconstruct** the textual piece into sections to enhance understanding of the structure used by author;
- ✔ **question** views expressed by authors and suggests an alternative argument.

<b>Reading</b>		
<b>Suggested areas/Content</b>	<b>Suggested Transactional Processes</b>	<b>Suggested Learning Resources</b>
<ul style="list-style-type: none"> <li>▷ Literary/ non-literary texts on a wide range of themes covering different genres and registers. The themes may include:                             <ul style="list-style-type: none"> <li>☛ <i>Self, Family, Home, Friends and Pets</i></li> <li>☛ <i>Neighbourhood and Community at large</i></li> <li>☛ <i>The Nation – diversity (socio-cultural, religious and ethnic, as well as linguistic heritage)</i></li> <li>☛ <i>Myths/legends/folktales</i></li> <li>☛ <i>The World – India's neighbours and other countries (their cultures, literature and customs)</i></li> <li>☛ <i>Adventure and Imagination</i></li> <li>☛ <i>Sports and Yoga</i></li> <li>☛ <i>Issues relating to Adolescence (drugs, values, life skills)</i></li> <li>☛ <i>Science and Technology</i></li> <li>☛ <i>Peace and Harmony</i></li> <li>☛ <i>Travel and Tourism</i></li> <li>☛ <i>Mass Media</i></li> <li>☛ <i>Art and Culture</i></li> <li>☛ <i>Health and Reproductive health</i></li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▷ Reviewing and building on previous learning</li> <li>▷ Introducing different types of texts such as prose, poetry, drama, travelogue, feature, autobiography, speech, article, etc. for comprehension and appreciation of different forms of literature.</li> <li>▷ Providing opportunities for the learner to read, evaluate and objectively sum up the ideas expressed in the passage.</li> <li>▷ Providing a range of texts to facilitate appropriate interpretation of mood / tone / use of figurative language / imagery etc.</li> <li>▷ Encouraging children to raise questions based on their reading.</li> </ul>	<ul style="list-style-type: none"> <li>▷ Activities for relating ideas of the text with their lives.</li> <li>▷ Text types: Very short stories, poems and songs, texts with visuals, etc. Age appropriate magazines, newspapers, picture books, story books / tactile material etc. for reading and connect it to their own experiences.</li> <li>▷ Realia / Flashcards / Posters / puppets / Charts etc. to stimulate language.</li> <li>▷ Group/ pair work</li> <li>▷ Build a class library</li> </ul>

## Reading

Suggested areas/Content	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"><li>♥ <i>Famous Personalities &amp; achievers,</i></li><li>♥ <i>Environmental concerns – water conservation, cleanliness and sanitation, Safety –personal safety &amp; awareness about child abuse, conservation of energy, Sustainable development</i></li><li>▷ Extensive and intensive reading of the texts for comprehension, inference etc.</li><li>▷ Focus on choice of vocabulary/figurative language and tone/mood used in the text.</li><li>▷ Deconstruct the textual piece to enhance understanding of the structure used by author.</li></ul>		

## Writing

Children develop a diverse and creative style of writing. They express themselves through stories, poems and anecdotal records, narratives, etc.

### Learning Outcomes:

Children will be able to:

- ☑ **develop** different styles of writing with focus on adjusting to the task, purpose and audience;
- ☑ **analyse** relevant ideas/ concepts; selects appropriate introductory strategies, develops logical arguments, give examples and use appropriate quotations to support arguments;
- ☑ **connect** relevant ideas and formulates appropriate conclusions;
- ☑ **focus** on the use of grade appropriate vocabulary, using precise phrases, sensory language to make the writing vivid and vibrant;
- ☑ **work** on small projects individually and in groups to provide opportunities for collaborative work and help foster greater interaction among students;
- ☑ **develop** age appropriate skills of writing on a range of disciplines;
- ☑ **apply** technology as a resource to enhance research work.

### Creative writing

- ☑ **write a composition** (three or more paragraphs) of about 200 - 250 words at a more advanced level on any given topic;
- ☑ **write a short story, poem, dialogues** based on inputs provided in the class or through personal experience;
- ☑ **write narratives** that recount a well-elaborated event or short sequence of events; include details to describe actions, thoughts, and feelings;
- ☑ write notices for school, prepares posters etc.;
- ☑ **organise and structure** meaningful sentences in a sequential manner;
- ☑ **use linkers such as however, therefore etc.** to link sentences to indicate flow of ideas;
- ☑ draw from personal experiences or real life situations;
- ☑ prepare posters/ notices/ messages /informal letter/ invitation/ greetings etc.

## Writing

Suggested areas/Content	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Write messages, invitations, short paragraphs, letters (formal and informal) applications,</li> <li>➤ Simple narrative and descriptive pieces, etc.</li> <li>➤ Creative writing: stories, poems etc.</li> <li>➤ Organize and structure thoughts in writing.</li> </ul>	<ul style="list-style-type: none"> <li>Reviewing and building on previous learning</li> <li>➤ Creating situations/contexts to write letters /narratives/ first person accounts/ imaginative accounts/ e-mails/ etc.</li> <li>➤ Providing rubric / checklists to revise and edit written material</li> <li>➤ Discussing concepts such as rhyme, rhythm, metre, imagery, metaphors, simile etc. in a poem.</li> <li>➤ Facilitating team work and</li> </ul>	<ul style="list-style-type: none"> <li>➤ Age appropriate activities / tasks/ Flashcards/ Posters/ Charts etc. to stimulate language.</li> <li>➤ Newspaper/ magazines/ articles/ pictures/ advertisement etc.</li> <li>➤ Group/ pair work</li> </ul>

## Writing

Suggested areas/Content	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>▶ Organise and structure meaningful sentences in a sequential manner.</li> <li>▶ use of linkers such as however, therefore etc. to link sentences to indicate passage of time and provide a sense of closure.</li> <li>▶ Age appropriate use of words and phrases</li> <li>▶ Follow process approach to writing. planning, revising, reviewing editing, rewriting.</li> </ul>	<p>collaborative activity through assignments and projects that require children to work in groups and produce a written assignment.</p> <ul style="list-style-type: none"> <li>▶ Providing opportunities to write on a specific topic to produce a well sequenced, cohesive piece of writing making appropriate use of linkers, grade appropriate vocabulary and register.</li> <li>▶ Creating situations for children to write notices for school e.g. (informing students about debate competition, yoga classes etc.)</li> <li>▶ Providing topics to prepare poster for social / global awareness.</li> <li>▶ Providing Topics for the letters from the children' context such as letters to Parent, friends, family, relatives, neighbours etc.).</li> <li>▶ Creating learning situations for children to be able to write greetings and invitation (e.g. inviting the Head teacher as a judge for class debate.)</li> </ul>	

## Grammar and Vocabulary in Context

Children use a varied range of vocabulary and grammar in context that reflects their complex use of language.

### Learning Outcomes:

Children will be able to:

- ☑ **identify and understand** the difference between phrases and clauses in simple, compound and complex sentences;
- ☑ comprehend the difference in the function of an active and a passive voice. **demonstrate** the ability to transform from one voice to the other;
- ☑ **identify and classify synonym**, antonym and analogy in the right context;
- ☑ **demonstrate** a further understanding of figurative language, (e.g. irony, pun, personification, alliteration, metaphor, simile, assonance, onomatopoeia);
- ☑ **identify** connections/relationships; recognises literary allusions and their sources;
- ☑ **acquire** grade-appropriate words and phrases and domain-specific vocabulary to convey comprehension and clear expression;
- ☑ **use** language appropriate to context.

## Grammar and Vocabulary in Context

Suggested areas/Content	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Phrases and clauses in simple, compound and complex sentences.</li> <li>➤ Active and passive voice.</li> <li>➤ synonym, antonym and analogy in the right context.</li> <li>➤ figurative language, (e.g. irony, pun, personification, alliteration, metaphor, simile, assonance, onomatopoeia).</li> <li>➤ Age appropriate words and phrases and domain-specific vocabulary.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Reviewing and building on previous learning</li> <li>➤ Providing examples of grammar in context to make children understand various aspects of grammar such as phrases, clauses, active and passive voice (used in newspaper reporting/ in recording experiments in a science lab etc.)</li> <li>➤ Creating activities/tasks for children to be able to use grammar in context/ identify and use figurative language (e.g. irony, pun, personification, alliteration, metaphor, simile, assonance, onomatopoeia).</li> <li>➤ Providing audio visual aids and verbal clues to reinforce the use of grammar and develop language skills.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Self / teacher created materials e.g. Activities on grammar in context.</li> <li>➤ Audio, video, print / text / tactile form</li> <li>➤ Authentic tasks and activities of short duration which would bring Vocabulary in context in an engagement with                             <ul style="list-style-type: none"> <li>👉 words,</li> <li>👉 word chunks,</li> <li>👉 formulaic use</li> <li>👉 collocations</li> <li>👉 expressions in dialogue.</li> <li>👉 Word / Languages games.</li> </ul> </li> <li>➤ Posters/ puppets/ Charts etc. to stimulate language.</li> </ul>



## Listening and Speaking

**Children listen to an advanced level of academic discourse and prepare notes and summary for further deliberations using multimedia presentations.**

### Learning Outcomes:

Children will be able to:

- ✔ **listen** with interest, answer accurately and respond with an appreciation to a variety of questions in a text (seen and unseen) for aural/ written comprehension;
- ✔ **listen** to a talk /presentation /lecture and prepares notes;
- ✔ **prepare and participate** in class/ school-level discussions (having read/ researched material that is being studied);
- ✔ **engage** effectively in a range of collaborative discussions (group/ teacher-led) on class level texts, topics and issues;
- ✔ Build on others' ideas and express their own views clearly;
- ✔ make a planned oral presentation to a specific audience for an intended purpose;
- ✔ **integrate** multimedia and visual displays into presentations.

<b>Listening and Speaking</b>		
<b>Suggested areas/Content</b>	<b>Suggested Transactional Processes</b>	<b>Suggested Learning Resources</b>
<ul style="list-style-type: none"> <li>▶ Listen to a variety of texts from different genres and registers such as story, poems, narratives, lecture etc. for aural/written comprehension.</li> <li>▶ Listen and comprehend issues/topics raised in spoken texts e.g.                             <ul style="list-style-type: none"> <li>☛ <i>speech</i></li> <li>☛ <i>lecture</i></li> <li>☛ <i>discourse</i></li> <li>☛ <i>debate</i></li> <li>☛ <i>discussion</i></li> <li>☛ <i>Group discussions</i></li> </ul> </li> <li>▶ Use of graphics, images, music, sound and visual displays in presentations.</li> <li>▶ Analyse and evaluate use of language in different contexts (newspapers, television, billboards and advertising campaigns) and its interpretation.</li> <li>▶ Adapts speech to a variety of</li> </ul>	<ul style="list-style-type: none"> <li>▶ Reviewing and building on previous learning.</li> <li>▶ Encouraging children to read extensively and beyond the text as preparation for the class.</li> <li>▶ Creating opportunities for group/ team work and discussions in the class room (e.g. Panel discussion/ debate on topical issues like '<i>It's alright for Teachers and Students to interact on Social Media</i>'</li> <li>▶ Creating opportunities for children to make a presentation to a target audience (e.g. conduct Morning Assembly at school/ deliver a welcome address/ vote of thanks at a school function.</li> <li>▶ <b>NOTE:</b> <i>The examples given above are intended merely as guidelines. The teachers are</i></li> </ul>	<ul style="list-style-type: none"> <li>▶ Audio/video clips/ in series or as per the topic.</li> <li>▶ cartoons /poems/ narratives/autobiographies /biographies/ famous speeches/ songs, lyrics/debates etc.</li> <li>▶ Articles from print and digital media etc.</li> <li>▶ Posters/ Models/ advertisements/ Charts etc.</li> <li>▶ Language games</li> <li>▶ Activities and tasks</li> <li>▶ School magazine/ class news paper</li> <li>▶ School Assemblies and Clubs (Speech and Drama Club/ Quiz Club etc.)</li> </ul>

## Listening and Speaking

Suggested areas/Content	Suggested Transactional Processes	Suggested Learning Resources
<p>contexts and tasks e.g.</p> <ul style="list-style-type: none"> <li>☛ <i>tone</i></li> <li>☛ <i>gestures</i></li> <li>☛ <i>stress</i></li> <li>☛ <i>facial expressions</i></li> <li>☛ <i>body language</i></li> <li>☛ <i>voice modulation</i></li> <li>☛ <i>choice of words</i></li> </ul> <p>➤ Collect and collate ideas and seek clarification to keep discussions relevant.</p> <p>➤ Use multi-media to make presentations on issues and social messages i.e. drug abuse, values, life skills etc.</p>	<p><i>welcome to be as innovative as the class size and situation allows.</i></p> <p>➤ <i>The activities suggested above are not necessarily restricted to listening and speaking. As the language teacher is well aware, all four language skills are inter-related and often overlap.</i></p>	

## Reading

Children read and critically evaluate the text from socio - political and cultural context along with other texts. They explore translated texts including myths, folktales, legends etc.

### Learning Outcomes:

Children will be able to:

- ☑ **identify** the central theme of a given text and trace its development;
- ☑ use text to support argument and point of view about character and plot;
- ☑ **interpret** how particular lines of dialogue/ incidents in a story or drama propel the action or reveal aspects of character;
- ☑ **analyse**/ how differences in the points of view of the characters and the audience or reader create such effects as suspense or humour;
- ☑ **evaluate** the extent to which a filmed/ live production of a story or drama stays faithful to/ departs from the text;
- ☑ **examine** the extent to which a modern work of fiction draws on themes, patterns of events or character types from myths, traditional stories, or religious works;
- ☑ read, and comprehend literature, including stories, prose pieces, dramas and poems at the high end of grades VI to VIII text complexity band independently and proficiently.

<b>Reading</b>		
<b>Suggested areas/Content</b>	<b>Suggested Transactional Processes</b>	<b>Suggested Learning Resources</b>
<ul style="list-style-type: none"> <li>▷ Literary/ non-literary texts on a wide range of themes covering different genres and registers. The themes may include:                             <ul style="list-style-type: none"> <li>☛ <i>Self, Family, Home, Friends etc.</i></li> <li>☛ <i>Neighbourhood and Community.</i></li> <li>☛ <i>The Nation – diversity (socio-cultural, religious and ethnic, as well as linguistic), heritage</i></li> <li>☛ <i>Myths/legends/folktales</i></li> <li>☛ <i>The World – India’s neighbours and other countries (their cultures, literature and customs)</i></li> <li>☛ <i>Adventure and Imagination</i></li> <li>☛ <i>Sports and Yoga</i></li> <li>☛ <i>Issues relating to Adolescence</i></li> <li>☛ <i>Science and Technology</i></li> <li>☛ <i>Peace and Harmony</i></li> <li>☛ <i>Travel and Tourism</i></li> <li>☛ <i>Mass Media</i></li> <li>☛ <i>Art and Culture</i></li> <li>☛ <i>Health and Sanitation.</i></li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▷ Reviewing and building on previous learning</li> <li>▷ Providing texts (different genres and forms) to comprehend, infer and evaluate from various aspects.</li> <li>▷ Encouraging children to identify and use ideas and views drawn from the text to evaluate, support and to present one’s own point of view.</li> <li>▷ Providing texts and creating opportunities for reading and analysing details (e.g. dialogue and incidents) to comprehend the storyline and infer character traits.</li> <li>▷ Introducing children to elements of suspense and</li> </ul>	<ul style="list-style-type: none"> <li>▷ Magazines, newspapers</li> <li>▷ Activities for relating ideas of the text with their lives.</li> <li>▷ Text types: Very short stories, poems and songs, texts with visuals, etc. Age appropriate magazines, newspapers, picture books, story books etc. for reading and connect it to their own experiences.</li> <li>▷ Posters/ Charts etc. to stimulate language.</li> <li>▷ Group/ pair work</li> <li>▷ Build a class library</li> </ul>

- ☛ *Famous Personalities & achievers,*
- ☛ *Environmental concerns – water conservation, cleanliness and sanitation, Safety –personal safety & awareness about child abuse, conservation energy, sustainable development.*

- ▷ Extensive and intensive reading of the texts for comprehension, inference etc.
- ▷ Focus on choice of vocabulary/figurative language and tone/mood used in the text.
- ▷ Deconstruct the textual piece to understand the
  - ▷ central theme
  - ▷ point of view
  - ▷ character
  - ▷ plot
  - ▷ dialogue / incident
  - ▷ structure
  - ▷ suspense
  - ▷ humour
  - ▷ points of view
- ▷ Evaluate and analyse the text from the point of view of its
  - ▷ production
  - ▷ drama
  - ▷ Film content.

humour by reading aloud some examples of such kinds of writing.

- ▷ Facilitating the critical appreciation of books/ films based on books by encouraging children to read and critically appreciate the text as well as watch the film based on the book.
- ▷ Encouraging children to establish links/ make comparisons between themes, characters, patterns of events in modern writing and traditional characters, myths and legends.

## Writing

Children write coherently and logically defend their writings through active research. There is a continuum in their creative writing.

### Learning Outcomes:

Children will be able to:

- ✓ **develop** different styles of writing as per the genre/ form with a sense of audience;
- ✓ relate and connect ideas/ concepts; selects appropriate introductory strategies, develop logical arguments, gives examples and use appropriate quotations to support arguments;
- ✓ **connect** relevant ideas and formulates appropriate conclusions;
- ✓ **focus** on the use of grade appropriate vocabulary, using precise phrases, sensory language to make the writing vivid and vibrant;
- ✓ work on short projects individually and in groups for collaborative work and help foster greater interaction among students;
- ✓ **develop** age appropriate skills of writing across disciplines;
- ✓ use technology as a resource to enhance research work;
- ✓ draw from personal experience or real life situations;
- ✓ take a stand / debate on argumentative topics and logically defend his/her point of view;
- ✓ demonstrate the ability to use words and phrases to the grade appropriate level, including those that convey emotions, actions, etc.

### Creative writing

- ✓ **write** narratives that recount a well-elaborated event or short sequence of events; includes details to describe actions, thoughts, and feelings;
- ✓ **write creative pieces** such as story, poems, travelogues, features, etc.;
- ✓ **prepare** advertisements/posters/ notices etc. on various topics;
- ✓ write formal/informal letters using the prescribed format;
- ✓ **write** four or more paragraphs of about 250 - 300 words at a more advanced level on any given topic;
- ✓ **produce** original compositions (prose/ poetry) that are imaginative/ descriptive/ narrative/ argumentative, anecdotal;
- ✓ Adopt the process approach to writing by planning, writing, revising, editing, and rewriting.

## Reading and Writing

Suggested areas/Content	Suggested Transactional Processes	Suggested Learning Resources
<p>Write a:</p> <ul style="list-style-type: none"> <li>➤ Paragraph (250 -300 words)</li> <li>➤ Letter (formal, informal)</li> <li>➤ Advertisement</li> <li>➤ Diary</li> <li>➤ Journal</li> <li>➤ Notice</li> <li>➤ Poster</li> <li>➤ Articles</li> <li>➤ Report</li> <li>➤ Personal narrative</li> <li>➤ Anecdote</li> <li>➤ Story</li> <li>➤ poem</li> <li>➤ feature</li> <li>➤ dialogues</li> <li>➤ Write across disciplines.</li> <li>➤ Use of technology as a resource to enhance research work.</li> <li>➤ process approach to writing by planning, writing, revising, editing, and rewriting</li> </ul>	<ul style="list-style-type: none"> <li>➤ Reviewing and building on previous learning</li> <li>➤ Providing contexts/ situations from within the range of the learner's experience (example- letters to Principal, Teacher, Editor, Librarian etc.)</li> <li>➤ Creating situations for children to follow the five step process to writing.</li> <li>➤ Facilitating the writing process through class level discussions/or by providing a wide range of writing prompts (including a picture, object/s or a set of words E.g. giving the opening or closing lines of a story and instructing the learner to write an original short story that incorporates the given lines).</li> <li>➤ Creating an environment for children to expand their vocabulary to be utilized in their written compositions. (e.g. through 'word mapping' / brainstorming)</li> <li>➤ Providing opportunities for children to correctly identify the elements of a short story (plot, character, setting etc.) and incorporate them into their own writing styles.</li> <li>➤ Creating opportunities for children to express their own personal opinion/ respond to a debatable topic at class level discussions/ debates (E.g. Imagination, not information is responsible for human progress.) Encouraging children to base their arguments on reason and logic rather than sentiment.</li> <li>➤ Providing rubrics / checklists to revise and edit written material</li> </ul>	<ul style="list-style-type: none"> <li>➤ Age appropriate Tasks/activities / Flashcards/ Posters/ Charts etc. to stimulate language.</li> <li>➤ Newspaper/ magazines/ articles/ pictures/ advertisement etc.</li> <li>➤ Group/ pair work</li> </ul>

## Grammar and Vocabulary in Context

Children develop a rational outlook to the different functions of grammar and use it accordingly in diverse context that may include e- content.

### Learning Outcomes:

Children will be able to:

- ☑ **identify** and understand the difference between phrases and clauses and their function in specific sentences;
- ☑ **analyse** a given sentence and identify the main clause and classify the subordinate clause (s);
- ☑ **transform** sentences from simple to complex /compound sentences;
- ☑ use vocabulary for different registers as per the context;
- ☑ adopt technology including the internet, to produce and present relationships between information and ideas efficiently as well as to interact and collaborate with others;
- ☑ **assess** and acknowledge information from print and digital sources.

## Grammar and Vocabulary in Context

Suggested areas/Content	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Phrases and clauses and their function in specific sentences.</li> <li>➤ Sentenced Analysis:</li> <li>➤ main clause and subordinate clause (s).</li> <li>➤ Sentence transformation from simple to complex /compound sentences.</li> <li>➤ Use phrases, idioms figure of speech in context.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Reviewing and building on previous learning</li> <li>➤ Providing examples of grammar in context to make children understand the various aspects of grammar.</li> <li>➤ Creating tasks and activities for children to use grammar in the related context.</li> <li>➤ Using audio visual aids and verbal clues to reinforce the use of grammar and develop language skills.</li> <li>➤ Providing a variety of contexts for children to be able to use vocabulary in context.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Self / teacher created materials e.g. contextual tasks, activities on grammar in context.</li> <li>➤ Audio, video, print / text / tactile form</li> <li>➤ Authentic tasks and activities of short duration which would bring Vocabulary in context in an engagement with               <ul style="list-style-type: none"> <li>☛ <i>words,</i></li> <li>☛ <i>word chunks,</i></li> <li>☛ <i>formulaic use</i></li> <li>☛ <i>collocations</i></li> <li>☛ <i>expressions in dialogue.</i></li> <li>☛ <i>Word / Languages games.</i></li> </ul> </li> <li>➤ Posters / Charts to stimulate language.</li> <li>➤ Newspapers articles</li> </ul>

## ENGLISH LITERATURE

Literature encompasses both literary and non-literary writings. Literary writing is an expression of life through the medium of language that is aesthetically pleasing. Literature makes us think about ourselves and our society, allows us to enjoy language and beauty. It helps us appreciate life in its myriad colours along with language learning. Children get exposure to rich use of language through carefully structured sentences and words. Different forms of literature such as prose, poetry, and drama use rhyme, rhythm, alliteration, irony, dialogue and a number of other devices that help develop appreciation and language. These forms of literature introduce children to a range of writings such as story, bio/autobiography, letter, poetic drama, different genres of poetry etc. In literary writing, imagination plays the most important role that would help develop creative expression, sensitization to local and global issues. Non-literary texts such as reports, articles etc. provide academic information thereby enriching the repertoire of children.

### Suggested Reading List

#### Classes VI & VII

- Novels by Gerard Durrell
- Malgudi Days - R.K. Narayan
- I am Malala – Malala Yousafzai
- Detective stories – Agatha Christie
- The Lost World – Sir Arthur Conan Doyle
- The Happy Prince and Other Tales – Oscar Wilde
- Animal Farm – George Orwell
- Tuck Everlasting – Natalie Babbitt
- Short Stories (O’ Henry/ Saki/ Leo Tolstoy/Rudyard Kipling/ Guy De Maupassant/Mark Twain/ Oscar Wilde/Jorge Luis Borges/William Faulkner/Anton Chekhov/ Edgar Allen Poe/Franz Kafka/Earnest Hemingway /Flannery O’Connor/James Joyce/Ray Bradbury/Roald Dahl/ Nicolai Gogol and Translations from Indian writers like Tagore, Premchand etc.)
- Something Out of nothing
- Marie Curie and Radium – Carl Killough
- Ignited minds – APJ Kalam
- Graphic Novels: Tin Tin Series/ Asterix series

#### Class VIII

- Lord of the Flies – William Golding
- A Wizard of Earth Sea – Ursula Le Guin
- The Hobbit – J.R.R. Tolkien
- Watership Down – Richard Adams
- To Kill a Mockingbird – Harper Lee
- The Boy in the Striped Pyjamas – John Boyne
- A tale of Two Cities – Charles Dickens
- Les Miserables – Victor Hugo (Abridged)
- Sherlock Holmes – Sir Arthur Conan Doyle
- The Old Man and the Sea – Ernest Hemingway
- The Pearl– John Steinbeck
- P.G. Wodehouse (Jeeves/ Blandings Castle etc.)
- The Ramayana/ Mahabharata – C. Rajagopalachari
- Graphic Novels (e.g. Maus – Art Spiegelman)
- David Copperfield - Charles Dickens

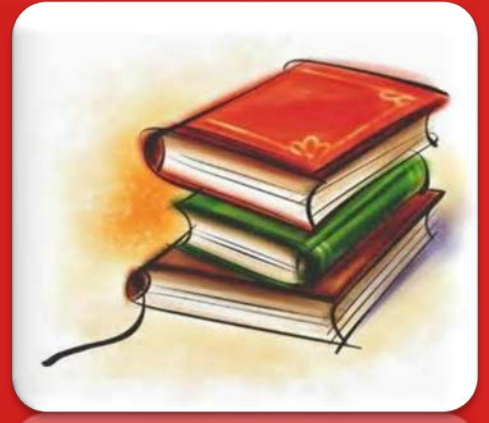
The above list is only recommended reading - Teachers are welcome to exercise flexibility in an age appropriate selection of books that may include traditional and contemporary authors.



*HINDI*



# हिंदी



## परारंभिक स्तर पर हिंदी भाषा अधिगम (द्वितीय भाषा)

किसी भी शिक्षा व्यवस्था में भाषा-शिक्षण का महत्वपूर्ण स्थान होता है। विभिन्न विषयों के सार्थक अधिगम के साथ-साथ बच्चों के वैयक्तिक, संज्ञानात्मक और सामाजिक विकास के लिए भाषा बहुत महत्वपूर्ण होती है। भाषा की शिक्षा बच्चों में मूल्यों का विकास करती है और उनकी स्वाभाविक सृजनात्मकता एवं कल्पना का पोषण करती है। भाषा विकास से बच्चों में स्वतंत्र चिंतन, मत प्रकाशन और घटनाओं के तार्किक विश्लेषण की योग्यता उत्पन्न होती है। भाषा किसी भी बच्चे के पास, किसी भी समय पर, ज्ञान का सबसे समृद्ध स्रोत भी होती है।

भारत एक बहुभाषी देश है जिसमें बहुत-सी क्षेत्रीय भाषाएँ रची-बसी हैं। यँ तो भारत की सभी भाषाएँ समान रूप से महत्वपूर्ण हैं और देश के सभी नागरिकों को उनका सम्मान करना चाहिए, किंतु हिंदी की स्थिति सर्वथा भिन्न है। हिंदी को भारतीय संविधान के अनुसार भारत संघ की राजभाषा का दर्जा दिया गया है। यही नहीं, जनसंचार के माध्यमों समाचार पत्र, सिनेमा, प्रोद्योगिकी, रेडियो, टेलीविजन आदि द्वारा प्रचार-प्रसार से आज हिंदी बड़ी तीव्र गति से संपर्कभाषा के रूप में विकसित हो रही है और देश की सार्वजनिक भाषा बनती जा रही है, अतः प्राथमिक स्तर पर अंग्रेजी भाषा या क्षेत्रीय भाषा के प्रथम भाषा के रूप में सिखाए जाने के साथ-साथ हिंदी भाषा का द्वितीय भाषा के रूप में सिखाना महती आवश्यकता बन गया है। कक्षा एक से ही द्वितीय भाषा के रूप में हिंदी शिक्षण अधिगम प्रारंभ किया जाए ताकि पूरे भारत में परस्पर संवाद और संचार के रास्ते खुलें।

## उच्च प्राथमिक स्तर पर हिंदी (द्वितीय भाषा) शिक्षण-अधिगम के उद्देश्य

उच्च प्राथमिक स्तर पर हिंदी भाषा के शिक्षण-अधिगम का मुख्य केंद्र बिंदु भाषा की विभिन्न दक्षताओं और कौशलों के उत्तरोत्तर विकास एवं संवर्धन के साथ-साथ बच्चों में साहित्य के प्रति रुचि उत्पन्न करना और उन्हें साहित्य के क्षेत्रों से परिचित करना है ताकि वे एक उत्सुक और जिज्ञासु पाठक बनें और उनमें सृजनशीलता का विकास हो।

## कक्षा 6 – 8

उच्च प्राथमिक स्तर पर हिंदी शिक्षण अधिगम के उद्देश्य हैं –

- दैनिक जीवन में हिंदी में समझने-बोलने के साथ-साथ लिखने / सृजनात्मकता का विकास करना।
- विभिन्न संदर्भों में प्रयुक्त होने वाली शब्दावली का विकास करना।
- बाल साहित्य, समाचार पत्र व पत्रिकाओं को पढ़कर समझ जाना और उसका आनंद उठाने की योग्यता का विकास करना।
- औपचारिक विषयों और संदर्भों में बातचीत में भाग ले पाने की क्षमता का विकास करना।

- हिंदी भाषा में अपने अनुभव संसार को लिखकर सहज अभिव्यक्ति की क्षमता विकसित करना ।
- संचार के विभिन्न माध्यमों (प्रिंट और इलेक्ट्रॉनिक) में प्रयुक्त हिंदी के विभिन्न रूपों को समझने की योग्यता का विकास करना ।
- कक्षा में बहुभाषिक, बहुसांस्कृतिक संदर्भों के प्रति संवेदनशील सकारात्मक सोच बनाना ।
- अपनी मातृभाषा और परिवेशगत भाषा को साथ रखकर हिंदी की संरचनाओं की समझ बनाना और मौखिक तथा लिखित अभिव्यक्ति में व्याकरण सम्मत भाषा का प्रयोग करना ।
- साहित्य के विविध रूपों से परिचित होना ।

## हिंदी भाषा के विषय / क्षेत्र

यह पाठ्य चर्या हिंदी भाषा सीखने-सिखाने के 'समग्र भाषा पद्धति' के दृष्टिकोण पर आधारित है। यह पाठ्य चर्या अनुशांसा करती है कि हिंदी शिक्षण अधिगम का दायरा इतना विस्तृत, व्यापक एवं वैविध्यपूर्ण हो कि बच्चे हिंदी के व्यापक और विविध स्वरूप के प्रति गहरी समझ बना सकें।

हिंदी शिक्षण अधिगम केवल भाषा की कक्षा तक ही सीमित नहीं होता। किसी भी विषय को सीखने का मतलब है उसकी अवधारणाओं को सीखना, उसकी शब्दावली को सीखना, उसके बारे में आलोचनात्मक ढंग से चर्चा करना और उसके बारे में लिखना। अतः हिंदी शिक्षण अधिगम एकांगी न हो अपितु अन्य पाठ्य चर्यक विषयों से सह संबंध बनाते हुए भाषा का विकास करने वाला हो। इसके लिए बच्चे भिन्न-भिन्न विषयों की पुस्तकों का अध्ययन करें।

हिंदी कक्षा में समसामयिक विषयों, मुद्दों व सरोकारों जैसे पर्यावरणीय चिंता, संसाधनों का संरक्षण, प्राणी जगत व वनस्पति जगत की सुरक्षा व संरक्षण, मानव अधिकार आदि को पाठ्यचर्या में सम्मिलित किया जाना आवश्यक है। घर-परिवार, मित्र, पड़ोसी, पर्यावरण, पशु-पक्षी, पेड़-पौधे, कलाएँ, खेल, त्योहार आदि कुछ सुझावित विषय हैं जिनसे संबंधित पठन सामग्री उपलब्ध कराई जा सकती है। पाठ्य सामग्री में हिंदी से इतर भाषाओं की हिंदी में अनूदित रचनाओं का भी समावेशन हो जिससे बच्चों को अनुवाद की दुनिया में पाँव पसारती हिंदी के स्वरूप का रसास्वादन करवाया जा सके। पाठ्य-सामग्री बच्चों के मानसिक स्तर रुचियों और अनुभवों के अनुकूल होनी आवश्यक है। इसके अतिरिक्त लोककथाएँ, काल्पनिक व पौराणिक कथाएँ, परी कथाएँ भी पाठ्य सामग्री में समाविष्ट हो ताकि बच्चे देश की सामाजिक – सांस्कृतिक व भाषिक विरासत का आनंद ले सकें।

## अन्य विषयों के साथ भाषा शिक्षण का समन्वय



## मूल्य और जीवन कौशल

- हिंदी शिक्षण में वे तत्त्व अवश्य निहित होने चाहिए जो आवश्यक मूल्यों का पूर्ण रूप से संचार करें। मूल्यों की शिक्षा किसी विषय के रूप में पढ़ाकर या उपदेश देकर नहीं दी जा सकती। बल्कि पठन सामग्री और कक्षा के क्रियाकलाप इस प्रकार नियोजित होने चाहिए कि सच्चाई, ईमानदारी, संवेदनशीलता, सहायता, सहयोग, कल्याण भावना, सेवा, कार्य ही पूजा है जैसे मूल्य निष्पादित हो सकें। उपयुक्त विषयों, कथानकों और जीवनियों पर आधारित सांस्कृतिक कार्यक्रम और नाटकों का आयोजन किया जाए। मानव जाति के साथ-साथ अन्य प्राणियों और प्रकृति की सेवा का दृष्टिकोण विकसित हो जिसके लिए सभी शिक्षकों को अपने व्यवहार से ही आदर्श प्रस्तुत करना होगा।
- शिक्षा का वास्तविक उद्देश्य बच्चों को जीवन की चुनौतियों का सामना करने के लिए तैयार करना है। इसके लिए जरूरी है कि शिक्षा विभिन्न जीवन कौशलों से जुड़ी हो। जीवन कौशल जैसे- समस्या निवारण, आलोचनात्मक सोच, संप्रेषण, आत्म चेतना, तनाव से विचलित न होना, निर्णय लेना और सहानुभूति आदि सफल जीवन जीने तथा एक जिम्मेदार नागरिक बनने के लिए / बहुत ही महत्वपूर्ण हैं। भाषिक खेलों, गतिविधियों और क्रिया कलापों के द्वारा बच्चों को जीवन कौशलों को विकसित करने का अवसर मिलता है।

## शिक्षण अधिगम प्रक्रिया

द्वितीय भाषा के रूप में पढ़ाई जा रही हिंदी भाषा का स्तर पढ़ने और पढ़ाने दोनों ही दृष्टियों से मातृ भाषा सीखने की तुलना में कुछ धीमी गति से चलेगा। यह गति धीरे-धीरे बढ़ सके, इसके लिए शिक्षकों को धैर्यपूर्वक शिक्षण अधिगम प्रक्रिया के कार्यक्रम को नियोजित करना होगा।

- किसी भी द्वितीय भाषा में निपुणता प्राप्त करने-कराने के लिए आवश्यक है कि बच्चों की सहजात भाषिक क्षमता तथा उनके अनुभवों का भरपूर उपयोग किया जाए। बच्चों को स्वतंत्र अभिव्यक्ति के अधिक-से-अधिक अवसर दिए जाएँ। मौखिक भाषिक अभ्यास के लिए परस्पर बातचीत, कहानी सुनना- सुनाना, घटना वर्णन, चित्र वर्णन, संवाद, वाद-विवाद, अभिनय, भाषण, आशुभाषण, कविता पाठ और अंत्याक्षरी जैसी गतिविधियों का सहारा लिया जाए।
- निवेश समृद्ध संप्रेषण का वातावरण भाषा अधिगम की आवश्यक शर्त है। निवेश के अंतर्गत आते हैं – पाठ्य पुस्तकें, बच्चों द्वारा चुने गए पाठ और कक्षा पुस्तकालय जिसमें अनेक विधाओं के लिए जगह हो, मुद्रित सामग्री, मीडिया सामग्री (पत्र-पत्रिकाएँ, समाचार पत्रों के स्तंभ, रेडियो, ऑडियो कैसेट और प्रामाणिक सामग्री)।
- वृत्तचित्रों और फ़ीचर फ़िल्मों को भाषा सीखने की सामग्री के तौर पर प्रयोग करने की आवश्यकता है। इनके माध्यम से भाषा के प्रयोग की विशिष्टता की पहचान कराई जा सकती है और अलग-अलग हिंदी की छटा दिखाई जा सकती है।
- भाषा व्यवहार से सीखी जाती है। शिक्षक स्वयं शब्दकोश, साहित्यकोश और संदर्भ ग्रंथों के प्रयोग का प्रदर्शन करें। इससे बच्चे भी प्रेरित होंगे और अनुमान के आधार पर निकटतम अर्थ तक पहुँचकर ही संतुष्ट नहीं होंगे बल्कि अधिक अर्थ खोजने का प्रयास करेंगे। वे शब्दों के अर्थ में बारीक अंतरों को समझेंगे और उसी के अनुरूप अपनी भाषा में प्रयोग करेंगे।
- चुनौती पूर्ण और विशेष आवश्यकता वाले बच्चों की भाषा-शिक्षण संबंधी आवश्यकताओं को समझकर पाठ्यचर्या अनुकूलन किया जाए। सीखने-सिखाने की प्रक्रियाओं में उनकी सहभागिता को समान रूप से प्रोत्साहित किया जाए।
- कक्षा में हर प्रकार की विभिन्नताओं के प्रति सकारात्मक और संवेदनशील वातावरण निर्मित किया जाए।
- कक्षा में बच्चों द्वारा किए गए प्रयासों को सराहा जाए और उनके रचनात्मक / सृजनात्मक कार्यों को प्रदर्शित किया जाए।

## थीम 1: सुनना और बोलना

छठी कक्षा तक आते-आते बच्चे भाषा के मौखिक रूप को सुनकर भली प्रकार समझने लगते हैं। अभिव्यक्ति की क्षमता भी मुखरित होने लगती है। आवश्यकता पड़ने पर **स्पष्टीकरण माँगते** हैं और विचार व्यक्त करते हैं। चुनौती दिए जाने पर आत्मविश्वास, उचित हाव-भाव एवं **तर्कपूर्ण ढंग से अपनी बात कहते** हैं। अपनी जानकारी बोलकर साझा करते हैं। अवसरानुकूल औपचारिक व अनौपचारिक भाषा का प्रयोग करते हैं तथा बोलने के शिष्टाचार का पालन करते हैं।

### अधिगम उपलब्धियाँ (Learning outcomes):

- ✓ कक्षा, प्रातः सभा आदि में की गई उद्घोषणा टीवी पर प्रसारित चर्चा, संगोष्ठी आदि तथा सोशल मीडिया और इंटरनेट की दृश्य-श्रव्य सामग्री को सुनकर उसका अर्थ ग्रहण कर सकेंगे और आवश्यकता अनुरूप अपनी प्रतिक्रिया प्रकट कर सकेंगे। अपने विचारों को विस्तार दे सकेंगे।
- ✓ कथन में निहित व्यंग्य, हास्य-विनोद आदि भावों को समझ सकेंगे।
- ✓ पढ़ी, सुनी या देखी बातों जैसे – सामाजिक घटनाओं, कार्यक्रमों, मुद्दों, सामाजिक सरोकारों आदि पर **बेझिझक चर्चा कर सकेंगे और प्रश्न कर सकेंगे।**
- ✓ प्रश्नों को समझ कर उनके अनुरूप उत्तर दे सकेंगे।
- ✓ विविध कलाओं, जैसे – हस्तकला, वास्तुकला, नृत्य कला आदि में प्रयुक्त भाषा समझ सकेंगे।
- ✓ कहानी, घटना, प्रसंग, कविता, संस्मरण आदि हाव-भाव के साथ सुना सकेंगे।
- ✓ अपनी आयु अनुरूप शब्दों का प्रयोग करते हुए कहानी को अपनी कल्पना से आगे बढ़ा सकेंगे।
- ✓ अपनी आयु के अनुरूप कुछ विषयों जैसे – जब मैंने साइकिल चलाना सीखा, पहली बार शरबत बनाया, मंच पर गया आदि पर **आशुभाषण प्रस्तुत कर सकेंगे।**
- ✓ लिंग / वचन को ध्यान में रखकर अपनी बात उचित उच्चारण, बल एवं अनुतान के साथ कह सकेंगे।
- ✓ अवसर के अनुकूल औपचारिक एवं उपयुक्त भाषा का प्रयोग कर सकेंगे।
- ✓ अपने विचारों को आत्मविश्वास, सहजता एवं प्रवाह के साथ बोलकर प्रकट कर सकेंगे।
- ✓ विभिन्न स्रोतों से नए शब्दों को जानने का प्रयास करेंगे।
- ✓ मल्टी-मीडिया (ग्राफिक्स, तस्वीरें, संगीत, ध्वनि आदि) का प्रयोग करते समय दृश्य-सामग्री प्रस्तुत कर सकेंगे।
- ✓ भाषा-खेलों में रुचिपूर्वक भाग लेंगे, जैसे – वर्ग पहेली, शब्द-सीढ़ी आदि।

## सुनना और बोलना

सुझावित विषय / क्षेत्र	सुझावित शिक्षण-अधिगम प्रक्रिया	सुझावित अधिगम स्रोत
<ul style="list-style-type: none"> <li>▶ उद्घोषणा, अतिथियों के वक्तव्य, टीवी पर संगोष्ठी / चर्चाएँ, सोशल</li> </ul>	<ul style="list-style-type: none"> <li>▶ ऑडियो सुनवाएँ और प्रश्न पूछें। विविध विधाओं की भाषा सुनवाने के लिए विविध</li> </ul>	<ul style="list-style-type: none"> <li>▶ आमंत्रित अतिथियों के वक्तव्य</li> <li>▶ विविध प्रकार की ऑडियो / वीडियो सामग्री</li> </ul>

## सुनना और बोलना

सुझावित विषय / क्षेत्र	सुझावित शिक्षण-अधिगम प्रक्रिया	सुझावित अधिगम स्रोत
<p>मीडिया या इंटरनेट की दृश्य-श्रव्य सामग्री</p> <p>➤ सामूहिक चर्चा में भागीदारी</p> <p>➤ विषय</p> <ul style="list-style-type: none"> <li>➤ जल संरक्षण</li> <li>➤ वन महोत्सव</li> <li>➤ यातायात के नियम</li> <li>➤ स्वास्थ्य</li> <li>➤ जंक फूड</li> </ul> <p>➤ पी.पी.टी. या वीडियो द्वारा दृश्य सामग्री की अपनी भाषा क्षमता के अनुरूप प्रस्तुति</p> <p>➤ सूचनाओं और जानकारी की विभिन्न दृष्टिकोणों से प्रस्तुति</p> <p>➤ किसी अन्य के विचार की परख, समझ और मूल्यांकन</p> <p>➤ विभिन्न संदर्भों (सामाजिक, सांस्कृतिक, ऐतिहासिक आदि) में भाषा की समझ और विश्लेषण</p> <p>➤ समाचार-पत्र, टीवी, विज्ञापन आदि की भाषा</p> <p>➤ विभिन्न प्रसंगों, भाषण, वाद-विवाद और सामूहिक चर्चा में भाषा प्रयोग</p> <p>➤ मल्टी-मीडिया का प्रयोग करते समय विभिन्न अंगों, जैसे – ग्राफ़िक्स, तस्वीरें, संगीत, ध्वनि आदि की दृश्य सामग्री में प्रस्तुति। विषय - प्राकृतिक आपदाएँ, मौसम, त्योहार, खेल आदि</p>	<p>कार्यक्रम करवाएँ। (कहानी, भाषण, कविता, नाटक आदि)।</p> <p>➤ अतिथियों द्वारा वक्तव्य के अवसर दें, मल्टीमीडिया सामग्री सुनाकर – दिखाकर विद्यार्थियों को अपनी प्रतिक्रिया देने के अवसर दें। आशु भाषण की प्रस्तुति, वाक् प्रस्तुति के अवसर दें।</p> <p>➤ अपनी भाषा में बातचीत और चर्चा करने के अवसर दें।</p> <p>➤ सक्रिय और जागरूक बनाने वाली रचनाएँ, अखबार के लेख, फ़िल्म, ऑडियो – वीडियो सामग्री को देखने, सुनने और समझने के अवसर दें।</p> <p>➤ अपने परिवेश, समय और समाज से जुड़े विषयों पर रचनाएँ उपलब्ध करवाएँ।</p> <p>➤ कक्षा में भाषा खेल करवाएँ।</p> <p>➤ कल्पनाशीलता और सृजनशीलता को विकसित करने वाली गतिविधियों जैसे – अभिनय, कविता – पाठ, वाक् प्रस्तुति के आयोजन करें।</p> <p>➤ साहित्य और साहित्यिक तत्वों की समझ बढ़ाने के अवसर दें।</p> <p>➤ ऐसे परियोजना कार्य करने के लिए दें जिसमें बच्चे मल्टी-मीडिया का प्रयोग कर सकें, जैसे संगीत, प्राकृतिक आपदा, खेल, प्राकृतिक स्थल।</p>	<p>➤ साहित्यिक लेख (अखबार, पत्रिकाओं से)</p> <p>➤ पुस्तकालय में प्रासंगिक और तात्कालिक / समसामयिक पुस्तकें</p> <p>➤ नेट सुविधा / मल्टीमीडिया</p> <p>➤ भाषा- खेल</p> <p>➤ श्रुतभाव- ग्रहण संबंधी प्रपत्र</p>



## थीम 2: पढ़ना एवं लिखना (पठन एवं लेखन कौशल)

बच्चे अपने स्तर के अनुकूल पाठ्य-सामग्री को समझते हुए पढ़ते हैं। मुद्रित और डिजिटल मीडिया की सामग्री को पढ़-देखकर ग्रहण करते हैं। सटीक शब्दों, मुहावरों, पदबंधों आदि का प्रयोग करते हुए विभिन्न अवसरों के लिए अलग-अलग विधाओं में लिखित अभिव्यक्ति करते हैं।

### अधिगम उपलब्धियाँ (Learning outcomes):

- ☑ मुखर वाचन की कुशलताओं – सही उच्चारण, बलाघात, अनुतान, स्वरगति में उत्तरोत्तर कुशलता में वृद्धि कर सकेंगे।
- ☑ अर्थ बोध एवं गति के साथ मौन पठन कर सकेंगे।
- ☑ पाठ्य-सामग्री को पढ़कर अर्थ-ग्रहण, भाव ग्रहण कर सकेंगे। समसामयिक संदर्भों में अर्थ समझ सकेंगे। अखबार, पुस्तकें, पत्रिकाओं आदि में सामाजिक घटनाओं, मुद्दों, सरोकारों को पढ़ और समझ सकेंगे और उन पर अपनी बेझिझक राय प्रस्तुत कर सकेंगे।
- ☑ कक्षा में विभिन्न प्रश्नों को पढ़कर समझ सकेंगे और उत्तर लिख सकेंगे।
- ☑ काव्य – रचना के विभिन्न अर्थों को पहचान सकेंगे और उसमें अपनी समझ के अनुसार अपनी राय भी जोड़ सकेंगे।
- ☑ अपने विचारों से अलग पाठ्य – सामग्री के मूलभूत तथ्यों को पहचान सकेंगे।
- ☑ विभिन्न शब्दों, पदबंधों आदि को सामाजिक संदर्भों के अनुसार समझ सकेंगे और अपने लेखन में उसका प्रयोग कर सकेंगे।
- ☑ प्रभावशाली, तार्किक और उपयुक्त भाषा-शैली में अपनी बात / विचार लिख सकेंगे।
- ☑ विभिन्न प्रिंट और डिजिटल माध्यमों से जानकारी प्राप्त करके उसका उपयोग कर सकेंगे।
- ☑ सटीक शब्दों का चयन करके विद्यालय की पत्रिका के लिए कहानी / कविता लिख सकेंगे।
- ☑ कहानी को नाटक रूप में लिखकर प्रस्तुत कर सकेंगे।
- ☑ पाठ्य सामग्री को पढ़कर समझ सकेंगे और प्रश्नों के उत्तर लिख सकेंगे।

### पढ़ना एवं लिखना

सुझावित विषय / क्षेत्र	सुझावित शिक्षण-अधिगम प्रक्रिया	सुझावित अधिगम स्रोत
<ul style="list-style-type: none"><li>➤ पाठ्य सामग्री के केंद्रीय भाव का अनुमान</li><li>➤ काव्य रचना की समझ और भाव ग्रहण</li></ul>	<ul style="list-style-type: none"><li>➤ विभिन्न विधाओं जैसे – कविता, कहानी, एकांकी आदि को भावपूर्ण ढंग से पढ़वाएँ।</li><li>➤ आदर्श वाचन प्रस्तुत करें और विद्यार्थियों को ऐसे अवसर प्रदान करें जिसमें वे विभिन्न विधाओं को उपयुक्त शैली में पढ़ सकें और लिख सकें।</li></ul>	<ul style="list-style-type: none"><li>➤ साहित्यिक-सामग्री के लिए पुस्तकें और पत्रिकाएँ</li><li>➤ प्रासंगिक, तात्कालिक / समसामयिक पुस्तकें</li><li>➤ नेटसुविधा/ मल्टीमीडिया</li><li>➤ भाषा खेल</li></ul>

## पढ़ना एवं लिखना

सुझावित विषय / क्षेत्र	सुझावित शिक्षण-अधिगम प्रक्रिया	सुझावित अधिगम स्रोत
<ul style="list-style-type: none"> <li>▶ अपनी व्यक्तिगत राय से भिन्न पाठ्य-सामग्री के मूलभूत तथ्यों की पहचान</li> <li>▶ साहित्य और संस्कृति के अनुरूप शब्दों के अर्थ की पकड़ और समझ</li> <li>▶ अपनी बात का तर्कपूर्ण, सकारण और उपयुक्त प्रमाण सहित कथन</li> <li>▶ सत्य, काल्पनिक अनुभवों का विस्तार, क्रमबद्धता और प्रभावशाली ढंग से लेखन</li> <li>▶ विभिन्न प्रिंट एवं डिजिटल माध्यमों से उपयुक्त जानकारी का संकलन एवं लेखन</li> <li>▶ विभिन्न भाषा शैलियों की समझ और अपनी शैली का विकास</li> <li>▶ साहित्य की विभिन्न विधाओं, कहानी, एकांकी, कविता, निबंध आदि का पठन एवं लेखन</li> </ul>	<ul style="list-style-type: none"> <li>▶ कहानी को एकांकी में प्रस्तुत करवाएँ, चित्र लेखन करवाएँ। प्रातः सभा के लिए अनुच्छेद लेखन करवाएँ।</li> <li>▶ वाक् प्रस्तुति करवाने के अवसर प्रदान करें।</li> <li>▶ सक्रिय और जागरूक बनाने के लिए समसामयिक लेख पढ़वाएँ और उनपर अपनी प्रतिक्रिया लिखवाएँ।</li> <li>▶ कल्पनाशीलता और सृजनशीलता को विकसित करने के लिए अतिरिक्त अध्ययन के लिए प्रेरित करें।</li> <li>▶ अपने परिवेश, समय और समाज से जुड़े विषयों पर रचनाएँ उपलब्ध करवाएँ और लेखन के अवसर भी दें।</li> <li>▶ पुस्तकें उपलब्ध करवाएँ तथा ऐसी गतिविधियों का आयोजन करें जिससे पढ़ने और लिखने की क्षमता का विकास हो।</li> <li>▶ भाषा-खेलों का आयोजन करें जैसे शब्द-सीढ़ी, वर्ग-पहेली आदि।</li> <li>▶ सांस्कृतिक कार्यक्रमों का आयोजन करें जिसमें संयोजक (एंकर) द्वारा प्रस्तुति, धन्यवाद ज्ञापन, अतिथि-परिचय आदि के लेखन का अवसर दें।</li> </ul>	<ul style="list-style-type: none"> <li>▶ लेखन प्रतियोगिताएँ</li> </ul>

## थीम 3: व्याकरण और भाषा

छठी कक्षा के बच्चे भाषा के मूल रूप को समझते हैं और भाषिक संरचना से परिचित हैं। वे व्यवहार में व्याकरण सम्मत भाषा का प्रयोग करते हैं। संदर्भ में व्यावहारिक व्याकरण का उपयुक्त प्रयोग करते हैं।

### अधिगम उपलब्धियाँ (Learning outcomes):

- ✓ हिंदी भाषा के शब्दों (तत्सम और तद्भव) रूपों को समझ सकेंगे।
- ✓ संज्ञा के तीन भेद – व्यक्तिवाचक संज्ञा, जातिवाचक संज्ञा और भाववाचक संज्ञा को पहचान सकेंगे और भाववाचक संज्ञा का निर्माण कर सकेंगे।
- ✓ सर्वनाम के भेदों की पहचान और उसका सही प्रयोग कर सकेंगे। भेद – पुरुषवाचक सर्वनाम, निश्चयवाचक, अनिश्चयवाचक, प्रश्नवाचक, संबंधवाचक, निजवाचक।
- ✓ विशेषण - विशेषण के चार भेद - गुणवाचक विशेषण, परिमाणवाचक विशेषण, संख्यावाचक विशेषण, सार्वनामिक विशेषण समझ सकेंगे। अन्य पदों से विशेषण बना सकेंगे।
- ✓ क्रिया - कर्म के आधार पर दो भेद - अकर्मक क्रिया और सकर्मक क्रिया की पहचान कर सकेंगे।
- ✓ व्यावहारिक भाषा में उचित लिंग और वचन का प्रयोग कर सकेंगे।
- ✓ काल - काल के तीन भेद- भूतकाल, वर्तमान काल और भविष्यत् काल का समुचित प्रयोग कर सकेंगे।
- ✓ कारक -चिह्नों का सही प्रयोग कर सकेंगे।
  - (क) विराम -चिह्नों की पहचान और उनका सही प्रयोग कर सकेंगे।
  - (ख) 'की' और 'कि' तथा 'रि' और 'ऋ' के अंतर आदि की पहचान कर सकेंगे। अनुस्वार, अनुनासिक और 'र' के विभिन्न रूपों को ठीक से पहचान कर सही प्रयोग कर सकेंगे।
- ✓ शब्द भंडार - शब्दों के विभिन्न रूपों को समझ सकेंगे, विलोम, पर्यायवाची, अनेक के लिए एक शब्द, समरूपी भिन्नार्थक शब्द, अनेकार्थी शब्दों की समझ बना सकेंगे तथा प्रयोग कर सकेंगे।
- ✓ मुहावरों को वाक्यों / भाषा में समझ कर प्रयुक्त कर सकेंगे।
- ✓ अपठित गद्यांश व काव्यांश पढ़कर समझ सकेंगे और अपनी भाषा में संक्षिप्त उत्तर लिख सकेंगे।
- ✓ पत्र-लेखन का प्रारूप समझ कर पत्र लिख सकेंगे।
- ✓ निबंध-लेखन द्वारा अपने विचारों को अभिव्यक्त कर सकेंगे।
- ✓ चित्र देखकर अपनी कल्पनाशीलता और भाषा का प्रदर्शन करते हुए विभिन्न विषयों पर अभिव्यक्ति कर सकेंगे।

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सुझावित विषय / क्षेत्र	सुझावित शिक्षण-अधिगम प्रक्रिया	सुझावित अधिगम स्रोत
▶ संज्ञा, सर्वनाम, लिंग-वचन आदि का शुद्ध प्रयोग।	▶ स्वरों और व्यंजनों के अंतर को स्पष्ट करें। अब 'ऑ' हिंदी का मान्य स्वर है। डॉक्टर, कॉलेज, बॉल आदि	▶ रोचक कार्यपत्र ▶ शब्द-भंडार की सूची

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सुझावित विषय / क्षेत्र	सुझावित शिक्षण-अधिगम प्रक्रिया	सुझावित अधिगम स्रोत
<p>सर्वनाम के विभिन्न रूपों की समझ और उनके प्रयोग का प्रदर्शन</p> <p>➤ शुद्ध उच्चारण, उपयुक्त अर्थ, पद-परिचय की समझ बनाने के लिए संदर्भ-सामग्री (प्रिंट और डिजिटल दोनों)</p> <p>➤ वर्ण विचार – भाषा की सबसे छोटी इकाई</p> <p>➤ भाषा विचार – भाषा का मौखिक और लिखित रूप</p> <p>➤ शब्द विचार – सार्थक वर्णों का समूह</p> <p>➤ संज्ञा और संज्ञा-भेद</p> <p>➤ सर्वनाम, सर्वनाम के भेद और विभिन्न रूप</p> <p>➤ विशेषण और सामान्य भेद</p> <p>➤ क्रिया की पहचान एवं प्रयोग – कर्म के आधार पर क्रिया भेद</p> <p>➤ लिंग और वचन – लिंग, वचन परिवर्तन का अभ्यास</p> <p>➤ काल – सामान्य भेदों की पहचान</p> <p>➤ कारक – कारक चिह्नों (परसर्ग) का सामान्य ज्ञान एवं प्रयोग</p> <p>➤ (a) विराम-चिह्न – विराम-चिह्नों की पहचान और प्रयोग</p>	<p>उदाहरणों से स्पष्ट करें। स्वरों की मात्राओं का ज्ञान कराएँ। संयुक्त व्यंजन (क्ष, त्र, ज्ञ, श्र) के रूपों को स्पष्ट करें।</p> <p>➤ मौखिक रूप पहले आया, क्यों? आदि पर चर्चा करें। दोनों रूपों को स्पष्ट करें।</p> <p>➤ शब्दों के तत्सम – तद्भव रूप को स्पष्ट करें। नवीन सोच की ओर भी संकेत किया जा सकता है कि 'तत्सम' शब्द वे हैं जो किसी अन्य भाषा से ज्यों के त्यों ले लिए गए हैं, जैसे – आश्रय, अस्थि, बॉल, हॉल, कॉलेज, इडली, ज़रूरत आदि। 'तद्भव' वे हैं जिन्हें हिंदी भाषा के अनुरूप ढाल लिया गया है, जैसे – दही, हड्डी, त्रासदी, अकादमी आदि।</p> <p>➤ पाठ के शब्दों का चयन कर संज्ञा भेदों को बताएँ। उदाहरण – मिठाई – जातिवाचक संज्ञा, आगरा – व्यक्तिवाचक संज्ञा, मिठास – भाववाचक संज्ञा। भाववाचक संज्ञा निर्माण – मीठी से मिठास आदि।</p> <p>➤ पाठ्य- सामग्री से सर्वनाम छाँटकर उनके भेदों को समझाएँ।</p> <p>➤ सर्वनाम के भेदों की पहचान और उसका सही प्रयोग करवाएँ। भेद – पुरुषवाचक, निश्चयवाचक, अनिश्चयवाचक, प्रश्नवाचक, निजवाचक, संबंधवाचक की पहचान करवाएँ।</p> <p>• जब संदर्भ के साथ यह, वह, इन्हें, उन्हें, उसे आदि का प्रयोग हो तब तो निश्चयवाचक सर्वनाम मान सकते हैं। जब संदर्भ न हों तब सर्वनाम पुरुषवाचक भी हो सकता है और निश्चयवाचक भी। इसका निर्णय कैसे लें ? इसका स्पष्टीकरण इस प्रकार किया जा सकता है कि यदि व्यक्तिके लिए यहवह का, प्रयोग हुआ है तब तो वह पुरुषवाचक सर्वनाम होगा और वस्तुघटना, आदि के लिए आया है तो</p>	<p>➤ डाकखाना भ्रमण, बैंक भ्रमण, पोस्टकार्ड, अंतर्देशीय पत्र, लिफाफ़ा</p> <p>➤ निबंध</p> <p>➤ सुन्दर चित्र</p> <p>➤ भाषा खेल – वर्ग पहेली आदि</p> <p>○ अनौपचारिक पत्र</p>

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सुझावित विषय / क्षेत्र	सुझावित शिक्षण-अधिगम प्रक्रिया	सुझावित अधिगम स्रोत
<ul style="list-style-type: none"> <li>▶ (b) वर्तनी सुधार के लिए 'की' और 'कि', 'रि' और 'ऋ' का अंतर</li> <li>▶ शब्द भंडार – विलोम, पर्यायवाची, अनेक के लिए एक शब्द, समरूपी भिन्नार्थक शब्द, अनेकार्थी शब्द</li> <li>▶ सामान्य मुहावरे</li> <li>▶ रोचक अपठित गद्यांश / पद्यांश (स्तारानुकूल)</li> <li>▶ पत्र लेखन – औपचारिक और अनौपचारिक पत्र लेखन</li> <li>▶ निबंध लेखन – (150 से 180 शब्दों में)</li> <li>▶ चित्र-लेखन</li> </ul>	<p>निश्चयवाचक सर्वनाम होगा। इससे समस्या का काफ़ी हद तक समाधान हो जाएगा। जैसे –</p> <ul style="list-style-type: none"> <li>☛ उसे बुला लाओ / वह बाहर खड़ी है/ यह तो यहाँ ही बैठा है। इन वाक्यों में उसे, वह, यह व्यक्तियों के लिए आया है यह विभिन्न क्रियाओं से स्पष्ट है। इन्हें पुरुषवाचक माना जाए।</li> <li>☛ यह यहाँ रख दो। वह वहीं पड़ा रहने दो। उसे उठा लाओ। इन वाक्यों में यह, वह, उसे वस्तुओं के लिए ही प्रयुक्त हुआ है अतः इन्हें निश्चयवाचक मानना चाहिए।</li> <li>☛ कुछ अन्य वाक्य देखिए–</li> <li>☛ उन्हें भी बुला लो / उन्हें रखा रहने दो/ उन्हें रहने दो- पहले वाक्य में 'उन्हें' व्यक्तियों के लिए ही प्रयुक्त हुआ है जबकि दूसरे वाक्य में वस्तुओं के लिए और तीसरे में व्यक्ति भी हो सकते हैं और वस्तु भी। ऐसी स्थिति में दोनों संभव है। संदर्भ ज्ञात हो तो उसी के अनुरूप भेद किया जा सकता है अन्यथा दोनों भेद माने जा सकते हैं।</li> <li>☛ पाठ्य सामग्री से विशेषण छाँटकर अभ्यास करवाएँ। भेदों की पहचान करवाएँ। चार भेद ही अपेक्षित हैं।</li> </ul> <p>▶ सार्वनामिक विशेषण को समझना आवश्यक है। जैसे –</p> <ul style="list-style-type: none"> <li>☛ यह आम पका है और वह कच्चा। इस वाक्य में आम की 'यह' विशेषता बता रहा है इसलिए सार्वनामिक विशेषण है और 'वह' आम के लिए आया है इसीलिए सर्वनाम है।</li> <li>☛ सर्वनाम और सार्वनामिक विशेषण दोनों रूप रचना के स्तर पर समान होते हैं केवल वाक्य प्रयोग के स्तर पर दोनों में अंतर होता है। जो</li> </ul>	

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सुझावित विषय / क्षेत्र	सुझावित शिक्षण-अधिगम प्रक्रिया	सुझावित अधिगम स्रोत
	<p>शब्द संज्ञा के स्थान पर प्रयुक्त होते हैं वे सर्वनाम होते हैं लेकिन जब कोई सर्वनाम किसी संज्ञा (विशेष्य) के साथ लगकर संज्ञा की विशेषता बताता है तो सार्वनामिक विशेषण होता है। जैसे – <b>कुछ</b> छात्र खेल रहे हैं। <b>हमारा</b> विद्यालय बड़ा है। इन वाक्यों में 'कुछ' और 'हमारा' सार्वनामिक विशेषण हैं।</p> <p>➤ विशेषण बनवाएँ, जैसे – सुरभि-सुरभित, ठंड-ठंडा आदि।</p> <p>➤ क्रिया – कर्म के आधार पर दो भेद- अकर्मक और सकर्मक की पहचान करवाएँ। प्रायः कर्म के साथ सकर्मक क्रिया आती है। उदाहरणों द्वारा स्पष्टीकरण करना चाहिए। (इस स्तर पर मिश्रित, संयुक्त और प्रेरणार्थक उदाहरणों से बचा जाए तो बेहतर है)।</p> <p>➤ लिंग और वचन का अभ्यास करवाएँ। हिंदी में निर्जीव वस्तुओं के लिए भी स्त्रीलिंग या पुल्लिंग निर्धारित होता है और कभी कभी मातृ-भाषा से प्रभावित होकर लिंग भेद देखा जा सकता है, जैसे – पंजाब में टूक <b>आती</b> है जबकि हिंदी क्षेत्र में टूक <b>आता</b> है। इसका संकेत करें और प्रयोग विद्यार्थी पर छोड़ दें। परीक्षा में ऐसे अपवादों को पूछने से बचा जा सकता है। प्रयोग के आधार पर अभ्यास करवाएँ। वचन के प्रयोग को भी स्पष्ट करें। कभीकभी शब्द - के रूप में एकवचन और बहुवचन समान होते हैं लेकिन प्रयोग या क्रिया आदि से एकवचन या बहुवचन का निर्धारण होता है, जैसे पेड़ लगा है। पेड़ लगे हैं। इन वाक्यों में 'पेड़' का रूप दोनों वाक्यों में समान है जबकि पहले वाक्य में एकवचन है और दूसरे वाक्य में बहुवचन। इसका पता क्रिया से लगा। इस प्रकार के उदाहरण देकर स्पष्ट करें। कार्य पत्रों के माध्यम से अभ्यास करवाएँ। (नित्य पुल्लिंग /</p>	

## पढ़ना एवं लिखना

सुझावित विषय / क्षेत्र	सुझावित शिक्षण-अधिगम प्रक्रिया	सुझावित अधिगम स्रोत
	<p>स्त्रीलिंग या नित्य एकवचन / बहुवचन विद्यार्थी की जिज्ञासा को स्पष्ट करने के लिए बताना बेहतर होगा।)</p> <ul style="list-style-type: none"> <li>▶ काल के तीन भेद – भूतकाल, वर्तमान काल, भविष्यत् काल का अभ्यास करवाएँ। परस्पर परिवर्तन का अभ्यास करवाएँ। मैं पढ़ता था। मैं पढ़ता हूँ। मैं पढ़ूँगा। रोचक कार्य पत्रों द्वारा पहचान करवाएँ।</li> <li>▶ कारकों के भेद प्रयोग द्वारा स्पष्ट करें। सामान्य कारक चिह्नों के प्रयोग का अभ्यास करवाएँ और उनकी पहचान करवाएँ। परसर्ग के सही प्रयोग से भाषा की पकड़ मजबूत बनाएँ।</li> <li>▶ विराम चिह्नों का प्रयोग करवाएँ और स्पष्टीकरण करें। पूर्ण विराम, प्रश्न चिह्न, अल्पविराम, उद्धरण चिह्न, कोष्ठक, विस्मयादिबोधक, योजक चिह्न का प्रयोग बताएँ और अभ्यास करवाएँ।</li> <li>▶ विद्यार्थियों की भाषा में 'की' और 'कि' के अंतर, 'रि' और 'ऋ' के अंतर की अशुद्धियों की ओर ध्यान दिलाएँ और उचित प्रयोग करवाएँ।</li> <li>▶ शब्द भंडार, विलोम, पर्यायवाची, अनेक शब्दों के लिए एक शब्द, समरूपी भिन्नार्थक और अनेकार्थी शब्दों का प्रयोग बताएँ। पाठ्य सामग्री से ऐसे शब्दों को चुनने का अभ्यास करवाएँ। (स्तर को ध्यान में रखते हुए 15-20 शब्द प्रति सत्र शब्दों की सूची देकर भी अभ्यास करवाया जा सकता है। सूची की सीमा के कारण विद्यार्थी तैयारी अच्छी कर पाते हैं। छठी की सूची सातवीं में जोड़ कर पूछें और आठवीं में छठी सातवीं की सूची जोड़कर)।</li> <li>▶ पाठ्य-सामग्री में आए मुहावरों का प्रयोग समझाएँ और अपने वाक्यों में पुनः प्रयोग करवाएँ। रचनात्मक लेखन में उनका प्रयोग करने के लिए प्रेरित करें।</li> </ul>	

## पढ़ना एवं लिखना

सुझावित विषय / क्षेत्र	सुझावित शिक्षण-अधिगम प्रक्रिया	सुझावित अधिगम स्रोत
	<ul style="list-style-type: none"> <li>➤ रोचक अपठित गद्यांश और काव्यांश देकर प्रश्न अभ्यास करवाएँ।</li> <li>➤ पत्र लेखन – औपचारिक और अनौपचारिक पत्रों के प्रारूप को स्पष्ट करें। यह भी स्पष्ट करें कि पता, तिथि, विषय, संबोधन और समाप्ति की आवश्यकता क्यों है? भाषा शैली पर विशेष ध्यान दें। अति संक्षेप या अनावश्यक विस्तार से बचने की प्रेरणा दें।</li> <li>➤ निबंध लेखन के लिए विद्यार्थियों को उनके स्तर के अनुकूल समसामयिक, उनसे संबद्ध और रोचक विषय देकर अभ्यास करवाएँ। निबंध का प्रारंभ / मुख्य विषय-वस्तु और उपसंहार को स्पष्ट करें। यह निबंध वर्णनात्मक, कल्पनात्मक आदि हो सकते हैं।</li> <li>➤ चित्र देखकर उस पर लेखन करवाएँ। चित्र पर कविता, कहानी, लेख या निबंध कुछ भी लिखवाया जा सकता है। कल्पनाशीलता और रचनात्मकता को बढ़ावा दें।</li> </ul>	



## थीम 1: सुनना और बोलना

बच्चे टीवी पर प्रसारित गोष्ठियों, परिचर्चा आदि को सुनकर भली-भाँति समझते हैं और उसपर अपनी बेबाक राय प्रस्तुत करते हैं। विशिष्ट संदर्भों में प्रयुक्त विशेष शब्दावली को समझने लगते हैं और ग्रहण करते हैं। जानकारी साझा करते हैं। अपनी बात को आत्मविश्वास से कह सकते हैं।

### अधिगम उपलब्धियाँ (Learning outcomes):

- ✓ पढ़ी, सुनी या देखी बातों जैसे – सामाजिक घटनाओं, कार्यक्रमों, मुद्दों, सामाजिक सरोकारों आदि पर बेझिझक चर्चा कर सकेंगे।
- ✓ टीवी पर प्रसारित चर्चा, संगोष्ठी, सोशल मीडिया और इंटरनेट की दृश्य-श्रव्य सामग्री का अर्थ-ग्रहण कर सकेंगे। आवश्यकता अनुरूप अपनी प्रतिक्रिया प्रकट कर सकेंगे।
- ✓ रेडियो, टीवी, आदि पर सुनी देखी बातों और खबरों को अपनी भाषा में अभिव्यक्त कर सकेंगे।
- ✓ विविध कलाओं, जैसे – हस्तकला, वास्तुकला, नृत्य कला आदि में प्रयुक्त भाषा के शब्दों को समझ सकेंगे।
- ✓ नए शब्दों को जानने के लिए खोजबीन करेंगे।
- ✓ वक्ता के विचारों से असहमत होते हुए भी उसकी उसकी बात ध्यानपूर्वक शिष्टाचार के साथ सुन सकेंगे और उसके दृष्टिकोण को समझ सकेंगे।
- ✓ अपने विचारों को आत्मविश्वास से प्रस्तुत कर सकेंगे।
- ✓ प्रश्नों को सुनकर समझेंगे और उनके अनुरूप उत्तर दे सकेंगे।
- ✓ विभिन्न संदर्भों में प्रयुक्त भाषा-शैली को समझते हुए उसका आनंद ले सकेंगे।
- ✓ साहित्यिक अंशों का सुनकर आनंद ले सकेंगे और अर्थ-ग्रहण कर सकेंगे।
- ✓ लिंग / वचन का सही प्रयोग करते हुए अपनी बात कह सकेंगे।
- ✓ मल्टी-मीडिया (ग्राफिक्स, तस्वीरें, संगीत, ध्वनि आदि) का प्रयोग करते हुए दृश्य-सामग्री प्रस्तुत कर सकेंगे।
- ✓ अपनी आयु के अनुरूप विषयों पर आशुभाषण प्रस्तुत कर सकेंगे।

## सुनना और बोलना

सुझावित विषय / क्षेत्र	सुझावित शिक्षण-अधिगम प्रक्रिया	सुझावित अधिगम स्रोत
<ul style="list-style-type: none"> <li>▶ पाठ्य सामग्री पर आधारित विविध प्रकार के प्रश्न।</li> <li>▶ सामूहिक चर्चा - विषय –                             <ul style="list-style-type: none"> <li>• लड़का-लड़की एक समान</li> <li>• मोबाइल फ़ोन</li> <li>• परीक्षाएँ नहीं होनी चाहिए</li> </ul> </li> <li>▶ अपनी कक्षा के स्तर की शब्दावली</li> </ul>	<ul style="list-style-type: none"> <li>▶ ऑडियो सुनवाएँ और प्रश्न पूछें। विविध विधाओं की भाषा सुनवाने के लिए परिस्थितियाँ / अवसर प्रदान करें और विविध कार्यक्रम करवाएँ।</li> <li>▶ अतिथियों द्वारा वक्तव्य के अवसर दें, मल्टीमीडिया सामग्री सुनाकर – दिखाकर विद्यार्थियों को अपनी प्रतिक्रिया देने के अवसर दें। कक्षा में सद्य भाषण और वाक् प्रस्तुति करने के अवसर दें।</li> </ul>	<ul style="list-style-type: none"> <li>▶ आमंत्रित अतिथियों के द्वारा वक्तव्य</li> <li>▶ विविध प्रकार की ऑडियो/वीडियो सामग्री</li> <li>▶ साहित्यिक लेख (अखबार, पत्रिकाओं से)</li> </ul>

## सुनना और बोलना

सुझावित विषय / क्षेत्र	सुझावित शिक्षण-अधिगम प्रक्रिया	सुझावित अधिगम स्रोत
<ul style="list-style-type: none"> <li>➤ पी०पी०टी० या वीडियो द्वारा प्रस्तुत सामग्री</li> <li>➤ सूचनाएँ, जानकारियाँ</li> <li>➤ विभिन्न संदर्भों, सामाजिक, सांस्कृतिक, ऐतिहासिक, राजनीतिक आदि में भाषा की समझ और विश्लेषण</li> <li>➤ समाचार-पत्र, टी०वी०, विज्ञापन आदि की भाषा</li> <li>➤ विभिन्न संदर्भों, जैसे – भाषण, वाद-विवाद आदि में प्रयुक्त भाषा</li> <li>➤ मल्टीमीडिया का प्रयोग करते समय विभिन्न अंगों (जैसे – ग्राफिक्स, तस्वीरें, संगीत, ध्वनि आदि) का दृश्य सामग्री में प्रस्तुति</li> <li>➤ विषय – <ul style="list-style-type: none"> <li>• आदिवासी जीवन</li> <li>• किसी वैज्ञानिक का जीवन</li> <li>• साहित्यकार का जीवन</li> <li>• किसी खिलाड़ी का जीवन</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ श्रुतभाव-ग्रहण के लिए अलग-अलग अभ्यास करवाने के अवसर प्रदान करें।</li> <li>➤ सक्रिय और जागरूक बनाने वाली रचनाएँ, अखबार के लेख, फिल्म, ऑडियो, वीडियो सामग्री को देखने, सुनने और समझने के अवसर दें।</li> <li>➤ अपने परिवेश, समय और समाज से जुड़े विषयों पर रचनाएँ उपलब्ध करवाएँ।</li> <li>➤ कल्पनाशीलता और सृजनशीलता को विकसित करने वाली गतिविधियों जैसे – अभिनय, कविता – पाठ, वाक् प्रस्तुति के आयोजन करें।</li> <li>➤ साहित्य और साहित्यिक तत्वों की समझ बढ़ाने के अवसर दें।</li> <li>➤ मल्टीमीडिया का प्रयोग करते हुए परियोजना का कार्य करवाएँ।</li> </ul>	<ul style="list-style-type: none"> <li>➤ पुस्तकालय में प्रासंगिक और तात्कालिक/ समसामयिक पुस्तकें</li> <li>➤ नेट सुविधा/ मल्टीमीडिया</li> <li>➤ श्रुतभाव- ग्रहण की सामग्री / प्रपत्र</li> </ul>

## थीम 2: पढ़ना एवं लिखना (पठन एवं लेखन कौशल)

बच्चे अपनी पाठ्य-सामग्री के अतिरिक्त पत्र-पत्रिकाओं को पढ़कर स्वयं अपनी समझ बनाते हैं। नए शब्दों के विविध अर्थ और प्रयोग जानने के लिए शब्दकोश एवं थिसारस का प्रयोग करते हैं। कविता, कहानी, नाटक, रिपोर्ट आदि विधाओं में रचनात्मक लेखन करते हैं। लेखन में व्याकरण सम्मत भाषा का प्रयोग करते हैं।

### अधिगम उपलब्धियाँ (Learning outcomes):

- ✓ पत्र-पत्रिकाओं, पुस्तकों आदि से सामग्री को पढ़कर समसामयिक संदर्भों में उसका अर्थ समझ सकेंगे।
- ✓ किसी विशिष्ट उद्देश्य को ध्यान में रखते हुए उससे संबंधित विशेष स्थल को पहचान कर पढ़ सकेंगे। शीर्षक एवं उपशीर्षक दे सकेंगे।
- ✓ पाठ के सार एवं विचार सारणी को ग्रहण कर सकेंगे।
- ✓ शब्दकोश को देखकर अर्थ ढूँढ़ सकेंगे।
- ✓ अपने विचारों से अलग पाठ्य-सामग्री के मूलभूत तथ्यों को पहचान सकेंगे।
- ✓ विभिन्न प्रकार के प्रश्नों को पढ़कर समझेंगे और उनके अनुकूल उत्तर लिख सकेंगे।
- ✓ शब्दों, मुहावरों और पदबंधों का अपने लेखन में प्रभावशाली और उपयुक्त प्रयोग कर सकेंगे।
- ✓ विद्यालय की पत्रिका के लिए कहानी, कविता, चुटकुले, लेख, रिपोर्ट आदि लिख सकेंगे।
- ✓ विभिन्न प्रिंट और डिजिटल माध्यमों से जानकारी प्राप्त करके अपने लेखन में उसका उपयोग कर सकेंगे।
- ✓ प्रभावशाली शैली, तार्किक और व्याकरण सम्मत भाषा में अपनी बात लिखकर अभिव्यक्त कर सकेंगे।

### पढ़ना एवं लिखना

सुझावित विषय / क्षेत्र	सुझावित शिक्षण-अधिगम प्रक्रिया	सुझावित अधिगम स्रोत
<ul style="list-style-type: none"> <li>➤ विविध प्रकार के प्रश्न</li> <li>➤ पाठ्य सामग्री के केंद्रीय-भाव का अनुमान</li> <li>➤ काव्य रचना की समझ और भाव-ग्रहण</li> <li>➤ अपनी व्यक्तिगत राय से भिन्न पाठ्य-सामग्री के मूलभूत तथ्यों की पहचान</li> <li>➤ संदर्भ के अनुरूप शब्द, मुहावरे और पदबंध</li> <li>➤ पाठ्य-सामग्री को टुकड़ों में बाँटकर अपनी समझ का संवर्द्धन</li> <li>➤ वास्तविक, काल्पनिक अनुभव</li> </ul>	<ul style="list-style-type: none"> <li>➤ कल्पना, अनुमान लगाने और खुले अंत वाले प्रश्नों के उत्तर लिखवाएँ और उनपर चर्चा करें।</li> <li>➤ विभिन्न विधाओं जैसे – कविता, कहानी, एकांकी आदि को भावपूर्ण ढंग से पढ़वाएँ। आदर्श वाचन प्रस्तुत करें और विद्यार्थियों को ऐसे अवसर प्रदान करें जिसमें वे विभिन्न विधाओं को उपयुक्त शैली में पढ़ सकें और लिख सकें।</li> <li>➤ कहानी को एकांकी में प्रस्तुत करवाएँ।</li> <li>➤ वाक् प्रस्तुति करवाने के अवसर प्रदान करें।</li> <li>➤ सक्रिय और जागरूक बनाने के लिए समसामयिक लेख पढ़ने को दें और उन पर अपनी प्रतिक्रिया लिखने को कहें।</li> <li>➤ कल्पनाशीलता और सृजनशीलता को</li> </ul>	<ul style="list-style-type: none"> <li>➤ साहित्यिक - सामग्री के लिए पुस्तकें और पत्रिकाएँ</li> <li>➤ प्रासंगिक, तात्कालिक/ समसामयिक पुस्तकें।</li> <li>➤ नेटसुविधा/ मल्टीमीडिया</li> <li>➤ लेखन- प्रतियोगिताएँ</li> <li>➤ समाचार-पत्र</li> </ul>

## पढ़ना एवं लिखना

सुझावित विषय / क्षेत्र	सुझावित शिक्षण-अधिगम प्रक्रिया	सुझावित अधिगम स्रोत
<ul style="list-style-type: none"> <li>➤ विभिन्न प्रिंट एवं डिजिटल माध्यमों से प्राप्त उपयुक्त जानकारी</li> <li>➤ विभिन्न भाषा शैलियों के उदाहरण – व्यंग्यात्मक, विचारात्मक, भावात्मक आदि</li> <li>➤ साहित्य की विभिन्न विधाएँ – कहानी, एकांकी, कविता, लेख, निबंध आदि का पठन एवं लेखन</li> </ul>	<p>विकसित करने के लिए अतिरिक्त अध्ययन के लिए प्रेरित करें।</p> <ul style="list-style-type: none"> <li>➤ अपने परिवेश, समय और समाज से जुड़े विषयों पर रचनाएँ उपलब्ध करवाएँ और लेखन के अवसर भी दें।</li> <li>➤ पुस्तकें उपलब्ध करवाएँ तथा ऐसी गतिविधियों का आयोजन करें जिसमें पढ़ने और लिखने की क्षमता का विकास हो।</li> <li>➤ भाषा-खेलों का आयोजन करें।</li> <li>➤ सांस्कृतिक कार्यक्रमों का आयोजन करें जिसमें संयोजक (एंकर) द्वारा प्रस्तुति, धन्यवाद ज्ञापन, अतिथि – परिचय आदि के लेखन का अवसर दें।</li> <li>➤ किसी परिचित से साक्षात्कार करने के लिए प्रश्न निर्माण करवाएँ और जानकारी को दर्ज करने के लिए कहें।</li> </ul>	

## थीम 3: व्याकरण और भाषा

बच्चे भाषा की कुछ जटिल संरचनाओं को समझने लगते हैं। व्यवहार में लिखित और मौखिक अभिव्यक्ति में व्याकरण सम्मत भाषा का प्रयोग करते हैं। निबंध व पत्र के अतिरिक्त डायरी, विज्ञापन आदि भी लिखते हैं।

### अधिगम उपलब्धियाँ (Learning outcomes):

- ✓ हिंदी भाषा में प्रयुक्त विभिन्न प्रकार के शब्दों को पहचान सकेंगे और अपनी भाषा में उनका प्रयोग कर सकेंगे।
- ✓ उपसर्ग - प्रत्यय का तात्पर्य समझ सकेंगे और मूल शब्दों में जोड़कर नए शब्द बना सकेंगे।
- ✓ संज्ञा के तीन भेद – व्यक्तिवाचक संज्ञा, जातिवाचक संज्ञा और भाववाचक संज्ञा को पहचान सकेंगे और भाववाचक संज्ञाओं का निर्माण कर सकेंगे।
- ✓ सर्वनाम के भेदों की पहचान और उसका सही प्रयोग कर सकेंगे। भेद – पुरुषवाचक सर्वनाम, निश्चयवाचक, अनिश्चयवाचक, प्रश्नवाचक, संबंधवाचक, निजवाचक का स्पष्टीकरण।
- ✓ विशेषण तथा विशेषण के चार भेदों - गुणवाचक विशेषण, परिमाणवाचक विशेषण, संख्यावाचक विशेषण, सार्वनामिक विशेषण पहचान सकेंगे और उसका प्रयोग कर सकेंगे। अन्य पदों से विशेषण बना सकेंगे।
- ✓ क्रिया - कर्म के आधार पर दो भेद - अकर्मक क्रिया और सकर्मक क्रिया की पहचान कर सकेंगे।
- ✓ क्रिया विशेषण और उसके चार भेदों – रीतिवाचक क्रिया विशेषण, परिमाणवाचक क्रिया विशेषण, कालवाचक क्रिया विशेषण और स्थानवाचक क्रिया विशेषण की पहचान कर सकेंगे।
- ✓ व्यावहारिक भाषा में लिंग और वचन का सही प्रयोग कर सकेंगे।
- ✓ काल व काल के तीन भेदों – भूतकाल, वर्तमान काल और भविष्यत् काल का समुचित प्रयोग कर सकेंगे।
- ✓ कारक -चिह्नों को समझ कर अपनी भाषा में सही प्रयोग कर सकेंगे।
- ✓ वाक्य भेद – अर्थ के आधार पर वाक्यों को पहचान सकेंगे। परस्पर परिवर्तन कर सकेंगे। भेद – विधानवाचक – निषेधवाचक, प्रश्नवाचक, विस्मयादिबोधक, आज्ञावाचक, इच्छावाचक, संदेहवाचक और संकेतवाचक। वाक्य-शोधन भी करते हैं।
- (क) विराम -चिह्नों को पहचान सकेंगे और उनका सही प्रयोग कर सकेंगे।
- (ख) 'की' और 'कि' तथा 'रि' और 'ऋ' के अंतर, अनुस्वार 'र' के विभिन्न रूपों को ठीक से समझते हुए लेखन में सही प्रयोग कर सकेंगे।
- ✓ शब्द-भंडार - विलोम, पर्यायवाची, अनेक के लिए एक शब्द, समरूपी भिन्नार्थक शब्द, अनेकार्थी शब्दों का अपनी भाषा में प्रयोग करते हैं।
- ✓ मुहावरों को वाक्यों और भाषा में समझ कर प्रयुक्त कर सकेंगे।
- ✓ अपठित अनुच्छेद पढ़कर समझ सकेंगे और अपनी भाषा में संक्षिप्त उत्तर लिख सकेंगे।
- ✓ पत्र-लेखन का प्रारूप समझते हुए औपचारिक और अनौपचारिक पत्र लिख सकेंगे।
- ✓ निबंध-लेखन द्वारा अपने विचारों को अभिव्यक्त कर सकेंगे। भाषा शैली, प्रस्तुति का क्रमशः विकास हो सकेगा।
- ✓ चित्र देखकर अपनी कल्पनाशीलता और भाषा का प्रदर्शन करते हुए विभिन्न विषयों पर अभिव्यक्ति कर सकेंगे।
- ✓ विज्ञापन लेखन – छोटे-छोटे विज्ञापन बना सकेंगे।
- ✓ व्यक्तिगत अनुभवों को डायरी विधा में लिख सकेंगे।

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<ul style="list-style-type: none"> <li>➤ वर्ण विचार</li> <li>➤ भाषा विचार</li> <li>➤ शब्द विचार – उपसर्ग – प्रत्यय</li> <li>➤ संज्ञा, लिंग, वचन, कारक, सर्वनाम, विशेषण, क्रिया, काल तथा उनके भेद</li> <li>➤ वाक्य भेद – अर्थ के आधार पर</li> <li>➤ विराम चिह्न</li> <li>➤ 'की' और 'कि', 'रि' और 'ऋ' का अंतर</li> <li>➤ शब्द भंडार – विलोम, पर्यायवाची, अनेक के लिए एक शब्द, समरूपी भिन्नार्थक शब्द, अनेकार्थी शब्द</li> <li>➤ सामान्य मुहावरे</li> <li>➤ रोचक अपठित गद्यांश / पद्यांश (स्तारानुकूल)</li> <li>➤ पत्र लेखन – औपचारिक और अनौपचारिक पत्र</li> <li>➤ निबंध लेखन (150 से 180 शब्दों में)</li> <li>➤ विज्ञापन लेखन</li> <li>➤ डायरी लेखन</li> </ul>	<ul style="list-style-type: none"> <li>➤ स्वरों और व्यंजनों के अंतर को स्पष्ट करें। अब 'ऑ' हिंदी के स्वर के रूप में मान्य है, जानकारी दें। डॉक्टर, कॉलेज, बॉल आदि उदाहरणों से स्पष्ट करें। इ, उ और अ की मात्रा के प्रयोग पर ध्यान दिलाएँ – रू और रु, रूप, ज़रूरत, रुपया, रुकना, रुचि आदि उदाहरणों से समझाएँ। सयुक्त व्यंजन के रूपों को बताएँ – क्ष, त्र, ज्ञ, श्र।</li> <li>➤ मौखिक रूप पहले आया, क्यों ? आदि पर चर्चा करें। दोनों रूपों को स्पष्ट करें।</li> <li>➤ तत्सम – तद्भव रूप को समझाएँ। नवीन सोच की ओर भी संकेत किया जा सकता है कि 'तत्सम' शब्द वे हैं जो किसी अन्य भाषा से ज्यों के त्यों ले लिए गए हैं, जैसे – अग्नि, अस्थि, मॉल, रॉकेट, कॉलेज, इडली, ज़रूरत आदि। 'तद्भव' वे हैं जिन्हें हिंदी भाषा के अनुरूप ढाल लिया गया है, जैसे – दूध, हाथ, त्रासदी, अलबम आदि।</li> <li>➤ पाठ के शब्दों का चयन कर संज्ञा भेदों को बताएँ। उदाहरण – पेड़ – जातिवाचक संज्ञा, आगरा – व्यक्तिवाचक संज्ञा, सौंदर्य – भाववाचक संज्ञा। भाववाचक संज्ञा निर्माण – ऊँचा से ऊँचाई।</li> <li>➤ पाठ्य – सामग्री से सर्वनाम छाँटकर उनके भेदों को पहचानने के लिए कहें।</li> <li>➤ सर्वनाम के भेदों की पहचान और उनके सही रूप का प्रयोग करने का अभ्यास करवाएँ। (भेद – पुरुषवाचक सर्वनाम, निश्चयवाचक, अनिश्चयवाचक, प्रश्नवाचक, संबंधवाचक, निजवाचक)।</li> <li>➤ जब सन्दर्भ के साथ यह, वह, इन्हें, उन्हें, उसे आदि का प्रयोग हो तब तो निश्चयवाचक सर्वनाम मान सकते हैं। जब संदर्भ न हों तब सर्वनाम पुरुषवाचक भी हो सकता है और निश्चयवाचक भी, इसका निर्णय कैसे लें ? इसे</li> </ul>	<ul style="list-style-type: none"> <li>➤ कार्य पत्र</li> <li>➤ कार्य पत्र</li> <li>➤ कार्य पत्र (कुछ तत्सम और तद्भव शब्दों की सूची)</li> <li>➤ शब्द-परिवार के लिए कार्यपत्रक या भाषा-खेल</li> <li>➤ डाकखाना भ्रमण, पोस्ट कार्ड, अंतर्देशीय पत्र, लिफ़ाफ़ा,</li> <li>➤ सुन्दर चित्र</li> <li>➤ विज्ञापनों के नमूने पत्र पत्रिकाओं से</li> <li>➤ डायरी लेखन की कुछ पुस्तकें</li> </ul> <p>○ अनौपचारिक पत्र</p> <div style="border: 1px solid black; padding: 10px; margin-top: 10px;"> <p>अपना पता</p> <p>तिथि</p> <p>संबोधन</p> <p>विषय वस्तु</p> <p>_____</p> <p>_____</p> <p>अपना नाम</p> </div>

## पढ़ना एवं लिखना

सुझावित विषय / क्षेत्र	सुझावित शिक्षण-अधिगम प्रक्रिया	सुझावित अधिगम स्रोत
	<p>इस प्रकार समझा जा सकता है कि यदि व्यक्ति के लिए यह, वह का प्रयोग हुआ है तब तो वह पुरुषवाचक सर्वनाम होगा और वस्तु, घटना आदि के लिए आया है तो निश्चयवाचक सर्वनाम होगा। इससे समस्या का काफ़ी हद तक समाधान हो जाएगा। जैसे –</p> <ul style="list-style-type: none"> <li>● उसे समझा दो / वह वहाँ खड़ी है/ यह तो यहाँ ही बैठी है। इन वाक्यों में उसे, वह, यह व्यक्तियों के लिए आया है यह विभिन्न क्रियाओं से स्पष्ट है। इन्हें पुरुषवाचक माना जाएगा।</li> <li>● यह यहाँ रख दो। वह वहीं पड़ा रहने दो। उसे उठा लाओ। इन वाक्यों में यह, वह, उसे वस्तुओं के लिए ही प्रयुक्त हुआ है अतः इन्हें निश्चयवाचक मानना चाहिए।</li> <li>● कुछ अन्य वाक्य देखिए–</li> <li>● उन्हें भी बुला लो / उन्हें रखा रहने दो / उन्हें रहने दो - पहले वाक्य में 'उन्हें' व्यक्तियों के लिए ही प्रयुक्त हुआ है जबकि दूसरे वाक्य में वस्तुओं के लिए और तीसरे में व्यक्ति भी हो सकते हैं और वस्तु भी। ऐसी स्थिति में दोनों संभव है। संदर्भ ज्ञात हो तो उसी के अनुरूप भेद किया जा सकता है अन्यथा दोनों भेद माने जा सकते हैं।</li> </ul> <p>▶ पाठ्य-सामग्री से विशेषण छाँटकर अभ्यास करवाएँ। सार्वनामिक विशेषण को समझना आवश्यक है।</p> <ul style="list-style-type: none"> <li>● यह घर साफ़ है और वह कितना गंदा। इस वाक्य में 'यह' घर की विशेषता बता रहा है इसलिए सार्वनामिक विशेषण है और 'वह' घर के लिए आया है इसीलिए सर्वनाम है।</li> <li>● सर्वनाम और सार्वनामिक विशेषण दोनों रूप रचना के स्तर पर समान होते हैं केवल वाक्य प्रयोग के स्तर दोनों में अंतर होता है। जो शब्द संज्ञा के स्थान पर प्रयुक्त होते हैं वे सर्वनाम होते हैं लेकिन जब कोई सर्वनाम किसी संज्ञा (विशेष्य) के साथ लगकर संज्ञा</li> </ul>	<p>○ औपचारिक पत्र</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>अपना पता</p> <p>तिथि</p> <p>जिसके लिए है</p> <p>उसका पद</p> <p>पता</p> <p>विषय</p> <p>संबोधन</p> <p>विषय वस्तु</p> <p>_____</p> <p>_____</p> <p>भवदीय</p> <p>अपना नाम</p> </div> <div style="border: 1px solid black; padding: 5px; margin-top: 20px;"> <p>दिनांक..... स्थान.....</p> <p>समय</p> </div>

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सुझावित विषय / क्षेत्र	सुझावित शिक्षण-अधिगम प्रक्रिया	सुझावित अधिगम स्रोत
	<p>की विशेषता बताता है तो सार्वनामिक विशेषण होता है। जैसे - कुछ बच्चे पौधे रोप रहे हैं, उस लड़की को बुलाओ।</p> <ul style="list-style-type: none"> <li>➤ विशेषण बनवाएँ, जैसे – सुगंध – सुगंधित, कौन – कैसा, गर्मी – गर्म।</li> <li>➤ क्रिया-कर्म के आधार पर दो भेद - अकर्मक और सकर्मक की पहचान करवाएँ। प्रायः कर्म के साथ सकर्मक क्रिया आती है। उदाहरणों द्वारा स्पष्ट करें। इस स्तर पर मिश्रित, संयुक्त और प्रेरणार्थक क्रियाओं के उदाहरणों से बचा जाए तो बेहतर है।</li> <li>➤ उपसर्ग-प्रत्यय को स्पष्ट करें। यह शब्दांश होते हैं। भाषा की छोटी इकाई जिसका कोई अर्थ नहीं होता लेकिन शब्द में जोड़ कर नए अर्थ प्रदान करती है, शब्दांश कहलाती है। उपसर्ग शब्द के पूर्व जुड़ते हैं और प्रत्यय शब्द के बाद। जैसे - सु + पुत्री, वि + भाग, अ + कारण, सुंदर + ता, विज्ञान + इक, खट्टा + ई। एक ही शब्द में उपसर्ग प्रत्यय दोनों लिख सकते हैं और एक से अधिक उपसर्ग – प्रत्यय भी हो सकते हैं, जैसे – निस्वार्थी = निः+ स्व + अर्थ + ई; तैराकी = तैर + आक + ई।</li> <li>➤ क्रिया विशेषण के भेदों की पहचान के लिए क्रिया के साथ कैसे, कितना, कब और कहाँ लगाकर स्पष्ट किया जा सकता है। पाठ्य पुस्तक से उदाहरण छँटवाकर अभ्यास करवाया जा सकता है।</li> <li>➤ लिंग और वचन का अभ्यास करवाएँ। हिंदी में निर्जीव वस्तुओं के लिए भी स्त्रीलिंग या पुल्लिंग निर्धारित होता है और कभी-कभी मातृभाषा से प्रभावित होकर लिंग भेद देखा जा सकता है जैसे पंजाब में ट्रक आती है जबकि हिंदी क्षेत्र में ट्रक आता है। इसका संकेत किया जा सकता है और प्रयोग विद्यार्थी पर छोड़ा जा सकता है। परीक्षा में ऐसे अपवादों को पूछने से बचना चाहिए। प्रयोग के आधार पर अभ्यास</li> </ul>	



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	<p>करवाया जाए। वचन को भी स्पष्ट करें। कभी-कभी शब्द के रूप में एकवचन और बहुवचन समान होते हैं लेकिन प्रयोग या क्रिया आदि से एकवचन या बहुवचन का निर्धारण होता है, जैसे – फूल लगा है। फूल लगे हैं। इन वाक्यों में ‘फूल’ का रूप दोनों वाक्यों में समान है जबकि पहले वाक्य में एकवचन है जबकि दूसरे में बहुवचन। इसका पता क्रिया से लगा। इस प्रकार के उदाहरण देकर स्पष्ट करें। कार्यपत्रों के माध्यम से अभ्यास करवाएँ।</p> <ul style="list-style-type: none"> <li>▶ नित्य पुल्लिंग / स्त्रीलिंग या नित्य एकवचन / बहुवचन विद्यार्थी की जिज्ञासा को संतुष्ट करने के लिए ही स्पष्ट करना बेहतर होगा।</li> <li>▶ काल के तीन भेद– भूतकाल, वर्तमान काल, भविष्यत् काल का अभ्यास करवाएँ। परस्पर परिवर्तन का अभ्यास करवाएँ। मैं लिखती थी। मैं लिखती हूँ। मैं लिखूँगी। रोचक कार्यपत्रों द्वारा पहचान करवाएँ।</li> <li>▶ कारकों के भेद प्रयोग द्वारा स्पष्ट करें। सामान्य कारक-चिह्नों के प्रयोग का अभ्यास करवाएँ।</li> <li>▶ अर्थ के आधार पर वाक्य-भेद की पहचान करवाएँ। परस्पर रूपांतरण करने पर अर्थ भी बदल जाता है, अतः इसका रूपांतरण अपेक्षित नहीं है, फिर भी कहीं-कहीं दिया जाता है अतः अर्थ बदलेगा – इसे समझाएँ। जैसे – वह सुंदर है। (विधानवाचक) <ul style="list-style-type: none"> <li>• इसका निषेधवाचक होगा – वह सुंदर नहीं है।</li> <li>• न कि वह असुंदर नहीं है।</li> </ul> </li> <li>▶ विराम चिह्नों का प्रयोग करवाएँ। पूर्ण-विराम, प्रश्न चिह्न, अल्पविराम, उद्धरण चिह्न, कोष्ठक, विस्मयादिबोधक, योजक चिह्नों का प्रयोग स्थल बताएँ और अभ्यास करवाएँ।</li> <li>▶ विद्यार्थियों द्वारा अनजाने में की गई ‘की’ और ‘कि’, ‘रि’ और ‘ऋ’ की अशुद्धियों की ओर ध्यान दिलवाएँ।</li> </ul>	

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	<ul style="list-style-type: none"> <li>▶ शब्द भंडार – विलोम, पर्यायवाची, अनेक शब्दों के लिए एक शब्द, समरूपी भिन्नार्थक शब्द और अनेकार्थी शब्दों का प्रयोग करवाएँ। पाठ्य-सामग्री से ऐसे शब्दों को चुनने का अभ्यास करवाएँ। (स्तर को ध्यान में रखते हुए प्रति सत्र 15-20 शब्दों की सूची देकर भी अभ्यास करवाया जा सकता है। सूची की सीमा के कारण विद्यार्थी तैयारी अच्छी कर पाते हैं। छठी की सूची सातवीं में जोड़ कर पूछें और आठवीं में छठी, सातवीं जोड़कर)।</li> <li>▶ पाठ्य-सामग्री में आए मुहावरों का अपने वाक्यों में प्रयोग करवाएँ। रचनात्मक लेखन में उसका प्रयोग करने के लिए प्रेरित करें।</li> <li>▶ रोचक अपठित गद्यांश और काव्यांश देकर प्रश्न अभ्यास करवाएँ। सामग्री को स्वयं समझकर उत्तर देने की क्षमता विकसित करें।</li> <li>▶ पत्र लेखन – औपचारिक और अनौपचारिक पत्रों के प्रारूप को स्पष्ट करें। यह भी स्पष्ट करें कि पता, तिथि, विषय, संबोधन और समाप्ति की आवश्यकता क्यों है? भाषा शैली पर विशेष ध्यान दिलवाएँ। अति संक्षेप या अनावश्यक विस्तार से बचने की प्रेरणा दें।</li> <li>▶ निबंध लेखन के लिए विद्यार्थियों को उनके स्तर के अनुकूल समसामयिक, उनसे संबद्ध और रोचक विषय दें। निबंध का प्रारंभ, मुख्य विषय-वस्तु और उपसंहार को स्पष्ट करें। यह निबंध वर्णनात्मक, कल्पनात्मक आदि हो सकते हैं।</li> <li>▶ विज्ञापन लेखन – विभिन्न उत्पादों पर छोटे छोटे विज्ञापन लिखने का अभ्यास करवाएँ।</li> <li>▶ डायरी लेखन – विशेष दिवस / अवसर / घटनाओं पर डायरी लिखवाई जा सकती है। उसका प्रारूप भी स्पष्ट करना उचित होगा।</li> </ul>	

## थीम 1: सुनना और बोलना

बच्चों की भाषा धीरे-धीरे परिपक्वता की ओर बढ़ने लगती है। गोष्ठियों, परिचर्चा, उद्घोषणा आदि को सुनकर तुरंत समझकर प्रतिक्रिया देते हैं। विशिष्ट संदर्भों में प्रयुक्त शब्दावली, मुहावरे-लोकोक्तियों का अर्थ समझने लगते हैं। अपनी बात आत्मविश्वास के साथ सटीक शब्दों में कहते हैं। बोलने में प्रवाह और उतार-चढ़ाव होता है।

### अधिगम उपलब्धियाँ (Learning outcomes):

- ✓ टीवी पर प्रसारित चर्चा, संगोष्ठी, सोशल मीडिया और इंटरनेट की दृश्य-श्रव्य सामग्री को सुनकर भली-भाँति समझ सकेंगे और आवश्यकता अनुरूप अपनी प्रतिक्रिया प्रकट कर सकेंगे। अपने विचारों का विस्तार करते हैं।
- ✓ पढ़ी, सुनी या देखी बातों जैसे – सामाजिक घटनाओं, कार्यक्रमों, मुद्दों, सामाजिक सरोकारों आदि पर अपनी व्यक्तिगत राय बना सकेंगे। बेझिझक चर्चा कर सकेंगे और प्रश्न उठा पाएंगे।
- ✓ रेडियो, टीवी, आदि पर सुनी-देखी खबरों को अपनी भाषा में अभिव्यक्त कर सकेंगे।
- ✓ विविध कलाओं, जैसे – हस्तकला, वास्तुकला, नृत्य कला आदि में प्रयुक्त भाषा को समझ सकेंगे और अपनी भाषा में इस प्रकार की शब्दावली का प्रयोग कर सकेंगे।
- ✓ वक्ता की बात को आलोचनात्मक दृष्टि से सुनेंगे और समझ सकेंगे।
- ✓ परस्पर चर्चा करते समय दूसरे के विचार से असहमत होने पर भी धैर्यपूर्वक सुनेंगे और पूर्ण शिष्टाचार का परिचय देते हुए उसके विचार समझ सकेंगे और अपने विचार कह सकेंगे।
- ✓ प्रश्नों को सुनकर समझ सकेंगे और उनके उपयुक्त उत्तर दे सकेंगे।
- ✓ अलग-अलग संदर्भों में प्रयुक्त भाषा-शैली को समझते हुए उसका आनंद ले सकेंगे और अपनी भाषा में अपेक्षित शैली को प्रयुक्त कर सकेंगे।
- ✓ साहित्यिक विधाएँ – कहानी, कविता, नाटक आदि का सुनकर-देखकर उसका आनंद ले सकेंगे।
- ✓ लिंग/ वचन को ध्यान में रखकर अपनी बात कह सकेंगे।
- ✓ मल्टी-मीडिया (ग्राफ़िक्स, तस्वीरें, संगीत, ध्वनि आदि) का प्रयोग करते समय दृश्य – सामग्री की प्रस्तुति प्रवाहपूर्ण भाषा में आत्मविश्वास से कर सकेंगे।
- ✓ प्रभावशाली ढंग से वाक् प्रस्तुति (भाषण, वाद-विवाद, कहानी कहना, आशुभाषण आदि) कर सकेंगे।
- ✓ उनके विचारों को चुनौती दिए जाने पर भी अपने व्यवहार में ठहराव के साथ अपनी राय दे सकेंगे।

## सुनना और बोलना

सुझावित विषय / क्षेत्र	सुझावित शिक्षण-अधिगम प्रक्रिया	सुझावित अधिगम स्रोत
<ul style="list-style-type: none"> <li>▶ पाठ्य – सामग्री एवं अन्य अपठित सामग्री पर विविध प्रकार के प्रश्न</li> <li>▶ परिचर्चा के विषय (बाल श्रम, मच्छरों का कहर, लोकतंत्र, अभिव्यक्ति की स्वतंत्रता)</li> </ul>	<ul style="list-style-type: none"> <li>▶ ऑडियो सुनवाएँ और प्रश्न पूछें। विविध विधाओं की सामग्री सुनवाने के लिए विविध परिस्थितियाँ / अवसर प्रदान करें।</li> <li>▶ अतिथियों को आमंत्रित कर उनके वक्तव्य सुनने के अवसर दें, मल्टीमीडिया सामग्री सुनाकर – दिखाकर विद्यार्थियों को अपनी</li> </ul>	<ul style="list-style-type: none"> <li>▶ आमंत्रित अतिथियों के भाषण व वक्तव्य</li> <li>▶ विविध प्रकार की ऑडियो / वीडियो सामग्री</li> <li>▶ साहित्यिक लेख (अखबार, पत्रिकाओं से)</li> </ul>

## सुनना और बोलना

सुझावित विषय / क्षेत्र	सुझावित शिक्षण-अधिगम प्रक्रिया	सुझावित अधिगम स्रोत
<ul style="list-style-type: none"> <li>➤ अपनी कक्षा के स्तर की शब्दावली</li> <li>➤ पी.पी.टी. या वीडियो द्वारा प्रस्तुत दृश्य सामग्री</li> <li>➤ सूचनाएँ, जानकारियाँ, विभिन्न प्रकार की तालिकाएँ</li> <li>➤ विभिन्न संदर्भों : सामाजिक, सांस्कृतिक, ऐतिहासिक, राजनीतिक आदि की भाषा</li> <li>➤ समाचार-पत्र, टीवी, विज्ञापन आदि की भाषा</li> <li>➤ परिचर्चा, भाषण, वाद-विवाद, कहानी आदि में प्रयुक्त भाषा</li> <li>➤ मल्टी-मीडिया का प्रयोग करते समय विभिन्न अंगों (जैसे ग्राफ़िक्स, तस्वीरें, संगीत, ध्वनि आदि) का दृश्य सामग्री में प्रस्तुति               <ul style="list-style-type: none"> <li>➤ विषय : किसी वाद्ययंत्र पर</li> <li>➤ ऐतिहासिक इमारत</li> <li>➤ ऐतिहासिक स्थल</li> <li>➤ किसी प्रदर्शनी पर</li> <li>➤ किसी आपदा पर</li> </ul> </li> <li>➤ सभा या सामूहिक चर्चा बिंदुओं की प्रस्तुति</li> <li>➤ संयोजक (Facilitator) की आलोचनात्मक टिप्पणियाँ</li> <li>➤ अपने मित्रों और अपने विचारों में तालमेल बिठाना</li> <li>➤ नियोजित मौखिक प्रस्तुति करना, उद्घोषणा करना आदि</li> </ul>	<p>प्रतिक्रिया देने के अवसर दें। वाक्, वाद-विवाद और आशुभाषण के अवसर प्रदान करें। जब मैं पहली बार मंच पर गई, जब मित्र से अनबन हो गई, परीक्षाओं की आवश्यकता आदि।</p> <ul style="list-style-type: none"> <li>➤ श्रुतभाव-ग्रहण के लिए अलग-अलग अभ्यास (बहुवैकल्पिक प्रश्न, सही-गलत वाले प्रश्न, कथ्य सुनते हुए तालिका भरना, चित्र भरना आदि) करवाएँ।</li> <li>➤ सक्रिय और जागरूक बनाने वाली रचनाएँ, अखबार के लेख, फिल्म, ऑडियो वीडियो सामग्री को देखने, सुनने और समझने के अवसर प्रदान करें।</li> <li>➤ अपने परिवेश, समय और समाज से जुड़े विषयों पर रचनाएँ, पत्र-पत्रिकाएँ उपलब्ध करवाएँ।</li> <li>➤ कल्पनाशीलता और सृजनशीलता को विकसित करने वाली गतिविधियों जैसे – अभिनय, रोल-प्ले, कविता – पाठ, वाक् प्रस्तुति, परिचर्चा आदि के आयोजन करें।</li> <li>➤ साहित्य और साहित्यिक तत्वों की समझ बढ़ाने के अवसर दें।</li> <li>➤ बारी-बारी से बच्चों को 'एंकर' बनने के अवसर दें।</li> <li>➤ मल्टी-मीडिया का प्रयोग करते हुए परियोजना कार्य करवाएँ।</li> </ul>	<ul style="list-style-type: none"> <li>➤ पुस्तकालय में प्रासंगिक और तात्कालिक / समसामयिक पुस्तकें</li> <li>➤ नेट सुविधा / मल्टीमीडिया</li> <li>➤ श्रुतभाव- ग्रहण सामग्री</li> </ul>

## श्रीम २: पढ़ना एवं लिखना (पठन एवं लेखन कौशल)

बच्चे पाठ्य-पुस्तक से इतर अन्य पुस्तकें, समाचार-पत्र, पत्रिकाएँ पढ़कर समझ बनाते हैं और आनंद लेते हैं। तरह-तरह के कोशों को अपनी भाषिक क्षमता के संबर्द्धन के लिए प्रयोग में लाते हैं। सभी विधाएँ – कविता, कहानी, नाटक, यात्रा-विवरण, रिपोर्ट, संस्मरण, लेख आदि में रचनात्मक लेखन करते हैं। लेखन में व्याकरण सम्मत भाषा का प्रयोग करते हैं। उनके लेखन में परिपक्व भाषा की झलक मिलती है।

### अधिगम उपलब्धियाँ (Learning outcomes):

- ✓ अखबार, पुस्तकें, पत्रिकाओं आदि में सामाजिक घटनाओं, मुद्दों, सरोकारों को पढ़कर समझ सकेंगे और उनपर अपने विचार लिखकर प्रस्तुत कर सकेंगे।
- ✓ पाठ्य-सामग्री पढ़कर उसका केंद्रीय भाव समझ सकेंगे और समसामयिक संदर्भों में उसे जोड़कर देख सकेंगे। उसकी प्रासंगिकता पर अपने विचार लिख सकेंगे।
- ✓ हिंदी भाषा में विभिन्न प्रकार की उपलब्ध सामग्री (समाचार, पत्र-पत्रिकाएँ, कहानी, जानकारी परक सामग्री, इंटरनेट पर प्रकाशित सामग्री आदि) को समझकर पढ़ सकेंगे और उस पर अपनी आलोचनात्मक प्रतिक्रिया लिख सकेंगे।
- ✓ लिखते समय क्रमबद्धता, संक्षिप्तता एवं प्रकरण की एकता बनाए रख सकेंगे।
- ✓ शब्दकोष में अर्थ की जानकारी के साथ-साथ अन्य जानकारी को भी अपनी भाषा / लेखन में प्रयुक्त कर सकेंगे।
- ✓ काव्य-रचना के अर्थ को विस्तार दे सकेंगे।
- ✓ संक्षिप्त में कहे गए विचार को विस्तार से लिख सकेंगे और विस्तृत सामग्री को संक्षिप्त में लिख सकेंगे।
- ✓ लेखक के विचारों को उसकी दृष्टि से पढ़कर समझ सकेंगे।
- ✓ विभिन्न शब्दों, पदबंधों आदि को विभिन्न संदर्भों के अनुसार समझेंगे और अपने लेखन में उसका प्रयोग कर सकेंगे।
- ✓ अपने वक्तव्य को तर्कपूर्ण, प्रभावपूर्ण ढंग से और उदाहरण देकर लिख सकेंगे।
- ✓ विभिन्न प्रिंट और डिजिटल माध्यमों से जानकारी प्राप्त करके अपने लेखन में उसका उपयोग कर सकेंगे।
- ✓ व्याकरण सम्मत भाषा में विद्यालयी पत्रिका के लिए लेख, कहानी, कविता, नाटक आदि लिख सकेंगे।
- ✓ किसी भी रचना को दूसरी विधा में रूपांतरित कर सकेंगे।
- ✓ अलग-अलग तरह के प्रश्न पढ़कर उनके अनुरूप उत्तर लिख सकेंगे।

### पढ़ना एवं लिखना

सुझावित विषय / क्षेत्र	सुझावित शिक्षण-अधिगम प्रक्रिया	सुझावित अधिगम स्रोत
<ul style="list-style-type: none"> <li>▶ पाठ्य सामग्री और अपठित सामग्री एवं उस पर प्रश्न</li> </ul>	<ul style="list-style-type: none"> <li>▶ विभिन्न विधाओं की रचनाओं जैसे – कविता, कहानी, एकांकी आदि को भावपूर्ण ढंग से पढ़वाएँ।</li> </ul>	<ul style="list-style-type: none"> <li>▶ साहित्यिक - सामग्री के लिए पुस्तकें और पत्रिकाएँ</li> </ul>
<ul style="list-style-type: none"> <li>▶ पाठ्य सामग्री के केंद्रीय भाव का अनुमान एवं लेखन</li> </ul>	<ul style="list-style-type: none"> <li>▶ विद्यार्थियों को ऐसे अवसर प्रदान करें जिसमें वे विभिन्न विधाओं को उपयुक्त शैली में पढ़ सकें और लिख सकें।</li> </ul>	<ul style="list-style-type: none"> <li>▶ प्रासंगिक, तात्कालिक / समसामयिक पुस्तकें / पत्रिकाएँ</li> </ul>
<ul style="list-style-type: none"> <li>▶ अपने ज्ञान के आधार पर विविध विधाओं की समझ</li> </ul>	<ul style="list-style-type: none"> <li>▶ ऐसे प्रश्नों पर चर्चा करें और उनके उत्तर लिखवाएँ, जिनमें बच्चे अपनी पठित सामग्री को अन्य आयामों से जोड़कर देख-समझ सकें।</li> <li>▶ विभिन्न विधाओं को परस्पर रूपांतरित करने के अवसर</li> </ul>	<ul style="list-style-type: none"> <li>▶ नेटसुविधा/ मल्टीमीडिया</li> <li>▶ भाषा – खेल</li> </ul>

## पढ़ना एवं लिखना

सुझावित विषय / क्षेत्र	सुझावित शिक्षण-अधिगम प्रक्रिया	सुझावित अधिगम स्रोत
<ul style="list-style-type: none"> <li>➤ अपनी व्यक्तिगत राय से भिन्न पाठ्य-सामग्री के मूलभूत तथ्यों की पहचान</li> <li>➤ पाठ्य सामग्री की तुलना में भाव साम्य की दृष्टि से अन्य रचनाएँ</li> <li>➤ साहित्यिक एवं सांस्कृतिक संदर्भों के अनुरूप शब्दों, मुहावरों, पदबंधों का चयन एवं प्रयोग</li> <li>➤ पाठ्य सामग्री को टुकड़ों में बाँटकर अपनी समझ का संवर्द्धन</li> <li>➤ सत्य, काल्पनिक अनुभवों का विस्तार से और क्रमबद्धता से लेखन</li> <li>➤ उपयुक्त कार्यकारण संबंध और श्रोताओं के अनुरूप लेखन</li> <li>➤ विभिन्न प्रिंट एवं डिजिटल माध्यमों से प्राप्त उपयुक्त जानकारी</li> <li>➤ व्यंग्य, रूपक, उपमा आदि की समझ</li> <li>➤ वर्ष के अंत तक साहित्य की विभिन्न विधाएँ, कहानी, एकांकी, कविता / निबंध, लेख आदि की समझ और लेखन</li> </ul>	<ul style="list-style-type: none"> <li>प्रदान करें।</li> <li>➤ सक्रिय और जागरूक बनाने के लिए समसामयिक लेख पढ़वाएँ और उन पर अपनी प्रतिक्रिया लिखने को कहें।</li> <li>➤ कल्पनाशीलता और सृजनशीलता को विकसित करने के लिए अतिरिक्त अध्ययन के लिए प्रेरित करें और पुस्तकें उपलब्ध करवाएँ।</li> <li>➤ अपने परिवेश, समय और समाज से जुड़े विषयों पर रचनाएँ उपलब्ध करवाएँ और लेखन के अवसर भी दें।</li> <li>➤ पाठ्य सामग्री की तुलना में भाव साम्य की दृष्टि से उदाहरण देने को कहें और बच्चों को अपनी अपनी जानकारी साझा करने को प्रेरित करें।</li> <li>➤ विभिन्न कोशों से बच्चों का परिचय करवाएँ और उन्हें देखने-समझने के अवसर दें।</li> <li>➤ शब्दों / भाषा के इतिहास आदि की जानकारी प्राप्त करने के लिए बच्चों में रुचि पैदा करने का प्रयास करें।</li> <li>➤ ऐसी गतिविधियों का आयोजन करवाएँ जिनमें पाठ्य-सामग्री को टुकड़ों में बाँटकर बच्चे अपनी-अपनी टिपण्णी दें।</li> <li>➤ भाषा खेलों का आयोजन करें।</li> <li>➤ सांस्कृतिक कार्यक्रमों के आयोजन में बच्चों को 'एंकर' की प्रस्तुति धन्यवाद ज्ञापन, अतिथि-परिचय, कार्यक्रम संचालन के लिए वक्तव्य आदि के लेखन के अवसर दें और उन्हें प्रस्तुत करने के अवसर दें।</li> <li>➤ इस प्रकार की प्रस्तुति कक्षा में भी करवाएँ ताकि सभी बच्चों को मौका मिल सके।</li> <li>➤ ऐसे परियोजना कार्य करवाएँ जिनमें बच्चे विभिन्न प्रिंट एवं डिजिटल माध्यमों की जानकारी का प्रयोग कर सकें।</li> <li>➤ कविताएँ पढ़ाते समय व्यंग्य, रूपक, उपमा आदि की ओर संकेत करें और समझाएँ।</li> </ul>	<ul style="list-style-type: none"> <li>➤ लेखन- प्रतियोगिताएँ</li> <li>➤ प्रपत्र</li> <li>➤ विभिन्न कार्यक्रम</li> <li>➤ तरह-तरह के कोश</li> <li>➤ गतिविधियाँ</li> </ul>

## थीम 3: व्याकरण और भाषा

बच्चे भाषायी अनुप्रयोग समझने लगते हैं। भाषा की जटिल संरचनाओं को समझने लगते हैं। वे अपनी लिखित और मौखिक अभिव्यक्ति में व्याकरण सम्मत भाषा का प्रयोग करते हैं। पद-भेद, शब्द-भंडार, वाक्य-रचना की पहचान करते हैं। रचनात्मक लेखन में निबंध, पत्र, डायरी, रिपोर्ट, विज्ञापन, कहानी, नाटक आदि लिखते हैं।

### अधिगम उपलब्धियाँ (Learning outcomes):

- ✓ हिंदी भाषा में प्रयुक्त शब्दावली और विभिन्न भाषा शैलियों को समझ सकेंगे और मौखिक तथा लिखित अभिव्यक्ति में उनका प्रयोग कर सकेंगे।
- ✓ विभिन्न भाषाओं और उनकी लिपियों की जानकारी प्राप्त कर सकेंगे।
- ✓ तत्सम- तद्भव रूपों को समझेंगे और अपनी भाषा में प्रयुक्त कर सकेंगे।
- ✓ उपसर्ग-प्रत्यय का तात्पर्य समझकर उन्हें शब्दों में जोड़कर नए अर्थ समझ सकेंगे। उनके जुड़ने से अर्थ-परिवर्तन को भी जान सकेंगे।
- ✓ संज्ञा के तीन भेद व्यक्तिवाचक संज्ञा, जातिवाचक संज्ञा और भाववाचक संज्ञा की पहचान और भाववाचक संज्ञाओं का निर्माण कर सकेंगे। व्यक्तिवाचक संज्ञा के जातिवाचक संज्ञा प्रयोग या इसके उलट संज्ञा प्रयोग समझेंगे और प्रयोग कर सकेंगे।
- ✓ सर्वनाम के भेदों - पुरुषवाचक सर्वनाम, निश्चयवाचक, अनिश्चयवाचक, प्रश्नवाचक, संबंधवाचक, निजवाचक की पहचान और उसका सही उनका सही प्रयोग कर सकेंगे। उनके रूपावली वर्ग पहचान सकेंगे।
- ✓ विशेषण के चार भेद – गुणवाचक विशेषण, परिमाणवाचक विशेषण, संख्यावाचक विशेषण, सार्वनामिक विशेषण समझेंगे और उनके लिंग / वचन के आधार पर सही प्रयोग कर सकेंगे। अन्य पदों से विशेषण बना सकेंगे।
- ✓ कर्म के आधार पर दो भेद - अकर्मक क्रिया और सकर्मक क्रिया की पहचान कर सकेंगे। क्रिया के अन्य भेद – प्रेरणार्थक, संयुक्त आदि की पहचान कर सकेंगे।
- ✓ कर्तृवाच्य, कर्मवाच्य और भाववाच्य की पहचान और उनका प्रयोग अपनी भाषा में कर सकेंगे। परस्पर रूपांतरण भी कर सकेंगे।
- ✓ अव्यय – क्रिया विशेषण, संबंधबोधक, समुच्चयबोधक, विस्मयादिबोधक, निपात - सब की पहचान और प्रयोग को समझ सकेंगे। क्रियाविशेषण के भेद (रीतिवाचक, परिमाणवाचक, कालवाचक, स्थानवाचक), समुच्चयबोधक के भेद (समानाधिकरण और व्याकरण) की पहचान भी कर सकेंगे।
- ✓ व्यावहारिक भाषा में लिंग और वचन का प्रयोग कर सकेंगे। वाक्यों में लिंग परिवर्तन और वचन परिवर्तन कर सकेंगे।
- ✓ काल के तीनों भेद – भूतकाल, वर्तमान काल और भविष्यत् काल का समुचित प्रयोग कर सकेंगे।
- ✓ लिखित और मौखिक भाषा में सही परसर्गों का प्रयोग कर सकेंगे।
- ✓ अर्थ के आधार पर वाक्य भेद की पहचान कर सकेंगे और परस्पर परिवर्तन भी कर सकेंगे। भेद – विधानवाचक, निषेधवाचक, प्रश्नवाचक, विस्मयादिबोधक, आज्ञावाचक, इच्छावाचक, संदेहवाचक और संकेतवाचक को पहचान सकेंगे। वाक्य शोधन भी कर सकेंगे।
- ✓ रचना के आधार पर भेद – सरल, संयुक्त, मिश्रित को पहचानेंगे और वाक्य परस्पर रूपांतरित कर सकेंगे। वाक्य के अंगों – उद्देश्य - विधेय को पहचान सकेंगे।
- ✓ विराम-चिह्नों का सही प्रयोग अपनी भाषा में कर सकेंगे। 'की' और 'कि' तथा 'रि' और 'ऋ' के अंतर की पहचान कर सकेंगे। अनुस्वार तथा 'र' के विभिन्न रूपों को ठीक से अपनी भाषा में प्रयुक्त कर सकेंगे।

- ❑ शब्दों के विभिन्न रूपों विलोम, पर्यायवाची, अनेक के लिए एक शब्द, समरूपी भिन्नार्थक शब्द, अनेकार्थी शब्दों को समझेंगे और इस तरह के नए शब्दों का प्रयोग अपनी भाषा में कर पाएँगे।
- ❑ महावरेदार भाषा समझ सकेंगे और अपने लेखन में उनका प्रयोग कर सकेंगे। **नए महावरों और लोकोक्तियों के प्रयोग भी समझेंगे।**
- ❑ अपठित अनुच्छेद समझ सकेंगे और अपनी भाषा में प्रश्नों के उत्तर लिख सकेंगे।
- ❑ औपचारिक और अनौपचारिक पत्रों का प्रारूप समझते हुए पत्र लेखन कर सकेंगे।
- ❑ निबंध-लेखन में उनकी भाषा, विचार, शैली में परिपक्वता की झलक दिख सकेगी।
- ❑ विज्ञापन लेखन – तीनों प्रकार (वर्गीकृत, जनहित में जारी और उत्पाद बिक्री हेतु) के विज्ञापनों के अंतर को समझेंगे और अलग-अलग विज्ञापन तैयार कर सकेंगे।
- ❑ डायरी के प्रारूप को समझते हुए विशेष दिन की डायरी लिख सकेंगे।
- ❑ **नोटिस – प्रारूप के अनुसार आवश्यकतानुसार नोटिस लिख सकेंगे।**
- ❑ **रिपोर्ट / प्रतिवेदन लेखन – विद्यालय के विभिन्न कार्यक्रमों पर रिपोर्ट लिख सकेंगे।**
- ❑ **सुर्खियाँ लेखन – विस्तृत खबरें पढ़कर उनकी सुर्खियाँ लिख सकेंगे।**

## पढ़ना एवं लिखना

सुझावित विषय / क्षेत्र	सुझावित शिक्षण-अधिगम प्रक्रिया	सुझावित अधिगम स्रोत
<ul style="list-style-type: none"> <li>➤ शब्द विचार</li> <li>➤ उपसर्ग – प्रत्यय</li> <li>➤ तत्सम – तद्भव</li> <li>➤ संज्ञा, लिंग, वचन, कारक, सर्वनाम, विशेषण, क्रिया, काल और उनके भेद</li> <li>➤ अव्यय भेद</li> <li>➤ क्रिया विशेषण</li> <li>➤ संबंधबोधक</li> <li>➤ समुच्चयबोधक</li> <li>➤ निपात</li> <li>➤ विस्मयादिबोधक</li> <li>➤ अकर्मक-सकर्मक क्रिया के अतिरिक्त प्रेरणार्थक क्रिया, संयुक्त क्रिया, मिश्र क्रिया, नामधातु क्रिया</li> <li>➤ अर्थ के आधार पर वाक्य भेद।</li> </ul>	<ul style="list-style-type: none"> <li>➤ विभिन्न लिपियों – देवनागरी – हिंदी, संस्कृत, नेपाली; रोमन – अंग्रेजी, फ्रेंच, जर्मन; फ़ारसी – उर्दू, अरबी, फारसी; गुरमुखी – पंजाबी आदि की चर्चा करें।</li> <li>➤ शब्दों के तत्सम – तद्भव रूप की जानकारी दें। नवीन सोच की ओर भी संकेत करें कि 'तत्सम' शब्द वे हैं जो किसी अन्य भाषा से ज्यों के त्यों ले लिए गए हैं, जैसे – मुख, मस्तक, कॉलेज, डॉक्टर, डोसा, उपमा, सिर्फ़, ईमानदार आदि। 'तद्भव' शब्द वे हैं जिन्हें हिंदी भाषा के अनुरूप ढाल लिया गया है, जैसे – माता, किवाड़, साग, अस्पताल आदि।</li> <li>➤ सर्वनाम के भेदों की पहचान करवाएँ और उनका सही प्रयोग करवाएँ।</li> <li>➤ सर्वनाम के भेद समझाएँ और बताएँ। कि जब संदर्भ के साथ यह, वह, इन्हें, उन्हें, उसे आदि का प्रयोग हो तब तो निश्चयवाचक सर्वनाम मान सकते हैं। जब संदर्भ न हो तब पुरुषवाचक भी हो सकता है और निश्चयवाचक भी। इसका निर्णय कैसे लें? इसे इस प्रकार स्पष्ट करें कि यदि व्यक्ति के लिए यह, वह का प्रयोग हुआ है तब तो वह पुरुषवाचक सर्वनाम होगा और वस्तु, घटना</li> </ul>	<ul style="list-style-type: none"> <li>➤ भाषा खेल</li> <li>➤ विज्ञापनों के नमूने पत्र-पत्रिकाओं से</li> <li>➤ डायरी लेखन की कुछ पुस्तकें</li> <li>➤ नोटिस के नमूने, अखबार की सुर्खियों के नमूने</li> <li>➤ डायरी लेखन <ul style="list-style-type: none"> <li>☛ तिथि</li> <li>☛ समय</li> <li>☛ दिन</li> <li>☛ स्थान</li> </ul> </li> </ul>



## पढ़ना एवं लिखना

सुझावित विषय / क्षेत्र	सुझावित शिक्षण-अधिगम प्रक्रिया	सुझावित अधिगम स्रोत
<ul style="list-style-type: none"> <li>➤ रचना के आधार पर वाक्य भेद और परस्पर परिवर्तन</li> <li>➤ विराम चिह्न</li> <li>➤ मुहावरे / लोकोक्तियाँ</li> <li>➤ रोचक अपठित गद्यांश / पद्यांश (स्तारानुकूल)</li> <li>➤ पत्र लेखन – औपचारिक और अनौपचारिक</li> <li>➤ निबंध लेखन (200 शब्दों में)</li> <li>➤ विज्ञापन लेखन / प्रस्तुति – वर्गीकृत (classified) जनहित में जारी, उत्पाद आदि से संबंधित विज्ञापन</li> <li>➤ डायरी लेखन</li> <li>➤ नोटिस सूचना लेखन</li> <li>➤ प्रतिवेदन / रिपोर्ट लेखन</li> <li>➤ सुर्खियाँ लेखन</li> </ul>	<p>आदि के लिए आया है तो निश्चयवाचक सर्वनाम होगा। इससे समस्या का काफ़ी हद तक समाधान हो जाएगा, जैसे –</p> <ul style="list-style-type: none"> <li>☛ <b>उसे</b> बुला लाओ / <b>वह</b> बाहर खड़ी है / <b>यह</b> तो यहाँ ही बैठा है। इन वाक्यों में उसे, वह, यह व्यक्तियों के लिए आया है यह विभिन्न क्रियाओं से स्पष्ट है। इन्हें पुरुषवाचक माना जाना चाहिए।</li> <li>☛ <b>यह</b> यहाँ रख दो। <b>वह</b> वहीं पड़ा रहने दो। <b>उसे</b> उठा लाओ। इन वाक्यों में यह, वह, उसे वस्तुओं के लिए ही प्रयुक्त हुआ है, अतः इन्हें निश्चयवाचक मानना चाहिए।</li> <li>☛ कुछ अन्य वाक्य देखिये-</li> <li>☛ <b>उन्हें</b> भी बुला लो / <b>उन्हें</b> रखा रहने दो / <b>उन्हें</b> रहने दो। पहले वाक्य में ‘उन्हें’ व्यक्तियों के लिए ही प्रयुक्त हुआ है जबकि दूसरे वाक्य में वस्तुओं के लिए और तीसरे में व्यक्ति भी हो सकते हैं और वस्तु भी। ऐसी स्थिति में दोनों संभव हैं। संदर्भ ज्ञात हो तो उसी के अनुरूप भेद किया जा सकता है अन्यथा दोनों भेद माने जा सकते हैं।</li> </ul> <p>➤ सार्वनामिक विशेषण को समझना आवश्यक है। <b>यह</b> अलमारी बड़ी है और <b>वह</b> छोटी। इस वाक्य में ‘यह’ अलमारी की विशेषता बता रहा है इसलिए सार्वनामिक विशेषण है और ‘वह’ अलमारी के स्थान पर प्रयुक्त हुआ है। इसलिए सर्वनाम है।</p> <ul style="list-style-type: none"> <li>☛ सर्वनाम और सार्वनामिक विशेषण दोनों रूप रचना के स्तर पर समान होते हैं, केवल वाक्य प्रयोग के स्तर पर ही दोनों में अंतर होता है। जो शब्द संज्ञा के स्थान पर प्रयुक्त होते हैं वे सर्वनाम होते हैं। लेकिन जब कोई सर्वनाम किसी संज्ञा (विशेष्य) के साथ लगाकर संज्ञा की विशेषता बताए तो सार्वनामिक विशेषण होता है, जैसे – <b>कुछ</b> फल लाओ। <b>हमारे</b> देश के जवान चौकस रहते हैं। वाक्यों में कुछ और हमारे शब्द सार्वनामिक विशेषण हैं।</li> </ul>	<div style="border: 1px solid black; padding: 10px; text-align: center;"> <p>तारीख</p> <p>नोटिस</p> <hr/> <p><u>शीर्षक</u></p> <hr/> <p>हस्ताक्षर</p> </div>

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	<ul style="list-style-type: none"> <li>▶ विशेषण बनवाएँ, जैसे – यह-ऐसा, वह-वैसा, सुख-सुखद आदि ।</li> <li>▶ क्रिया – कर्म के आधार पर दो भेद – अकर्मक और सकर्मक की पहचान करवाएँ।</li> <li>▶ प्रेरणार्थक क्रिया – प्रेरणार्थक क्रिया और सकर्मक क्रिया के अंतर को समझाएँ। जैसे -             <ul style="list-style-type: none"> <li>• पावनी पतंग उड़ा रही है ।</li> <li>• पावनी तितली उड़ा रही है ।</li> <li>• पहले वाक्य में पावनी क्या उड़ा रही है? – पतंग (निर्जीव संज्ञा)</li> <li>• दूसरे वाक्य में पावनी क्या उड़ा रही है? – तितली (सजीव संज्ञा)</li> <li>• ‘पतंग’ निर्जीव है। अतः पावनी उसमें डोर बाँधकर उड़ा रही है। यहाँ ‘उड़ाना’ सकर्मक क्रिया है। दूसरे वाक्य में पावनी तितली को उड़ने के लिए प्रेरित कर रही है, अतः यहाँ ‘उड़ना’ प्रेरणार्थक क्रिया है।</li> </ul> </li> <li>▶ अव्यय – अव्यय के विभिन्न भेदों को समझाकर पहचान करवाएँ। क्रियाविशेषण के भेदों की पहचान के लिए क्रिया के साथ कैसे, कितना, कब और कहाँ लगाकर पहचानने के लिए कहें। पाठ्य पुस्तक से उदहारण छँटवाकर अभ्यास करवाएँ। संबंधबोधक अव्यय और क्रियाविशेषण का अंतर समझाएँ। संबंधबोधक अव्यय संज्ञा या सर्वनाम के बाद प्रयुक्त होकर वाक्य के संज्ञा / सर्वनाम से संबंध बताता है। जैसे –             <ul style="list-style-type: none"> <li>• तुम घर के भीतर जाओ। (संबंधबोधक)</li> <li>• वह भीतर चला गया। (क्रिया विशेषण)</li> </ul> </li> <li>▶ समुच्चयबोधक अव्यय के दो भेद – समानाधिकरण और व्यधिकरण के बारे में बताएँ।</li> <li>▶ विस्मयादिबोधक – हर्ष, घृणा, दुःख, पीड़ा, व्यक्त करने वाले शब्दों की जानकारी दें।</li> <li>▶ निपात – बल देने वाले शब्द – तो, भी, पर, आदि के प्रयोग से वाक्य के अर्थ या भाव में आए परिवर्तनों की ओर ध्यान दिलाएँ; जैसे – मुझे भी पानी चाहिए। मुझे पानी भी चाहिए।</li> </ul>	

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	<ul style="list-style-type: none"> <li>▶ वाच्य भेद – कर्तृवाच्य – मैं पाठ पढ़ती हूँ। कर्मवाच्य – सरकार द्वारा बाढ़ पीड़ितों की मदद की घोषणा की गई। भाववाच्य – उस से चला नहीं जाता। इस प्रकार के वाक्यों का अभ्यास करवाएँ। परस्पर रूपांतरण भी करवाएँ।</li> <li>▶ रचना के आधार पर वाक्य के तीन भेदों की पहचान करना बताएँ। परस्पर रूपांतरण का अभ्यास भी करवाएँ। संयुक्त से मिश्रित या सरल, सरल से संयुक्त या मिश्रित, मिश्रित से संयुक्त या सरल वाक्यों में परिवर्तन का अभ्यास करवाएँ।</li> <li>▶ उद्देश्य – विधेय की पहचान, जैसे – हमारे सैनिकों ने शत्रुओं के छक्के छुड़ा दिए। इस वाक्य में ‘हमारे सैनिकों ने’ – उद्देश्य है और ‘शत्रुओं के छक्के छुड़ा दिए’ – विधेय है। अशुद्धि शोधन – अकसर होने वाली अशुद्धियों के बारे में बताएँ और वाक्य शोधन का अभ्यास करवाएँ।</li> <li>▶ शब्द भंडार विकसित करने के लिए पिछली सूची में नए शब्द जोड़ें।</li> <li>▶ पाठ्य सामग्री में आए मुहावरों / लोकोक्तियों का प्रयोग समझाएँ और अपने वाक्यों में पुनः प्रयोग करवाएँ। रचनात्मक लेखन में उसका प्रयोग करने के लिए प्रेरित करें।</li> <li>▶ रोचक अपठित गद्यांश और काव्यांश देकर प्रश्न अभ्यास करवाएँ। सामग्री को स्वयं समझने और उत्तर देने की क्षमता विकसित करें।</li> <li>▶ पत्र लेखन – औपचारिक और अनौपचारिक पत्रों के प्रारूप स्पष्ट करें। यह भी स्पष्ट करना कि पता, तिथि, विषय, संबोधन और समाप्ति की आवश्यकता क्यों है? भाषा-शैली पर विशेष ध्यान दें। अति संक्षेप या अनावश्यक विस्तार से बचने की प्रेरणा दें (निमंत्रण, बधाई, संवेदना, धन्यवाद के अनौपचारिक पत्र तथा शिकायती पत्र, संपादक के नाम पत्र, प्रार्थना या आवेदन के औपचारिक पत्र लिखवाएँ)।</li> <li>▶ निबंध लेखन के लिए विद्यार्थियों को उनके स्तर</li> </ul>	

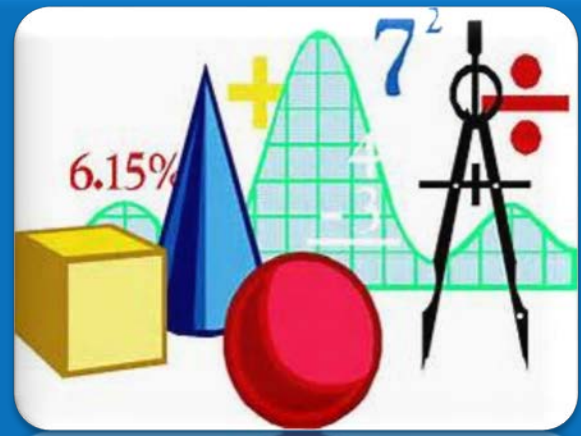
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	<p>के अनुकूल समसामयिक, उनसे संबद्ध और रोचक विषय देकर अभ्यास करवाएँ। निबंध का प्रारंभ मुख्य विषय-वस्तु और उपसंहार को स्पष्ट करें। अलग-अलग अनुच्छेदों में विचार क्रमबद्ध रूप से अभिव्यक्त करने को कहें। ये निबंध वर्णनात्मक, कल्पनात्मक आदि हो सकते हैं।</p> <ul style="list-style-type: none"> <li>▶ विज्ञापन लेखन – वर्गीकृत, उत्पादों की बिक्री के लिए, जनहित में जारी विज्ञापन के नमूने दिखाकर समझाएँ और विज्ञापन बनवाएँ (विद्यालय में बनाई गई हस्तशिल्प सामग्री – मोमबत्तियाँ, दीये, वॉल हैंगिंग आदि) पेंसिल, पेन, पुरानी साइकिल बेचने हेतु, आदि)।</li> <li>▶ डायरी लेखन – विशेष दिवस / अवसर / घटनाओं पर डायरी लेखन करवाएँ।</li> <li>▶ नोटिस – नोटिस का प्रारूप समझाएँ और विद्यालय के क्रिया-कलापों से संबंधित नोटिस लिखवाएँ (वार्षिकोत्सव की तैयारी, नाटक मंचन, वाद-विवाद प्रतियोगिता, खेल दिवस, स्कूल पत्रिका के लिए रचनाएँ आमंत्रित करने हेतु आदि)।</li> <li>▶ विद्यालयी गतिविधियों पर प्रतिवेदन / रिपोर्ट लिखवाएँ (विद्यालय में मनाए गए वन महोत्सव, सांस्कृतिक प्रतियोगिताएँ, खेल दिवस, भ्रमण आयोजन आदि की रिपोर्ट)।</li> <li>▶ सुर्खियाँ लेखन - अखबार की रिपोर्ट देकर उसकी सुर्खियाँ लिखवाएँ। शब्द चयन आकर्षक हो, संक्षिप्त हो, इस पर चर्चा करें।</li> </ul>	

# *MATHEMATICS*



# Mathematics



**M**athematics is one of the most important subjects which is used in daily life and other branches of knowledge. George Polya, a Hungarian Mathematician, describes two kinds of aims for school mathematics: *'A narrow aim, that of turning out employable adults who (eventually) contribute to social and economic development; and A higher aim, that of developing the inner resources of the growing child with regard to school mathematics.'*

The narrow aim specifically relates to numeracy and is taken care at beginning of learning mathematics i.e. elementary schools. The Primary school curriculum focuses on teaching of numbers and operations on them, measurement of quantities, fractions, percentages and ratios: all these are important for numeracy.

The higher aim focuses on developing a child's inner resources, in which the role that mathematics plays is mostly about thinking. Development of inner resources also means equipping children to evolve their own ways of solving problems and generating better algorithms. Clarity of thought and pursuing assumptions to logical conclusions is central to the mathematical enterprise. There are many ways of thinking, and the kind of thinking one learns in mathematics is an ability to handle abstractions.

More importantly, what mathematics offers is a way of doing things: to be able to solve mathematical problems, and more generally, to have the right attitude towards problem solving and to be able to deal with all kinds of problems in a systematic manner.

## **Problems in teaching and learning of mathematics**

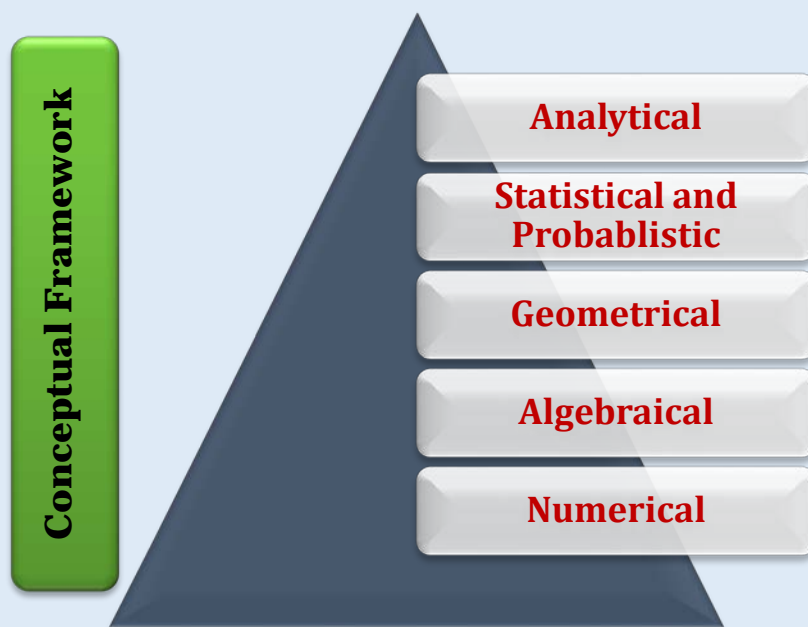
Various researches have highlighted upon some problems that hamper learning of mathematics in schools. The following four problems have been identified to be in the fore front and are the core areas of concern for teachers and practitioners:

1. Most of the children do not find mathematics learning joyful therefore fear mathematics.
2. Curriculum is disappointing for talented minority as well as the non-participating majority in the class i.e not catering to learning needs.
3. Assessment encourages perception of mathematics as mechanical computation and reproduction of learnt facts and algorithms, and
4. Pre service and in- service teacher education and support in the teaching of mathematics is totally inadequate.

These issues are required to be addressed through the curriculum as and wherever possible. These also need to be expanded on, since they concern the curriculum in essential ways. Concerted efforts therefore, are required to improve learning of mathematics in schools. Major reforms are suggested right from the early to terminal school classes.

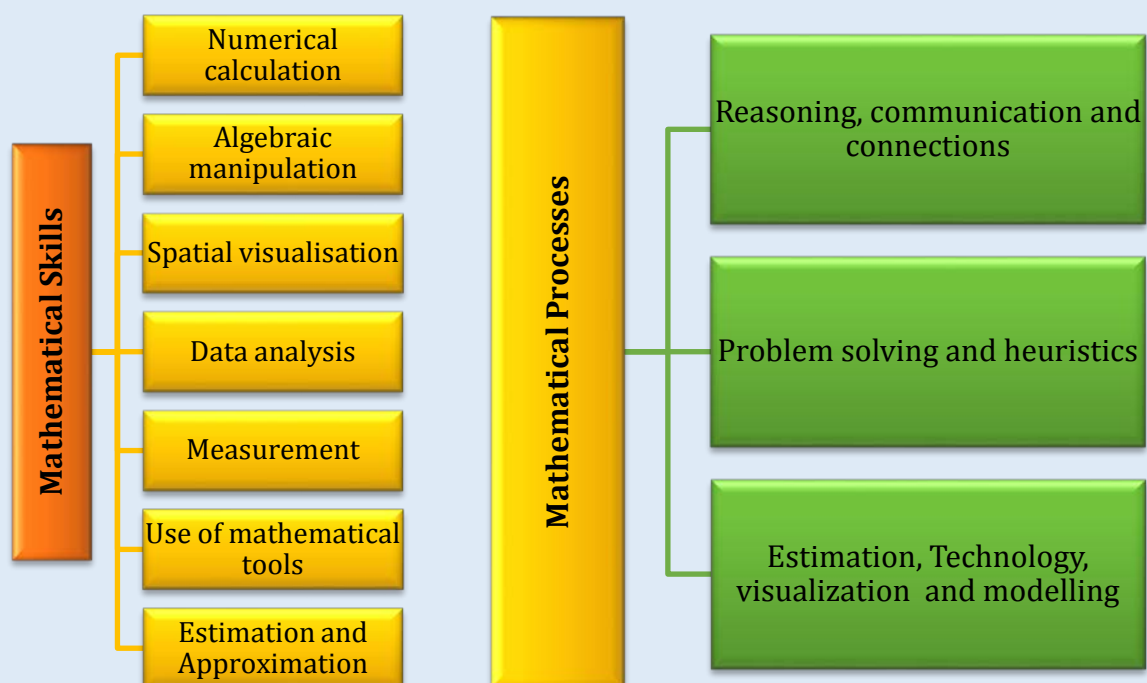
Keeping in view the present dismal picture of mathematics learning in schools, it is envisioned that the school mathematics should be such that children:

- 📖 enjoy learning of mathematics.
- 📖 learn importance of mathematics that is much more than a few formulas and mechanical procedures of solving problems. Understanding when and how a mathematical technique is to be used is always more important than recalling the technique from memory (which may easily be done using a book), and the school needs to create such understanding.
- 📖 see mathematics as something to talk about, to communicate, to discuss among themselves, to work together on. Making mathematics a part of children's life experience is the best mathematics education possible.
- 📖 pose and solve meaningful problems.
- 📖 use abstractions to perceive relationships, to see structure, to reason about things, to argue the truth or falsity of statements.
- 📖 understand the basic structure of mathematics: Arithmetic, algebra, geometry and trigonometry, the basic content areas of school mathematics, all offer a methodology for abstraction, structuration and generalization.
- 📖 are expected to be engaged by teacher in class.



The present Mathematics curriculum at the upper primary level aims to develop a number of mathematical skills and processes among children in Classes VI-VIII as presented in the diagram below:





## Mathematics at Upper Primary Stage

Mathematics is amazingly compressible: one may struggle a lot, work out something, perhaps by trying many methods, but once it is understood, and seen as a whole, it can be filed away, and used to move forward when needed. The insight that goes into this compression is one of the great joys of mathematics. A major goal of the upper primary stage is to introduce the child to this particular pleasure.

The compressed form lends itself to application and use in a variety of contexts. Thus, mathematics at this stage can address many problems from everyday life and offer tools for addressing them and using it for solving problems. Indeed, the transition from mostly the concrete presentation of mathematics to its exact abstract form and arithmetic to algebra, at once is both challenging and rewarding and is best if seen in this light.

## Major Themes

The major themes that will be covered at the Upper Primary stage are highlighted below:

### Arithmetic and Algebra

A consolidation of basic concepts and skills learnt in arithmetic in classes at the primary level is necessary from several points of view. Firstly, for ensuring numeracy in all children which is an important aspect of Universalization of Elementary Education (UEE). Secondly, moving from number sense to number patterns, seeing relationships between numbers and looking for patterns in the relationships develops useful life skills in children. Ideas of prime numbers, odd and even numbers and tests of divisibility etc. offer scope for such exploration.

Algebraic notation, introduced at the upper primary stage, is best seen as a compact language, a means of succinct expression. Use of variables, setting up and solving linear equations, identities and factoring are means by which students gain fluency in using the new language. The set theory and its notations need to be introduced here as an important tool to represent most of the mathematics.

The use of arithmetic and algebra in solving daily life problems can be emphasized. However, engaging children's interest and offering a sense of success in solving such problems is essential.

### Shape, space and Measures

A variety of regular shapes are introduced to children at this stage: triangles, circles, quadrilaterals, etc. They offer a rich new mathematical experience in at least four ways. Children start looking for such shapes in nature, all around them, and thereby discover many symmetries and acquire a sense of aesthetics. Secondly, they understand how many seemingly irregular shapes can be approximated by regular ones, which becomes an important technique in science. Thirdly, they start comprehending the idea of space: for instance, that a circle is a path or boundary which separates the space inside the circle from that outside it. Fourthly, they start associating numbers with shapes, like area, perimeter etc., and this technique of quantization, or arithmetization, is of great importance. This also suggests that mensuration is best when integrated with geometry. An informal introduction to geometry is possible using a range of activities like paper folding and dissection, and exploring ideas of symmetry and transformation. Observing geometrical properties and inferring geometrical truth is the main objective here. Formal proofs will be dealt with at a later stage.

### Visual learning

Data handling, representation and visualization are important mathematical skills which are taught at this stage. They are of immense use as "life skills". Students can learn to appreciate how railway time tables, directories and calendars organize information compactly. Data handling should be suitably introduced as tools to understand process, represent and interpret day-to-day data. Use of graphical representations of data should be encouraged. Formal techniques for drawing linear graphs can be taught. Visual Learning fosters understanding, organization, and imagination. Instead of emphasizing on two-column proofs, students should also be given opportunities to justify their own conclusions with less formal, but nonetheless convincing, arguments. Students' spatial reasoning and visualization skills should be enhanced. The study of geometry should make full use of all available technology. A child when given visual scope to learning remembers pictures, diagrams, flowcharts, formulas, and procedures.

## Mathematics and Mathematicians

At all stages of the curriculum, an element of humanizing the curriculum is essential. The development of mathematics has many interesting stories to be told, and every student's daily life includes many experiences relevant to mathematics. Bringing these stories and accounts into the curriculum is essential for children to see mathematics in perspective. Lives of mathematicians and stories of mathematical insights are not only endearing; they can also be inspiring.

Mathematics has been an important part of Indian history and culture, and students can be greatly inspired by understanding the seminal contributions made by Indian mathematicians in early periods of history. Similarly, contributions by women mathematicians from all over the world are worth highlighting. This is important, mainly to break the prevalent myth that mathematics has been an essentially male domain, and also to invite more girls to the mathematical enterprise.

Thus specific emphasis should be given on highlighting the contribution of Indian mathematicians. An appreciation of such contributions will help students see the place of mathematics in our culture.

The discussion on the above aspects and having a clear understanding is essential for every teacher. The curriculum should focus on discussion that will lead to enhancement in pedagogical content knowledge and teaching strategies that conform to the constructivist approach of teaching as emphasised in the National Curriculum Framework- 2005.

## Curricular Expectations



Moves from number sense to number patterns.



See relationships between numbers and look for patterns in relationships.



Gain proficiency in using newer language of mathematics like, variables, expressions, equations, identities, etc.



Use arithmetic and algebra to solve real life problems and pose meaningful problems.



Discover symmetries and acquire sense of aesthetics by looking around regular shapes like triangles, circles, quadrilaterals, etc.



Comprehend the idea of space as region enclosed with in boundaries of a shape.



Relate numbers with shapes in terms of perimeter, area and volume and uses them to solve everyday life problems.



Provide reasoning and convincing arguments to justify their own conclusions particularly in mathematics.



Collect, represent (graphically and in tables) and interprets data/information from her/his life experiences.



Handle abstraction in mathematics.

## Theme 1: Number System

The idea about numbers that children built-up up to class V is of representing the number of items/objects in a collection. But in class VI children have to initiate the learning of numbers that are abstract which starts with negative numbers and extension of whole numbers to integers. This is the stage where the collection of integers is seen as a system that satisfy certain properties and have correlated structure.

A preparation of the extension of fractions and integers to rational numbers also takes place in this class. A gradual move helps children in developing these concepts. Let children observe various patterns while applying operations on integers and fractions (common and decimals). Generalization of these patterns will lead to many properties of integers and decimal fractions.

The multiples and factors of numbers can be obtained by just playing with numbers. Therefore, it is expected that children will learn about these concepts through a play way method. Children will be enabled to explore and develop their own rules for finding HCF and LCM of two or more numbers.

Sets are important way of expressing groups of numbers and other objects. In this class a preliminary idea of language and terminology related to sets is to be introduced. This will also help children in looking into various collection of numbers as sets satisfying certain properties. The knowledge about sets will be further strengthened in higher classes too.

### Learning Outcomes:

Children will be able to:

- ✓ describe place and face values of a digit in a large number;
- ✓ create situations around them in which they find negative numbers;
  - ♥ through situations like money transactions, measuring of height, budget, etc. child uses larger numbers and thus appreciates their use;
  - ♥ reduces fractions involving larger numbers to simplest (lowest) forms;
- ✓ identify a situation for a given fraction (like proper, improper, equivalent, etc.);
- ✓ construct examples through which they demonstrate the addition and subtraction of integers;
- ✓ create daily life situations where opposites are involved and represent such quantities by positive and negative numbers;
- ✓ make their own strategies of ordering, adding and subtracting integers;
- ✓ use divisibility rules to find factors of a number;
- ✓ demonstrate ways of finding HCF and LCM of two numbers;
- ✓ devise strategies to identify appropriate situations to use the concepts of HCF and LCM.

## Number System

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<p><b>Numbers</b></p> <ul style="list-style-type: none"> <li>➤ Consolidating the <i>sense</i> of numberness up to 5 digits, size, estimation of numbers, identifying smaller, larger, etc.</li> <li>➤ Place value (recapitulation and extension.,</li> <li>➤ Operations on large numbers.</li> <li>➤ Word problems on number operations involving large numbers This would include conversions of units of length &amp; mass (from the larger to the smaller units).</li> <li>➤ Estimation of outcome of number operations.</li> <li>➤ Introduction to a sense of the largeness of, and initial familiarity with, large numbers up to 8 digits and approximation of large numbers).</li> <li>➤ Numbers in Indian and International Systems and their comparison.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Revising previous concepts learnt by children.</li> <li>➤ Building on children's previous learning.</li> <li>➤ Making children compare numbers up to 5 digits through various situations like cost of two houses, number of spectators present in two cricket matches etc.</li> <li>➤ Extending number up to 8 digits through patterns that exist in numbers up to five digits and then citing/observing daily life situations e.g. cost of property,</li> <li>➤ Involving children in the activities that include classification of numbers on the basis of their properties like even, odd, multiples and factors. These properties can be used to classify numbers in to various categories.</li> <li>➤ Providing opportunities to children to observe divisibility rules through patterns in multiplication facts. This could be followed by taking different division problems and discussing their use. For example, let children form multiplication tables of different numbers like 2, 3, 4, etc. and then from the multiplication facts ask them to identify the pattern like multiple of 3 has sum its digits divisible by 3, multiple of 5 has either 5 or zero in its one's place, etc.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Number cards to create large numbers.</li> <li>➤ Number cards to demonstrate operations on numbers.</li> <li>➤ Maths Kit.</li> <li>➤ Multiplication table chart.</li> </ul>
<p><b>Natural numbers and Whole numbers.</b></p> <ul style="list-style-type: none"> <li>➤ Natural numbers.</li> <li>➤ Whole numbers.</li> <li>➤ Properties of numbers (commutative, associative, distributive, additive identity, multiplicative identity).</li> <li>➤ Number line.</li> <li>➤ Seeing patterns, identifying and</li> </ul>	<ul style="list-style-type: none"> <li>➤ Provide opportunities to children to understand that whole numbers are extension of natural numbers with the number zero included in it.</li> <li>➤ Provide children opportunities to perform operations of natural numbers with zero and to form rules like when zero is added to any number or subtracted from any</li> </ul>	<ul style="list-style-type: none"> <li>➤ Maths Kit.</li> <li>➤ Geoboard with rubber band.</li> <li>➤ Videos/Life history of Mathematicians and their contributions.</li> </ul>

## Number System

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
formulating rules for operations on numbers.	<p>number the result is the same number.</p> <ul style="list-style-type: none"> <li>➤ Conducting the activity to conclude that <math>a \div 0</math> is not defined. For example, <math>a/0</math> is a number whose product with zero is <math>a</math>, which never exist if <math>a</math> is non-zero.</li> </ul>	
<p><b>Negative Numbers and Integers</b></p> <ul style="list-style-type: none"> <li>➤ Need for negative numbers.</li> <li>➤ Connection of negative numbers in daily life.</li> <li>➤ Representation of negative numbers on number line.</li> <li>➤ Ordering of negative numbers, Integers.</li> <li>➤ Identification of integers on the number line,</li> <li>➤ Operation of addition and subtraction of integers,</li> <li>➤ Addition and subtraction of integers on the number line</li> <li>➤ Comparison of integers,</li> <li>➤ ordering of integers.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Conducting activities in the classes in groups of 4-5 children to represent opposite situations by numbers like moving up and down from a reference point, paying and getting some amount etc.</li> <li>➤ Asking children to extend the number line to represent negative numbers and zero along with natural numbers and let them realise that corresponding to every positive numbers there is a negative number and vice-versa.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Maths Kit.</li> <li>➤ Geoboard with rubber band.</li> </ul>
<p><b>Sets</b></p> <ul style="list-style-type: none"> <li>➤ Idea of sets.</li> <li>➤ Representation of sets.</li> <li>➤ Types of sets: Finite/infinite and empty.</li> <li>➤ Cardinality of a set.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Taking examples from children's context for introducing the idea of set.</li> <li>➤ Letting children work out their own definitions and rules to work with sets as specific collections like classifying sets as finite/infinite and empty.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Maths Kit.</li> </ul>
<p><b>Fractions</b></p> <ul style="list-style-type: none"> <li>➤ Revision of what a fraction is.</li> <li>➤ Fraction as a part of whole.</li> <li>➤ Representation of fractions (pictorially and on number line).</li> <li>➤ Fraction as a division.</li> <li>➤ Proper, improper &amp; mixed fractions.</li> <li>➤ Equivalent fractions.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Conducting activities with paper folding to show the product of two fractions as 'of' e.g. <math>\frac{2}{3} \times \frac{4}{5}</math> as two-third of four-fifths</li> <li>➤ Encouraging children to demonstrate similar such products by paper folding and to generalise that product of two fractions can be obtained by multiplying the numerators to get numerator and denominator can be</li> </ul>	<ul style="list-style-type: none"> <li>➤ Maths Kit</li> </ul>

## Number System

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Comparison of fractions,</li> <li>➤ Operations on fractions (Avoid large and complicated unnecessary tasks). (Moving towards abstraction in fractions).</li> <li>➤ Review of the idea of a decimal <i>fraction</i>.</li> <li>➤ Place value in the context of decimal <i>fraction</i>.</li> <li>➤ Inter conversion of fractions and decimal fractions (avoid recurring decimals at this stage).</li> <li>➤ Word problems involving addition and subtraction of decimals (two operations together on money, mass, length and temperature).</li> </ul>	<p>obtained by multiplying denominators.</p>	
<p><b>Playing with Numbers</b></p> <ul style="list-style-type: none"> <li>➤ Simplification of brackets.</li> <li>➤ Multiples and factors,</li> <li>➤ divisibility rule of 2, 3, 4, 5, 6, 8, 9, 10, 11. (All these through observing patterns. Children would be helped in deducing some and then asked to derive some that are a combination of the basic patterns of divisibility)</li> <li>➤ Even/odd and prime/composite numbers, Co-prime numbers, prime factorisation, every number can be written as products of prime factors.</li> <li>➤ HCF and LCM, prime factorization and division method for HCF and LCM, the property <math>LCM \times HCF = \text{product of two numbers}</math>.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Encouraging children to create number patterns through which HCF and LCM can be discussed.</li> <li>➤ Conducting activities for number operations to be performed by children which through discussions could help them to know the different properties like closure, commutativity, associativity etc.</li> <li>➤ Creating situations in which numbers are required to be represented for opposite situations, like directions, give and take situations etc. And discuss with children about the ways to represent such situations by numbers.</li> <li>➤ Presenting daily life situations and pictures to introduce fractions and decimals like representing part of a whole as number, a dot mark placed to separate rupees and paise, meter and centimetre, kilometre and meter, litter and millilitre etc.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Maths Kit.</li> </ul>

<b>Number System</b>		
<b>Key Concepts</b>	<b>Suggested Transactional Processes</b>	<b>Suggested Learning Resources</b>
All the above concepts are to be embedded in children's contexts so that it brings out the significance and provide motivation to the child for learning these ideas.	<ul style="list-style-type: none"> <li>➤ Encouraging children to look at the pictures showing sum and difference of like fractions and to generalize.</li> <li>➤ Letting children work on their own to evolve and understand that to add or subtract two unlike fractions it is required to convert them into equivalent fractions of same denominators (like fractions).</li> </ul>	

**Life Skills:** Solving daily life problems



## Theme 2: Ratio and Proportion

There are many situations when two quantities are compared by using properties of division of numbers, like heights of two objects as one is half of other or double of other. Using such contexts the terminologies related to ratios need to be brought in home for children. The theme in this class mainly focuses on the basic idea of ratios and proportions which ultimately lead to the major applications of arithmetic in our daily life called commercial 'mathematics'. Percentage, unitary method, simple and compound interests, time and speed, work and time and profit and loss will be focused on in classes VII and VIII. Hence building a strong foundation in Class VI about ratio and proportion is very important.

### Learning Outcomes:

Children will be able to:

- understand how the comparison of two quantities through ratio is different from comparisons done earlier;
- explain the meaning of proportion;
- know how ratio and proportion are related to unitary method;
- solve problems related to daily life using unitary method;
- try to construct examples that require the concept of ratio
- solve problems related to speed, distance and time.

Ratio and Proportion		
Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Difference between fraction and ratio.</li> <li>➤ Concept of Ratio.</li> <li>➤ Proportion as equality of two ratios.</li> <li>➤ Unitary method (with only direct variation implied).</li> <li>➤ Word problems on ratio and proportions.</li> <li>➤ Idea of percent as fraction with 100 as denominator</li> <li>➤ Idea of speed and simple daily life problems related to speed, time and distance.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Revising previous concepts learnt by children.</li> <li>➤ Building on children's previous learning.</li> <li>➤ Presenting situations before the children that would prompt them to form patterns and feel the need for a symbol in place of number.</li> <li>➤ Organising discussions in the class to show different methods of comparison of quantities are helpful in different situation(s).</li> <li>➤ Encouraging children to create examples to show the difference between comparison of quantities done through operation of subtraction and that through division (ratio)</li> <li>➤ Encouraging children to frame and solve problems on unitary method to understand unit of which quantity is to be found.</li> <li>➤ Providing situations to children to find out the rate and the total</li> </ul>	<ul style="list-style-type: none"> <li>➤ Maths Kit.</li> </ul>

## Ratio and Proportion

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
	<p>amount in related context using unitary method.</p> <ul style="list-style-type: none"><li>▶ Discussing examples to show the difference between ratio and proportion and to relate them.</li><li>▶ Solving daily life problems related to unitary method that exist in children's daily life like while shopping finding out the rate etc.</li></ul>	

**Life skill:** solving daily life problems

## Theme 3: Algebra

Children have idea of using symbols/letter for numbers from very early classes. Even in class I children use to solve problem like  $5 + \square = 7$ ,  $\square + \square = 9$  etc. and in class V they learnt that perimeter of a square is  $4 \times$  where  $x$  is it's side. Thus the introduction of this topic should be made through these examples which children are already acquainted with and avoid directly bring the abstract idea of variable, unknowns and constants. The aim of this theme in this class is that children will be enabled to understand algebra as generalization patterns on numbers in term of using a letter of any number. Ultimately children learn that algebra is generalization of arithmetic and hence we use all rules as we have in number operations.

### Learning Outcomes:

Children will be able to:

- ✔ describe variable and unknown through patterns and through appropriate word problems and generalise (example  $5 \times 1 = 5$ , etc.);
- ✔ generate patterns with more examples;
- ✔ understand unknowns through examples with simple contexts (single operations);
- ✔ define terminology associated with algebra like literal numbers, terms, expressions, factor, coefficient, polynomials, degree, like and unlike terms;
- ✔ frame algebraic expressions;
- ✔ evaluate value of algebraic expressions by substituting a number for the variable.

Algebra		
Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Introduction to constants, variable and unknown through patterns and through appropriate word problems and generalisations (For example <math>1+3=2^2</math>, <math>1+3+5=3^2</math>, <math>1+3+5+7=4^2</math>, sum of first <math>n</math> odd numbers = <math>n^2</math>).</li> <li>➤ Generate such patterns with more examples and generalisation.</li> <li>➤ Introduction to unknowns through examples with simple contexts (single operations)</li> <li>➤ Terminology associated with algebra- like literal numbers, terms, expressions, factor, coefficient, polynomials, degree, like and unlike terms.</li> <li>➤ Framing algebraic expressions.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Revising previous concepts learnt by children.</li> <li>➤ Building on children's previous learning.</li> <li>➤ Providing situations in which a pattern or phenomenon is to be generalised like area of a rectangle can be obtained by multiplying the measure of its' two adjacent sides.</li> <li>➤ Encouraging children to find ways to represent this in shorter and more compact way by considering the two adjacent sides as <math>l</math> and <math>b</math> or <math>S_1</math> and <math>S_2</math>.</li> <li>➤ Providing situations which can be mathematically expressed by using numbers and letters in place of numbers like any even number is double of a natural number can be expressed as: Even number = <math>2n</math>, where <math>n</math> is a natural number.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Maths Kit</li> </ul>

<b>Algebra</b>		
<b>Key Concepts</b>	<b>Suggested Transactional Processes</b>	<b>Suggested Learning Resources</b>
<ul style="list-style-type: none"> <li>➤ Evaluation of algebraic expressions by substituting a value for the variable.</li> <li>➤ Introduction to linear equation in one variable.</li> </ul>		

**Skills:** Developing efficient strategies for numerical calculation, describing relationships and applying algebraic techniques

## Theme 4: Geometry

Children in this class should be now in Van Heile's level 2 of geometry learning i.e. Properties are perceived at Level 2, but they are isolated and unrelated. At Level 2 children would say "I know it's a rectangle because it is closed; it has 4 sides and 4 right angles; opposite sides are parallel; opposite sides are congruent; diagonals bisect each other; adjacent sides are perpendicular; etc...." All the properties known are listed since the student doesn't perceive any relationship between the properties, e.g., one implies the other. There is no knowledge of necessary and sufficient conditions. Like wise children develop their understanding about properties of other shapes and figure in this class.

### Learning Outcomes:

Children will be able to:

- ✔ differentiate between different geometrical figures on the basis of their observable properties;
- ✔ classify angle into different types on the basis of their measurement;
- ✔ understand the difference between different types of triangles and the basis on which they are classified;
- ✔ classify quadrilaterals as trapezium, parallelogram, rectangle, square, rhombus;
- ✔ classify angles in different groups/types;
- ✔ draw different types of triangles and quadrilaterals;
- ✔ attempt to prepare solids using their nets;
- ✔ observe the objects and tries to make strategies to decide about the symmetry of the object;
- ✔ observe the reflection of objects in mirror and then tries to formulate rules about the symmetry of the object;
- ✔ try to see the logic behind drawing an angle of certain measure using geometrical properties;
- ✔ device ways to draw related angles after learning to draw an angle of certain measure;
- ✔ identify 3-d shapes and their parts;
- ✔ identify 2-d symmetrical objects;
- ✔ understand reflection symmetry;
- ✔ construct angles of different measures using compasses;
- ✔ draw perpendicular line segments.

Geometry		
Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<p>➤ <b>Basic geometrical ideas (2 -D):</b> Introduction to geometry. Its linkage with and reflection in everyday experiences.</p> <ul style="list-style-type: none"> <li>☛ Line, line segment, ray.</li> <li>☛ Open and closed figures.</li> <li>☛ Interior and exterior of closed figures.</li> <li>☛ Curvilinear and linear boundaries</li> <li>☛ Angle — Vertex, arm, interior and exterior.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Revising previous concepts learnt by children.</li> <li>➤ Building on children's previous learning.</li> <li>➤ Performing activities in which students can be shown concrete models and pictures of different geometrical shapes.</li> <li>➤ Involving children in activities to identify, angles, triangles &amp; quadrilaterals and their nets.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Maths Kit.</li> <li>➤ Cardboard, Hardboard, cutter, pencil, adhesive, scale.</li> <li>➤ Geometry Boxes.</li> <li>➤ Geoboard with rubber band.</li> </ul>

## Geometry

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>☛ Triangle — vertices, sides, angles, interior and exterior, altitude and median.</li> <li>☛ Quadrilateral — Sides, vertices, angles, diagonals, adjacent sides and opposite sides (only convex quadrilateral are to be discussed), interior and exterior of a quadrilateral.</li> <li>☛ Circle — Centre, radius, diameter, arc, sector, chord, segment, semicircle, circumference, interior and exterior.</li> </ul> <p>➤ <b>Understanding Elementary Shapes (2-D and 3-D):</b></p> <ul style="list-style-type: none"> <li>☛ Measure of Line segment.</li> <li>☛ Measure of angles.</li> <li>☛ Pair of lines – Intersecting and perpendicular lines, Parallel lines.</li> <li>☛ Types of angles- acute, obtuse, right, straight, reflex, complete and zero angle.</li> <li>☛ Classification of triangles (on the basis of sides, and of angles).</li> <li>☛ Types of quadrilaterals – Trapezium, parallelogram, rectangle, square, rhombus.</li> <li>☛ Simple polygons (introduction) (Upto octagons regulars as well as non-regular).</li> <li>☛ Identification of 3-D shapes: Cubes, Cuboids, cylinder, sphere, cone, prism (triangular and square), pyramid (triangular and square), Identification and locating in the surroundings.</li> <li>☛ Elements of 3-D figures. (Faces, Edges and vertices).</li> <li>☛ Nets for cube, cuboids, cylinders, cones and tetrahedrons.</li> </ul> <p>➤ <b>Symmetry: (reflection)</b></p> <ul style="list-style-type: none"> <li>☛ Observation and identification of 2-D symmetrical objects for reflection symmetry.</li> <li>☛ Operation of reflection (taking mirror images) of simple 2-D objects.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Asking children to make models and Nets of 3-D shapes to get an idea of their number of edges, faces and corners (vertices) etc.</li> <li>➤ Conduct discussion on number and type of corners, edges and faces after showing solid objects to the children like models of cube, cuboid, cylinder, cone, pyramid, prism etc.</li> <li>➤ Performing activities with mirrors in which children are asked to observe the reflections of one part of a shape with its image and image with the other part. This will be followed by discussion.</li> <li>➤ Using the activity of folding of a paper cut out of a shape along specific lines to show the reflection symmetry in case the two halves exactly cover each other.</li> <li>➤ Providing children opportunities to draw an angle measuring <math>60^\circ</math> using compasses. On the basis of this construction let them construct other angles that measure <math>30^\circ</math>, <math>120^\circ</math>, <math>90^\circ</math>, etc.</li> <li>➤ Giving children a feel of dividing a circle into equal segments that correspond to an angle. For example, a circle can be divided into six equal parts by the chords of length equal to radius of the circle and this actually forms <math>1/6^{\text{th}}</math> of complete angle i.e. <math>60^\circ</math> at the centre.</li> <li>➤ Providing opportunities to children to draw different geometrical figures that involve angles of various measures, line segments etc.</li> <li>➤ Demonstrating the construction of bisector of an angle and a line segment.</li> </ul>	

Geometry		
Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>☛ Recognising reflection symmetry (identifying axes).</li> <li>➤ <b>Constructions (using Straight edge Scale, protractor, compasses)</b> <ul style="list-style-type: none"> <li>☛ Drawing of a line segment.</li> <li>☛ Perpendicular bisector.</li> <li>☛ Construction of angles (using protractor).</li> <li>☛ Angle <math>60^\circ</math>, <math>120^\circ</math> (Using Compasses)</li> <li>☛ Angle bisector- making angles of <math>30^\circ</math>, <math>45^\circ</math>, <math>90^\circ</math> etc. (using compasses).</li> <li>☛ Angle equal to a given angle (using compass.)</li> <li>☛ Drawing a line perpendicular to a given line from a point a) on the line b) outside the line.</li> <li>☛ Construction of circle.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Encouraging children to construct perpendicular bisector of line segment and angles of measure <math>30^\circ</math>, <math>15^\circ</math>, <math>45^\circ</math>, etc.</li> <li>➤ Appreciating children efforts in making angles to let them evolve methods of constructing angles like <math>75^\circ</math>.</li> </ul>	

**Integration:** Arts Education

**Skills:** to identify, visualise and quantify measures, relating abstract information to real life situations

## Theme 5: Mensuration

In the previous three classes children were learning the measurement of various quantities like length, mass, temperature and time. Mathematically proficient students communicate precisely by engaging in discussion about their reasoning using appropriate mathematical language. The terms students should learn to use with increasing precision are area, surface area, volume, decomposing, edges, dimensions, net, vertices, face, base, height, trapezoid, isosceles, right triangle, quadrilateral, rectangles, squares, parallelograms, trapezoids, rhombi, kites, right rectangular prism, and diagonal. Children continue to strengthen their understanding that area is the number of squares needed to cover a plane figure. They will also know the formulas for rectangles and triangles. "Knowing the formula" does not mean memorization of the formula but to have an understanding of why the formula works and how the formula relates to the measure (area) and the figure. All children should be enabled to develop this understanding.

### Learning Outcomes:

Children will be able to:

- ✔ describe the concept of perimeter of various shapes;
- ✔ demonstrate the idea of area and volume of shapes;
- ✔ calculate the perimeter of different shapes given, she tries to formulate the perimeter of shapes like rectangle, square;
- ✔ calculate the areas of rectangle and square by dividing them into appropriate smaller units. she tries to think of such small units;
- ✔ use conversion of units of mass, money, time, and capacity in different daily life situations.

Mensuration		
Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Concept of perimeter and introduction to area</li> <li>➤ Introduction and general understanding of <i>perimeter</i> using many shapes.</li> <li>➤ Shapes of different kinds with the same perimeter.</li> <li>➤ Concept of area, Area of a rectangle and a square</li> <li>➤ Conversion of units (Mass, time, money, and capacity) from to smaller to larger and vice-versa</li> <li>➤ Counter examples to different misconceptions related to perimeter and area.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Revising previous concepts learnt by children.</li> <li>➤ Building on children's previous learning.</li> <li>➤ Showing different shapes and through the notion of boundary, the concept of perimeter can be discussed</li> <li>➤ Organising discussion in the classroom on the measurement of boundary of a closed shape (2-D) and naming this measure as perimeter.</li> <li>➤ Encouraging children to find perimeter of different rectangles and evolving the rule to find perimeter of any rectangle like</li> <li>➤ Perimeter of a rectangle = 2(sum of the measure of its two adjacent sides) = <math>2(l+b)</math></li> <li>➤ Forming small groups of 3-4 children to evolve ways to find the measure of</li> </ul>	<ul style="list-style-type: none"> <li>➤ Maths Kit.</li> <li>➤ Use of visuals available in classroom and in surroundings.</li> </ul>



## Mensuration

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"><li>▷ Perimeter of a rectangle – and its special case – a square.</li><li>▷ Deducing the formula of the perimeter for a rectangle and then a square through pattern and generalisation.</li></ul>	<p>a region enclosed by a closed shape on a plane surface. This discussion will lead to understanding the concept of area.</p> <ul style="list-style-type: none"><li>▷ Encouraging children through small hints to drive the rule/formula to find the area of a rectangle when the two adjacent sides are known.</li><li>▷ Providing opportunities to frame and solve simple daily life problems involving perimeter and area of rectangular regions.</li></ul>	

**Skills:** solving daily life problems

## Theme 6: Data Handling

This theme focusses on building on and reinforcing children's understanding of numbers, they begin to develop their ability to think statistically. Children recognize that a data distribution may not have a definite centre and that different ways to measure centre yield different values. The median measures centre in the sense that it is roughly the middle value. The mean measures centre in the sense that it is the value that each data point would take on if the total of the data values were redistributed equally, and also in the sense that it is a balance point.

### Learning Outcomes:

Children will be able to:

- understand the use of organizing data;
- represent data through pictograph, bar graph;
- identify patterns in numbers and shapes;
- identify daily life situations in which the information is required to be properly arranged;
- explore different ways to organise and represent data;
- appreciate the need for finding a representative value for given data;
- find mean and median of data having not more than ten observations.

<b>Data Handling</b>		
<b>Key Concepts</b>	<b>Suggested Transactional Processes</b>	<b>Suggested Learning Resources</b>
<ul style="list-style-type: none"> <li>➤ Collection of data to examine a hypothesis</li> <li>➤ Collection and organisation of data - examples of organising it in tally bars and a table.</li> <li>➤ Pictograph- Need for scaling in pictographs interpretation &amp; construction of pictograph</li> <li>➤ Construction of bar graphs for given data interpreting bar graphs.</li> <li>➤ Mean and median of data not having more than ten observations</li> </ul>	<ul style="list-style-type: none"> <li>➤ Revising previous concepts learnt by children.</li> <li>➤ Building on children's previous learning.</li> <li>➤ Discussing daily life situations involving quantitative information and its presentation.</li> <li>➤ Encouraging children through discussion (whole class/in small groups) to reason out why data should be organised. Children can be motivated to use their own ways in organizing data.</li> <li>➤ Asking children to explore their own ways of representing the data in the form of diagrams/ pictures (Bar Graph) and in tables of numbers.</li> <li>➤ Providing children various situations for interpreting data given in tabular or pictorial form like newspaper cuttings, TV programmes etc.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Maths Kit</li> <li>➤ Newspapers.</li> <li>➤ TV Programmes.</li> </ul>

**Integration:** Arts Education

**Life Skills:** Understanding and interpreting data, drawing inferences

## Theme 1: Number System

In this theme the rules developed by children for addition and subtraction of integers will be extended to the formation of rules for their multiplication and division by using patterns and generalization.

Another important type of number called rational number will also be introduced in this class. This exposure will develop children's understanding about various kinds of numbers as a system and a structure. At this stage a relationship will also be established between fractions and rational numbers for which children will extend the rules used for performing operations on fractions to integers. This is also the time when children will be enabled to understand that fractions are not only representing part of a whole but also a number that operates on quantities. Extension of fractions and rational numbers is further done to decimal fractions. Once children understand that decimal notation of numbers is another convenient way of writing fractions with denominator as 10, 100, 1000 etc, they will be able to form rules for operating decimal fractions too. Children's exploration on properties of natural numbers through a play way method will help in learning exponential form of numbers, divisibility rules, LCM and HCF. The learning of Sets and their types and use in daily life is further extended in this class.

### Learning Outcomes:

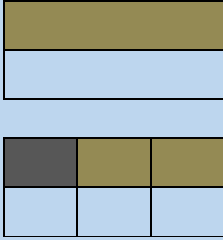
Children will be able to:

- multiply integers by using patterns and generalize the rules to multiply a positive integer by a negative integer, a negative integer by a positive integer and two negative integers;
- divide integers by using patterns and forms rules to perform division in integers;
- get a feel of necessity of rational numbers (through representation on number line);
- perform operations on rational numbers (addition, subtraction, multiplication and division);
- solve daily life problems involving rational numbers (all operations);
- observe patterns in multiplication tables and forms divisibility rules;
- understand and use fraction as an operator;
- find reciprocal of a fraction;
- multiply fractions by using patterns/paper folding/pictures and form general rules;
- divide fractions by using patterns/visualization/picture and forms rules;
- solve word problems involving mixed fractions and operations on them;
- represent rational number as a decimal and vice-versa;
- multiplication and division of decimal fractions;
- use exponential form and their rules to solve problems related to repeated multiplication;
- revise idea of sets;
- define equal, equivalent, and universal sets;
- find and use cardinality of finite sets.

## Number System

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Multiplication and division of integers</li> <li>➤ Properties of operations on integers: Commutativity, associativity, existence of identity and inverse and distributivity</li> <li>➤ Problem solving using operations on integers</li> <li>➤ Solution of word problems involving integers (all operations)</li> <li>➤ Introduction to rational numbers (with representation on number line)</li> <li>➤ Word problems on rational numbers (all operations)</li> <li>➤ Decimal representation of rational numbers</li> <li>➤ Problem solving using operations on rational numbers and decimal fractions</li> <li>➤ Fraction as an operator</li> <li>➤ Reciprocal of a fraction</li> <li>➤ Multiplication and division of decimal fractions</li> <li>➤ Exponents only natural numbers.</li> <li>➤ Laws of exponents (through observing patterns to arrive at generalisation.)</li> <li>➤ Application of laws of exponents in simple daily life problems</li> <li>➤ Revision idea of sets</li> <li>➤ Equal, equivalent, universal sets</li> <li>➤ Cardinal property of sets</li> </ul>	<ul style="list-style-type: none"> <li>➤ Revising previous concepts learnt by children.</li> <li>➤ Building on children's previous learning.</li> <li>➤ Involving children in discussion to find their own ways of multiplying integers using their understanding about the rules for multiplication and division of whole numbers</li> <li>➤ Providing enough time to children to use patterns in multiplying a negative integer by another integer as this may be a new idea. Up till now they have learnt that multiplication is repeated addition or an operator in case of fractions. Sufficient time should be given to children to appreciate why the product of two negative integers is positive.</li> <li>➤ Encouraging children to explore and use the concept of dividing a natural number by another by simply finding the number which when multiplies the divisor gives the dividend as product. So to find <math>-4 \div -2</math> we have to find the number which on multiplication with <math>-2</math> gives the result <math>-4</math>. Many children will be able to infer that the required number must be <math>+2</math>. Many such examples will help the child to make their own rule like <math>+ve \div -ve = -ve</math>, <math>-ve \div +ve = -ve</math> and <math>-ve \div -ve = +ve</math>.</li> <li>➤ Involving children in classification of numbers on the basis of their properties like even, odd, multiples and factors. These numbers can be used to classify numbers in to various categories</li> <li>➤ Introducing divisibility rules using patterns, and then different division problems could be discussed to show their use. For example, let children form multiplication tables of different numbers like 2, 3, 4, etc. and then from the multiplication facts ask them to identify the pattern like multiple of 3 has sum of its digits divisible by 3,</li> </ul>	<ul style="list-style-type: none"> <li>➤ Shapes used in daily life (for demonstrating number system, algebra, geometry mensuration and data handling)</li> <li>➤ Geoboard with rubber bands (for demonstrating various shapes and Charts)</li> <li>➤ Brief life history of mathematicians with their contributions at elementary level.</li> <li>➤ Maths Kit</li> </ul>

## Number System

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
	<p>multiple of 5 has either 5 or zero in its one's place etc.</p> <p>➤ Utilising children's knowledge about describing multiplication of fractions as operator 'of' and explain by paper folding, shading parts of whole etc. for example <math>\frac{1}{5} \times \frac{1}{5}</math> is one-third of one-half which can be shown as:</p>  <p>The double shaded region is one-sixth of the whole which shows that <math>\frac{1}{5} \times \frac{1}{5} = \frac{1}{25}</math>.</p> <p>➤ Solving of sums by children and observing the pattern that in all cases the product of fractions can be obtained by multiplying their numerators and their denominators</p> <p>➤ Providing opportunities to children to observe and find through pictures that <math>\frac{1}{5} \div \frac{1}{4}</math> means the number of one-fourths in one-half. Simple visualization is required to find that one-half contains two one-fourths. Let children observe the patterns and find their own ways of dividing a fraction by another fraction</p> <p>➤ Conducting discussion with children to observe and generalise that to divide a fraction by another fraction (non-zero) can be done by multiplying the dividend by reciprocal of the divisor.</p> <p>➤ Involving children in exploring their own ways of writing repeated multiplication in a short form as repeated addition is represented by multiplication. With discussion let the children reach the conclusion of writing repeated multiplication in exponent form.</p>	

**Life Skills:** Solving daily life problems

## Theme 2: Ratio and Proportion

This theme will focus on developing children's ability to solve higher problems on the use of ratio and proportion in daily life in this class. Children are enabled to use ratio, proportion and their properties appropriately in problem solving. The idea of percentage, unitary method, simple interest, time, work and speed are also introduced through simple daily life problems. Children will appreciate that this is the part of mathematics that they can use the most in their daily lives.

### Learning Outcomes:

Children will be able to:

- ☑ recall ratio and proportion done in early classes;
- ☑ solve problems using unitary method (getting feel of how formulae for calculation of simple interest and understand percentage as a fraction with denominator 100);
- ☑ re write fractions and decimals into percentage and vice-versa;
- ☑ solve problems related to profit and loss (single transaction only);
- ☑ apply simple interest (time period in complete years) in daily life situations;
- ☑ solve problems related to speed, distance and time.

Ratio and Proportion		
Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Ratio and proportion (revision)</li> <li>➤ Unitary method continued, consolidation, general expression for unitary method</li> <li>➤ Percentage- an introduction.</li> <li>➤ Understanding percentage as a fraction with denominator 100</li> <li>➤ Converting fractions and decimals into percentage and vice-versa.</li> <li>➤ Application to profit and loss (single transaction only)</li> <li>➤ Application to simple interest (time period in complete years).</li> <li>➤ Speed, distance, time</li> </ul>	<ul style="list-style-type: none"> <li>➤ Revising previous concepts learnt by children.</li> <li>➤ Building on children's previous learning.</li> <li>➤ Children know about many ways of comparing quantity. Utilise their experiences to conclude that ratio is another way of comparing quantities. Percentages and their applications are also in child's daily life experiences which can be used to form various formulae and solving problems using them.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Maths Kit</li> </ul>

**Life Skills:** Solving daily life problems

## Theme 3: Algebra

Children in class VI were exposed to and were enabled to understand that algebra is an extension and generalization of arithmetic. Letters for numbers are to be seen as a compact language to express situations in expressions. The basic idea of various terminologies that form the language to learn algebra is also to be communicated to children in a gradual manner. Children should get a feel that algebra is just extension of numbers and quantities. They should also gain fluency in mathematical language through operations on algebraic expressions and solving linear equations.

### Learning Outcomes:

Children will be able to:

- ✔ identify terms related to algebra like constants, variable, terms, coefficient of terms, like and unlike terms etc.;
- ✔ generate algebraic expressions involving one or two variables/unknowns;
- ✔ add and subtract algebraic expressions;
- ✔ express situations in simple linear equations and find solution of related problems;
- ✔ find solution to simple inequalities ( $<$  or  $>$ ) in one variable.

Algebra		
Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Terms related to algebra like constants, variable, terms, coefficient of terms, like and unlike terms, etc.</li> <li>➤ Generate algebraic expressions</li> <li>➤ Performs operations (addition and subtraction) on algebraic expressions with integral coefficients only</li> <li>➤ Simple linear equations in one variable (in contextual problems) with two operations.</li> <li>➤ Inequalities and solution of simple inequalities in one variable</li> </ul>	<ul style="list-style-type: none"> <li>➤ Revising previous concepts learnt by children.</li> <li>➤ Building on children's previous learning.</li> <li>➤ Use child's context and encourage them to generate algebraic expressions by proper choice of variable/unknown and operations.</li> <li>➤ Child's daily life experiences like adding/subtracting a group of 2 notebooks and 5 pencils to/from another group of 3 notebooks and 8 pencils etc. Let children form their own rule that like terms can only be added or subtracted.</li> <li>➤ Involve children in groups of three or four to explore situations which can be expressed by simple equations and solve them. Textbooks have many such examples.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Notebooks, pencils, pens, etc.</li> <li>➤ Textbooks</li> </ul>

**Skills:** pursuing assumptions to logical conclusions

## Theme 4: Geometry

Children in this class will be enabled to perceive relationships between properties of figures. The children will develop the ability to give the minimum number of properties, eliminating redundancies and formulate meaningful definitions and understand inclusion relationships such as every square is a special type of rectangle, but not every rectangle is a square. Note that if a student is requiring to "know a definition" before attaining this level, it will be a memorized definition with little meaning to the student. Their concept definition is likely not to match their concept image.

### Learning Outcomes:

Children will be able to:

- ✔ identify pairs of angles like linear, supplementary, complementary, adjacent and vertically opposite and find one when the other is given;
- ✔ hypothesize the relationship between pairs of angles out of eight angles formed by a transversal with two parallel lines;
- ✔ verify angle sum and other properties of triangles and use these properties to find unknown elements of a triangle;
- ✔ appreciate the rotational symmetry of various shapes and figures;
- ✔ read simple maps and construct own maps like home to school, map of her village, house etc.;
- ✔ establish congruence criterion for triangles and circles;
- ✔ construct simple triangles when three out of six elements are given (like three sides, two sides and included angle, a side and two angles etc.).

<b>Geometry</b>		
Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ <b>Understanding shapes:</b> <ul style="list-style-type: none"> <li>➤ Pairs of angles (linear, supplementary, complementary, adjacent, vertically opposite)</li> <li>➤ Properties of parallel lines with transversal (alternate, corresponding, interior, exterior angles)</li> </ul> </li> <li>➤ <b>Properties of triangles:</b> <ul style="list-style-type: none"> <li>➤ Angle sum property</li> <li>➤ Exterior angle property</li> <li>➤ Pythagoras Theorem (Verification only)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Revising previous concepts learnt by children.</li> <li>➤ Building on children's previous learning</li> <li>➤ Using diagrams to help children in visualizing the relationship between various pairs of angles when a transversal cuts two lines (parallel and non-parallel), angles of triangle and relationship among its sides.</li> <li>➤ Involve children in experimentation with measurement of sides of right angled triangles and recognition of pattern to hypothesize the Pythagorean relation.</li> <li>➤ Conducting activities with children that are given in textbooks (paper folding and observing diagrams) and encouraging them to visualize symmetry and criterion for rotational symmetry of various shapes.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Maths Kit</li> <li>➤ Geoboard with rubber band</li> <li>➤ Geometry box</li> </ul>



Geometry		
Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>▷ <b>Symmetry</b> <ul style="list-style-type: none"> <li>☛ Recalling reflection symmetry</li> <li>☛ Idea of rotational symmetry, observations of rotational symmetry of 2-D objects. (<math>90^\circ</math>, <math>120^\circ</math>, <math>180^\circ</math>)</li> </ul> </li> <li>▷ <b>Representing 3-D in 2-D:</b> <ul style="list-style-type: none"> <li>☛ Identification and counting of vertices, edges, faces, nets (for cubes cuboids, and cylinders, cones).</li> <li>☛ Mapping the space around approximately through visual estimation.</li> </ul> </li> <li>▷ <b>Congruence</b> <ul style="list-style-type: none"> <li>☛ Congruence through superimposition</li> <li>☛ Extend congruence to simple geometrical shapes e.g. triangles, circles.</li> <li>☛ Criteria of congruence</li> </ul> </li> <li>▷ <b>Construction</b> <ul style="list-style-type: none"> <li>☛ Construction of a line parallel to a given line from a point outside it</li> <li>☛ Construction of simple triangles.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▷ Assigning group work to children with traced copies of various shapes and superimposing one above the other help them in establishing congruence criterion.</li> <li>▷ Adopting exploration, problem-solving and hands-on experiences with children, to engage in discussions and activities with them that address many of the dimensions of geometry (spatial relationships, properties of geometric figures, constructions, geometric modelling, geometric transformations, coordinate geometry, the geometry of measurement, informal geometric reasoning, and geometric connections to the physical world).</li> <li>▷ Teachers will explore two- and three-dimensional shapes, paper folding and origami, tessellations and geometric designs, and the use of other manipulatives to develop geometric understanding.</li> </ul> <p>Through these activities, it is anticipated that teachers will develop new techniques that are sure to enhance student achievement in their classroom.</p>	

**Skill:** Identify, visualise and quantify measures of shapes and objects

## Theme 5: Mensuration

This theme will focus on developing children's understanding and ability on measurement of area, volume and capacity. This begins with children finding rules/ forming formulae for standard figures like cube, cuboid, cylinder etc. The major focus will be on finding the area of 2-D shapes and surface area of 3-D shapes. It is also expected that children will be able to learn to write measurement in smaller and larger units with conversion.

### Learning Outcomes:

Children will be able to:

- measure approximate area of simple regular and irregular closed shapes by using unit square grid sheet;
- form formulae to find area of the region enclosed in a rectangle and a square as a better way of counting the number of unit squares that fill them completely.

Mensuration		
Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>▷ Revision of perimeter and Idea of Circumference of Circle</li> <li>▷ Area                             <ul style="list-style-type: none"> <li>↳ Concept of measurement using a basic unit area of a square, rectangle, triangle, parallelogram and circle, rings and combined figures.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▷ Revising previous concepts learnt by children.</li> <li>▷ Building on children's previous learning</li> <li>▷ Involving children in activities targeted to measurement of region enclosed by closed figures on a plan surface and encouraging them to come to the conclusion that a unit is required.</li> <li>▷ Conducting activities related to measuring units squares within a figure drawn on a square grid and to compare the various regions.</li> </ul>	<ul style="list-style-type: none"> <li>▷ Maths Kit</li> </ul>

## Theme 6: Data Handling

Finding a representative value for a given set of observations called data is a necessary requirement in most of the daily life situations, like one number for heights of the children in a class, number of children in a class when numbers of total children in all classes of the school is known etc. This theme aims at developing children's understanding about the meaning and use of averages like mean, median and mode of simple data not having more than 15 observations. They will also be able to represent data as bar graphs and interpret them.

### Learning Outcomes:

Children will be able to:

- find various representative values (Mean, Median and mode) for simple data from her daily life;
- represent data by simple bar graphs and interpret them.

<b>Data Handling</b>		
Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Collection and organisation of data – choosing the data to collect for a hypothesis testing</li> <li>➤ Mean, median and mode of ungrouped data – understanding what they represent</li> <li>➤ Constructing and interpreting bar graphs</li> <li>➤ Feel of probability using data through experiments. Notion of chance in events like tossing coins, dice etc. Tabulating and counting occurrences of 1 through 6 in a number of throws. Comparing the observation with that for a coin. Observing strings of throws, notion of randomness.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Revising previous concepts learnt by children.</li> <li>➤ Building on children's previous learning</li> <li>➤ Utilizing children's daily life experiences and contextual problems to test hypothesis by collection and organization of data. Situations like finding a representative value to data help in understanding the idea of finding mean, median and mode of ungrouped data. Starting with small sets of numbers will be easier to visualize and represent it by bar graphs.</li> <li>➤ Involving children in drawing inferences for future events from the existing data</li> </ul>	<ul style="list-style-type: none"> <li>➤ Maths Kit</li> </ul>

**Integration:** Arts Education

**Life Skills:** Understanding and interpreting data, drawing inferences

## Theme 1: Number System

Rational numbers as extension of integers to make the system closed for division (by non-zero numbers) was introduced in class VII. In this class children will be enabled to explore the properties of rational numbers to find inadequacy in them and to realize the need for new numbers like irrational numbers. Children should also get the feel of another very interesting and important property of rational numbers i.e. between any two rational number there lie many infinite rational numbers. Number line and representation of rational numbers on number line forms the basis for visualizing that for every rational number there is a point on the number line but its converse is not true. Number operations are also extended to exponents. This understanding leads to classify positive integers into various classes like square and cube numbers. Children should also understand and develop the ability to properly apply the division algorithm for finding the square root of numbers.

### Learning Outcomes:

Children will be able to:

- describe properties of rational numbers and express them in general form;
- consolidate operations on rational numbers;
- represent rational numbers on the number line;
- understand that between any two rational numbers there lies another rational number (making children see that if we take two rational numbers then unlike for whole numbers, in this case you can keep finding more and more numbers that lie between them.);
- generalise and verify properties of rational numbers. (including identities);
- use general form of expression to describe properties of operations on rational numbers like closer, commutative, associative, existence of identity and existence of inverse;
- do word problem (higher logic, two operations, including ideas like area);
- write repeated multiplication and division using integers as exponents;
- describe and verify laws of exponents with integral powers;
- find squares, square roots, cubes, cube roots of number;
- find square and square roots;
- undertake calculating square roots using the factor and division method for numbers containing;
- no more than 4 digits and
- no more than 2 decimal places
- find cubes and cube roots;
- estimate square roots and cube roots.
- learn the process of moving nearer to the required number;
- write and understand a 2 and 3 digit number in generalized form ( $100a + 10b + c$ , where  $a, b, c$  can be only digit 0-9) and engage with various puzzles concerning this. (like finding the missing numerals represented by alphabets in sums involving any of the four operations.);
- construct and solve problems and puzzles;
- solve number puzzles and games;
- deduce the divisibility test rules of 2, 3, 5, 9, 10 for a two or three-digit number expressed in the general form;
- find union and intersection of sets;
- define disjoint sets;
- find complement of a set.

## Number System

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>▶ <b>Rational Numbers</b> <ul style="list-style-type: none"> <li>☛ Properties of rational numbers. (including identities). Using general form of expression to describe properties</li> <li>☛ Representation of rational numbers on the number line</li> <li>☛ Between any two rational numbers there lies another rational number</li> <li>☛ Word problem</li> </ul> </li> <li>▶ <b>Exponents Powers</b> <ul style="list-style-type: none"> <li>☛ Laws of exponents with integral powers</li> <li>☛ Square and Square roots using factor method and division method for numbers containing (a) no more than total 4 digits and (b) no more than 2 decimal places</li> <li>☛ Cubes and cubes roots (only factor method for numbers containing at most 3 digits)</li> </ul> </li> <li>▶ <b>Playing with numbers</b> <ul style="list-style-type: none"> <li>☛ Writing and understanding a 2 and 3 digit number <i>in generalized form</i> (<math>100a + 10b + c</math>, where <math>a, b, c</math> can be only digit 0-9) and engaging with various puzzles Children to solve and create problems and puzzles.</li> <li>☛ Deducing the divisibility test rules of 2, 3, 5, 9, 10 for a two or three-digit number expressed in the general form.</li> </ul> </li> <li>▶ <b>Sets</b> <ul style="list-style-type: none"> <li>☛ Union and intersection of sets</li> <li>☛ Disjoint set</li> <li>☛ Complement of a set</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▶ Revising previous concepts learnt by children.</li> <li>▶ Building on children's previous learning</li> <li>▶ Involving children in writing general form of rational numbers and associating it with the rules of algebra. The operations on algebraic expressions will help in describing properties of rational numbers.</li> <li>▶ Encouraging children to use the rules for comparison of integers and fractions to develop their own rules for comparison of rational numbers.</li> <li>▶ Encouraging children to reach the conclusion that half of the sum of two rational numbers lies between them and thus a rational number can be obtained between any two rational numbers. Providing hints to children while reaching the conclusion that the process of finding a rational number between any two numbers never stops and thus there lies infinite many rational numbers between any two rational numbers</li> <li>▶ Facilitating children to see and understand that if we take two rational numbers then unlike for whole numbers, in this case you can keep finding more and more numbers that lie between them.</li> <li>▶ Facilitating children to observe patterns in square numbers and to form their rules for perfect square numbers and square roots.</li> <li>▶ Facilitating children to observe patterns in perfect cube numbers and form rule for cube root numbers</li> <li>▶ Encouraging children to play with numbers to find square roots and cube roots using prime factorisation</li> <li>▶ Encouraging children practice the division method to find square roots of numbers.</li> <li>▶ Utilising children's understanding about algebra to introduce the generalised form of 2 and 3 digit numbers and to prove divisibility test of numbers.</li> </ul>	<ul style="list-style-type: none"> <li>▶ Maths Kit</li> </ul>

## Theme 2: Ratio and Proportion

This theme, at this stage develops in children the ability to understand and appreciate another way of the application of mathematics in daily life called commercial mathematics. The percentage, unitary method, profit and loss, simple and compound interest etc. are based on ratio and proportion. Understanding of ratio and proportion and the skill of applying them in daily life is further required to be strengthened in this class. Children will be properly exposed to higher level problems on profit and loss, compound interest and direct and indirect variations. The problems on these topics should be picked up from daily life situations like banking, taxation, loan transaction etc.

### Learning Outcomes:

Children will be able to:

- ✎ solve slightly advanced problems involving application on percentages, profit and loss, overhead expenses, discount and tax;
- ✎ explore the difference between simple and compound interest (compounded yearly up to 3 years or half-yearly up to 3 steps only),
- ✎ arriving at the formula for compound interest through patterns and using it for simple problems;
- ✎ solve simple and direct word problems related to direct and inverse variation, and time and work problems.

Ratio and Proportion		
Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Slightly advanced problems involving applications on percentages, profit &amp; loss, overhead expenses, Discount, tax.</li> <li>➤ Difference between simple and compound interest (compounded yearly up to 3 years or half-yearly up to 3 steps only)</li> <li>➤ Direct and inverse variations – Simple and direct word problems</li> <li>➤ Time and work problems– Simple and direct word problems</li> </ul>	<ul style="list-style-type: none"> <li>➤ Arriving at the formula for compound interest through patterns and using it for simple problems.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Maths Kit</li> </ul>

**Life Skills:** Solving daily life problems

## Theme 3: Algebra

In this theme the focus will be on developing skills in children to use linear equations and systems of linear equations to represent, analyse, and solve a variety of problems. They should recognize equations for proportions ( $y/x = m$  or  $y = mx$ ) as special linear equations ( $y = mx + b$ ) and use a linear equation to describe the association between two quantities in bivariate data (such as arm span vs. height for students in a classroom). In this class, fitting the model, and assessing its fit to the data are done informally. Interpreting the model in the context of the data requires children to express a relationship between the two quantities in question and to interpret components of the relationship in terms of the situation. They should be able to strategically choose and efficiently implement procedures to solve linear equations in one variable, understanding that when they use the properties of equality and the concept of logical equivalence, they maintain the solutions of the original equation. Children will be able to solve systems of two linear equations in two variables and relate the systems to pairs of lines in the plane; these intersect, are parallel, or are the same line. They will also understand the construction of algebraic expressions and extend the addition and subtraction to multiplication and division of expressions. In this Class children should understand various identities and their use in solving problems related to multiplication and division (factorization) of algebraic expressions.

### Learning Outcomes:

Children will be able to:

- multiply and divide algebraic expressions (integral coefficient only);
- focus on some common errors like  $2 + x \neq 2x$ ,  $7x + y \neq 7xy$  etc.;
- prove and use identities  $(a \pm b)^2 = a^2 \pm 2ab + b^2$ ,  $a^2 - b^2 = (a - b)(a + b)$   $(a \pm b)^2 = a^2 \pm 2ab + b^2$ ;
- factorize algebraic expressions (simple cases only) as examples the following types  $a(x + y)$ ,  $(x \pm y)^2$ ,  $a^2 - b^2$ ,  $(x + a)(x + b)$  ;
- solve linear equations in one variable in contextual problems involving multiplication and division (simple rational coefficient in the equations);
- multiply two algebraic expressions and forms algebraic identities for square of binomials;
- factorize an algebraic expression using identities;
- find solution to inequalities in one variable using properties of in equalities.

Algebra		
Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>▷ Algebraic Expressions</li> <li>▷ Multiplication and division of algebraic expression (Coefficient should be integers)</li> <li>▷ Identities <math>(a \pm b)^2 = a^2 \pm 2ab + b^2</math>, <math>a^2 - b^2 = (a - b)(a + b)</math>.</li> <li>▷ Properties of in equalities.</li> <li>▷ Factorisation (simple cases only) as examples the following types <math>a(x + y)</math>, <math>(x \pm y)^2</math>, <math>a^2 - b^2</math>, <math>(x + a)(x + b)</math></li> </ul>	<ul style="list-style-type: none"> <li>▷ Encouraging children to undertake multiplication of algebraic expressions based upon the distributive property of multiplication over addition and subtraction of numbers. Moreover, children already have the idea that same number multiplied repeatedly can be expressed in powers and the same is true for variables. Children should be encouraged</li> </ul>	<ul style="list-style-type: none"> <li>▷ Maths Kit.</li> </ul>

## Algebra

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<p>▷ Solving linear equations in one variable in contextual problems involving multiplication and division (word problems) (avoid complex coefficient in the equations)</p>	<p>to develop their own results for algebraic identities by using the multiplication of algebraic expressions.</p> <p>▷ Continuing the idea of numerical coefficient and factors of a term to evolve methods of writing an expression in terms of product of two or more expressions. This will lead to the factorisation of algebraic expressions.</p> <p>▷ Drawing attention of children to and laying special emphasis on the common errors that children commit while learning algebra like <math>2 + x = 2x</math>, <math>7x + y = 7xy</math> etc.</p>	

**Skill:** establish relationship between known and unknown facts



## Theme 4: Geometry

The theme in this class will focus on making the definitions more meaningful and enabling children to perceive relationships between properties and figures. Logical implications and class inclusions should be understood, but the role and significance of deduction may not be understood.

The children will be prepared to enter into the fourth level of geometrical thinking at this stage by learning informal deduction in this class. They learn to construct proofs, understand the role of axioms and definitions, and know the meaning of necessary and sufficient conditions. The children should be able to give reasons for steps in a proof. The another important way of learning about shapes and figures is through relating it with numbers i.e using the analytical geometry. Initiation of this process will be done in this class with introduction of representing any point in a plane as ordered pair of real numbers. With this introduction child should be able to geometrically represent numerical relation between two variables Children will then construct the concept of linear graph and relationship between the variables as linear equation.

### Learning Outcomes:

Children will be able to:

- ✗ explore and verify properties of quadrilaterals like sum of angles of a quadrilateral is equal to  $360^\circ$  (by verification);
- ✗ explore and verify properties of parallelogram (by verification) like
  - (i) opposite sides of a parallelogram are equal,
  - (ii) opposite angles of a parallelogram are equal,
  - (iii) diagonals of a parallelogram bisect each other. [ also find justification to why (iv), (v) and (vi) follow from (ii) ]
  - (iv) diagonals of a rectangle are equal and bisect each other
  - (v) diagonals of a rhombus bisect each other at right angles.
  - (vi) diagonals of a square are equal and bisect each other at right angles.
- ✗ identify and match pictures with objects [more complicated e.g. nested, joint 2-D and 3-D shapes (not more than 2)];
- ✗ draw 2-D representation of 3-D objects (continued and extended);
- ✗ count number of vertices, edges & faces & verifying Euler's relation for 3-D figures with flat faces (cubes, cuboids, tetrahedrons, prisms and pyramids);
- ✗ generalize the sum of angles of quadrilateral and use it in solving various problems related to finding angles of a quadrilateral;
- ✗ explain properties of parallelograms and tries to reason out how one property is related to other;
- ✗ represent 3-D shapes on a plan surface like paper, board, wall etc.;
- ✗ make nets of prisms and pyramids and forms the shapes from the nets;
- ✗ construct quadrilaterals using pair of compasses and straight edge given:
  - ☛ four sides and one diagonal
- ✗ three sides and two diagonals
  - ☛ three sides and two included angles
  - ☛ two adjacent sides and three angles
- ✗ construct quadrilaterals given:
  - ☛ four sides and one diagonal
  - ☛ three sides and two diagonals
  - ☛ three sides and two included angles
  - ☛ two adjacent sides and three angles.
- ✗ describe the meaning of axes (same units), Cartesian plane, plotting points for different kind of situations (perimeter vs length for squares, area as a function of side of a square, plotting of multiples of different numbers, simple interest vs number of years etc.);
- ✗ read linear graphs;
- ✗ distinguish the shapes that are symmetrical and find line of symmetry by paper folding;
- ✗ define and identify various parts of a circle.

## Geometry

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<p>➤ <b>Understanding shapes:</b></p> <ul style="list-style-type: none"> <li>☛ Properties of quadrilaterals – Angle Sum property</li> <li>☛ Properties of parallelogram (By verification) (i) Opposite sides of a parallelogram are equal, (ii) Opposite angles of a parallelogram are equal, (iii) Diagonals of a parallelogram bisect each other. (iv) Diagonals of a rectangle are equal and bisect each other. (v) Diagonals of a rhombus bisect each other at right angles. (vi) Diagonals of a square are equal and bisect each other at right angles.</li> </ul> <p>➤ <b>Representing 3-D in 2-D</b></p> <ul style="list-style-type: none"> <li>☛ Identify and match pictures with objects [more complicated e.g. nested, joint 2-D and 3-D shapes (not more than 2)].</li> <li>☛ Drawing 2-D representation of 3-D objects (Continued and extended)</li> <li>☛ Counting vertices, edges &amp; faces &amp; verifying Euler's relation for 3-D figures with flat faces (cubes, cuboids, tetrahedrons, prisms and pyramids)</li> </ul> <p>➤ <b>Construction of Quadrilaterals:</b></p> <ul style="list-style-type: none"> <li>☛ Given four sides and one diagonal</li> <li>☛ Three sides and two diagonals</li> <li>☛ Three sides and two included angles</li> <li>☛ Two adjacent sides and three angles</li> </ul> <p>➤ Idea of reflection symmetry and symmetrical shapes</p> <p>➤ <b>Circle</b></p> <ul style="list-style-type: none"> <li>☛ Circle, centre, radius/ diameter, arc, chord, sector and segment.</li> </ul>	<p>➤ Involving children in activities of measuring angles and sides of shapes like quadrilaterals and parallelograms and to identify patterns in the relationship among them. Let them make their hypothesis on the basis of the generalisation of the patterns and later on to verify their assertions.</p> <p>➤ Involving children in expressing/representing a 3-D shape into 2-D from their life like drawing a box on plane surface, showing bottles on paper etc.</p> <p>➤ Facilitating children making nets of various shapes like cuboids, cubes, pyramids, prisms etc. Again from nets let them make the shapes and to establish relationship among vertices, edges and surfaces. Through pattern let them reach to Euler's relation.</p> <p>➤ Constructing various figures by children using compasses and a straight edge. But it is also important to involve children to argue why a particular step is required. For example, on drawing an arc using compasses we find all those points that are at the given distance from the point where the metal end of the compasses was placed.</p>	<p>➤ Maths Kit</p> <p>➤ Geoboard with rubber band</p> <p>➤ Geometry box</p>

**Life Skill:** deductive reasoning

## Theme 5: Mensuration

Children should be clear about the idea of area as measure of region occupied by a shape on a surface and the formulae to find area of rectangle and square. In this class the theme will enable them to evolve the methods of finding the area of shapes like trapezium and other polygons. The idea behind the formulae of finding area of rectilinear shapes is moving from known to unknown i.e. developing the methods using the formulae they know like rectangle. Children will develop the ability to think how a trapezium and parallelogram can be converted into a rectangle of same area.

Using this understanding the methods of finding the surface area of 3-D figures is to be introduced. For this the nets of simple figures like cuboid will be useful to visualize the shapes of different surfaces of this figure. This visualization will help children in evolving formula for finding area of all surfaces. There are many figures like cuboid in children's vicinity like room with four walls, roof and floor, and cartons used for packing various items. Problems related to finding surface area and volume/capacity of such shapes are in children's daily life. Therefore, in this class children should be able to construct meaningful problems and solve them using this understanding.

### Learning Outcomes:

Children will be able to:

- find area of trapezium and polygons by using square grid and also by using formulae;
- find surface area of cuboid, cube and cylinder through their nets and later on by using formulae;
- form formula to find volume of a cuboid and cylinder by observing and generalizing patterns of counting units cubes that completely fill the cuboids.
- find volume and capacity (measurement of capacity) of cuboidal and cylindrical vessels

Mensuration		
Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Area of a trapezium, a polygon and semi-circle.</li> <li>➤ Surface area of a cube, cuboid, cylinder.</li> <li>➤ Idea of Total surface area and curved surface areas of various 3-D figures</li> <li>➤ Concept of volume, measurement of volume using a basic unit, volume of a cube, cuboid and cylinder</li> <li>➤ Volume and capacity (measurement of capacity)</li> </ul>	<ul style="list-style-type: none"> <li>➤ Revising previous concepts learnt by children.</li> <li>➤ Building on children's previous learning</li> <li>➤ Encouraging children to discuss in groups about converting trapezium and parallelograms into rectangles of equal area. This will help them in formation of formulae to find these areas.</li> <li>➤ Involving children in finding the surface area of a cube and cuboid and in opening such boxes and realizing that all these surfaces are made up of rectangles and squares only. The rest of the activity will be focused on finding the total surface area (TSA) which will only be to add these areas.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Maths Kit</li> <li>➤ Daily use readymade 2D,3D shapes</li> </ul>

<b>Mensuration</b>		
<b>Key Concepts</b>	<b>Suggested Transactional Processes</b>	<b>Suggested Learning Resources</b>
	<p>➤ Based on children’s previous learning and understanding and the vocabulary they have related to measurement of volume and capacity through their daily life experiences involving them in activities to get a feel of filling a given space and to measure it by just counting the unit items that fill it completely. This will also help them in deciding why a cube is taken as a unit of measuring volume.</p>	

**Life Skills:** Solving daily life problems

## Theme 6: Data Handling

Based on children's learning about mean, median and mode in earlier classes, in this class, children will be enabled to develop the ability to apply this learning for data with large number of observations which may require to be grouped. Avoid giving irrelevant numbers as data. Let children collect data and find an appropriate average. They will also learn to interpret pie charts being commonly seen in newspapers. Once they are comfortable with interpretation they will learn to represent data as pie charts. Understanding that the probability of chance event is a number between 0 and 1 that expresses the likelihood of the event occurring is developed in this class. Through various random experiments like tossing of coin, throwing a die, occurrence of a letter say E in random selected paragraphs etc. children should infer larger numbers indicate greater likelihood. The ability to find that a probability near 0 indicates an unlikely event, a probability around  $\frac{1}{2}$  indicates an event that is neither unlikely nor likely (called as equally likely event), and a probability near 1 indicates a likely event will also be focused on.

### Learning Outcomes:

Children will be able to:

- arrange ungrouped data into groups and represent grouped data through bar-graphs;
- construct and interpret bar-graphs;
- interpret simple pie charts with reasonable data numbers;
- consolidate and generalise the notion of chance in events like tossing coins, dice etc. and relating it to chance in life events;
- throw a large number of identical dice/coins together and aggregating the result of the throws to get large number of individual events. observing the aggregating numbers over a large number of repeated events;
- make a hypothesis on chances of coming events on the basis of its earlier occurrences like after repeated throws of dice and coins;

<b>Data Handling</b>		
<b>Key Concepts</b>	<b>Suggested Transactional Processes</b>	<b>Suggested Learning Resources</b>
<ul style="list-style-type: none"> <li>➤ Arranging ungrouped data, it into groups, representation of grouped data through bar-graphs, constructing and interpreting bar-graphs.</li> <li>➤ Simple Pie charts with reasonable data numbers</li> <li>➤ Consolidating and generalising the notion of chance in events like tossing coins, dice etc. Relating it to chance in life events.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Conducting activities with children related to throwing a large number of identical dice/coins together and aggregating the result of the throws to get a large number of individual events.</li> <li>➤ Involving children in making their assumption for the future events on the basis of the above data. Observing the aggregating numbers over a large number of repeated events will also help them in forecasting the chances of future events. Comparing with the data for a coin. Observing strings of throws will help children in developing notion of randomness.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Maths Kit</li> <li>➤ Coins, dice, etc.</li> </ul>

**Life Skills:** Understanding and interpreting data, drawing inferences



*HISTORY, CIVICS*  
&  
*GEOGRAPHY*





# History, Civics and Geography (HCG)



**T**he curriculum of History, Civics and Geography has been developed with an objective to make children understand the working of the world around them. This particular area of study equips the children with the knowledge and understanding of the past, which is necessary for coping with the present and planning for the future. The curricular area of Civics makes them aware of the socio-political life, whereas Geography connects them directly to their environment. The area of History will help them understand how their present has evolved from centuries of development.

The focus of this area of the curriculum is to help children acquire and develop the ability to make interconnections between processes and events; between developments in the past and the present; and between one curricular area to another. Learning opportunities have been provided to help children understand how geographical conditions of a place have affected the socio-political life of the people.

## Objectives of teaching History, Civics and Geography

To enable children to:

- ◆ learn about the past by creating a sense of historical diversity;
- ◆ understand time lines and historical maps;
- ◆ compare the developments of one region in relation to other parts of the world;
- ◆ become aware of national perspectives with that of global ones in the process of development;
- ◆ creating a strong a sense of human values, namely freedom, trust, mutual respect and respect of diversity;
- ◆ make connections between political, social and economic issues and recognize the ways in which politics affects their daily lives.
- ◆ imbibe the values of the Indian Constitution and their significance in everyday life.
- ◆ understand about the earth as the habitat of humans and other forms of life.
- ◆ become familiar with one's own region and realise the interdependence of various regions (local to global).
- ◆ understand the normative dimensions like issues of equality, justice and dignity in society and polity.

Skills	Learning Outcomes
<b>Observing and reporting:</b> Observing, exploring, comparing, analysing, discussing and reporting, expressing, drawing conclusions and reflecting in behaviour.	
<b>Discussion and debate:</b> Brainstorming expressing, discussing good and bad effects, listening and appreciating varied opinions, synthesising ideas and information.	
<b>Analysing and critical thinking:</b> Defining situations/events, identifying and predicting possible causes, analysing results and consequences, comparing and drawing results.	
<b>Questioning and reasoning:</b> Demonstrating curiosity, logical understanding of facts, raising critical questions.	
<b>Communication:</b> Listening, expressing, articulating thoughts and ideas, writing.	
<b>Classification:</b> Identifying similarities and dissimilarities, sorting/grouping with reasoning and understanding.	
<b>Interpersonal and Intrapersonal skills:</b> Motivation from the great personalities and their lives, helping, cooperating and working as a team.	
<b>Appreciation:</b> Showing respect towards other people's opinions, ideas, beliefs and ways of life.	
<b>Understanding:</b> The responsibility towards institution, society and environment, adaptation by humans to changing circumstances, the role of invention and discoveries of past in the present-day world, value and importance of national festivals.	
<b>Concern for justice and equality:</b> Sensitivity towards the marginalised, less privileged, people with disability, gender sensitivity and care and concern for environment.	
<b>Map and globe skills:</b> Understanding concept of direction, using signs, symbols and keys, interpreting maps of various types.	
<b>Charts and graphs skills:</b> Collecting systematically and recording data, presenting it in the form of bar graphs, pie charts, diagrams, analysing and interpreting it.	
<b>Time skills:</b> Sequencing events, observing a calendar and marking important dates on it, constructing timelines and marking important dates on it, marking and understanding AD and BC on it, understanding time zones.	
<b>Citizenship skills:</b> Identifying rights and duties of citizens, appreciating the cultural aspects of various religions, languages, regional and ethnic groups, recognising and accepting equality of all human beings, irrespective of gender, caste and creed.	
<b>Critical thinking and problem solving:</b> Sound reasoning, making complex choices and decisions, understanding interconnections among systems, framing, analysing and synthesizing information.	
<b>Collaboration:</b> Demonstrating ability to work effectively with diverse teams, exercising flexibility and willingness to be helpful in making necessary compromises to accomplish a common goal, assuming shared responsibility for collaborative work.	
<b>Information literacy:</b> Accessing information efficiently and effectively, evaluating information accurately and creatively. Processing a fundamental understanding of the ethical and legal issues regarding access and use of information.	
<b>Media and ICT literacy:</b> Understanding the construction of media messages, interpretation of messages, influence of media on views beliefs and behaviour, fundamental understanding of ethical and legal issues related to access and use of information.	
<b>Flexibility and adaptability:</b> Adopting varied roles and responsibilities, working effectively in a climate of ambiguity and changing priorities.	
<b>Initiative and self-direction:</b> Utilizing time effectively, updating skills, defining and prioritizing tasks, demonstrating initiatives, demonstrating commitment towards work.	
<b>Social and Cross-Cultural Skills:</b> Working appropriately and productively with others, leveraging the collective intelligence of groups, bridging cultural differences.	
<b>Leadership and Responsibility:</b> Using interpersonal and problem skills, leveraging strengths of others to accomplish a common goal, demonstrating integrity and ethical behaviour, acting responsibly with the interests of the larger community in mind.	



# History and Civics

The present curriculum in History and Civics should be comprehended critically so that children understand and participate effectively in their world and use critical moral and mental energy against social forces that threaten democratic values and respect for diversity in their country. The curriculum areas in History provide an understanding of those aspects of past which are crucial to understand present day global world. Interesting pedagogies will help children grow as responsible civic citizens in a secular democracy.

**Core concepts of History and Civics for Classes VI-VIII are as under:**

## Class VI

### The Ancient World

The River Valley Civilizations  
The Vedic Civilization  
Mahavira & Buddha – Great Preachers  
Rise of Kingdoms & Republicans  
The Mauryan Empire  
The Golden Age – Gupta Empire

### Civics

The Rural Local Self Government  
Urban Local Self Government

## Class VII

### The Medieval World

Medieval Europe – Rise and Spread of Christianity  
Rise and Spread of Islam  
The Delhi Sultanate  
The Vijayanagar and Bahamani Kingdoms  
The Mughal Empire  
Making of Composite Culture

### Civics

The Constitution of India  
Directive Principles of State Policy

## Class VIII

### The Modern World

A Period of Transition  
The Growth of Nationalism  
India in the 18<sup>th</sup> Century  
Traders to Rulers  
British Policies and Impacts  
The Great Uprising of 1857  
Socio-Religious Reforms  
India's Struggle for Freedom

### Civics

The Three main organs of the Indian Government: Legislature, Executive, Judiciary  
United Nations

## Ancient World

### Theme 1: The River Valley Civilizations

'River Valley Civilizations' aims at enabling children to understand how our present-day society has evolved. It will help them understand the reasons for development of the earliest societies near rivers. Children will be aware of and appreciate the rich and flourishing civilization on the basis of historical evidences. It will further help to develop in them a world historical perspective of the contribution made by various cultures to the heritage of mankind.

#### Learning outcomes:

Children will be able to:

- ☑ identify and locate the sites of major river valley civilizations on an outline map of the world;
- ☑ discuss and understand with reason the development of early civilizations near river beds;
- ☑ question, discuss and appreciate the sources to know these civilizations;
- ☑ compare the society then (in the past) and now;
- ☑ discuss, debate and appreciate the development in early civilizations;
- ☑ draw a comparative analysis between Indus valley civilization and Mesopotamian, Egyptian and Chinese civilization;
- ☑ appreciate the contribution of these civilizations in today's world.

### The River Valley Civilizations

Key Concepts / Concerns	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ <b>'Civilization'- meaning</b></li> <li>➤ <b>Reasons for settlement near rivers.</b></li> <li>➤ <b>Major Civilizations:</b> <ul style="list-style-type: none"> <li>☛ <i>Indus Valley</i></li> <li>☛ <i>Mesopotamian</i></li> <li>☛ <i>Egyptian</i></li> <li>☛ <i>Chinese</i></li> </ul> </li> <li>➤ <b>Main Characteristics:</b> <ul style="list-style-type: none"> <li>☛ <i>Origin</i></li> <li>☛ <i>Location (*Map)</i></li> <li>☛ <i>Rivers</i></li> <li>☛ <i>Society</i></li> <li>☛ <i>Social life – Family, Community</i></li> <li>☛ <i>Town Planning</i></li> <li>☛ <i>Occupations</i></li> <li>☛ <i>Trade</i></li> <li>☛ <i>Art and (Craft), Architecture</i></li> <li>☛ <i>Religious Beliefs</i></li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ <b>Organising</b> discussions (whole class/group) on the different civilizations, important features and the decline.</li> <li>➤ <b>Organising</b> Audio Visual shows on: <ul style="list-style-type: none"> <li>☛ Map of Ancient civilizations</li> <li>☛ Bharat Ek Khoj</li> <li>☛ Sources – excavated sites, remains etc. followed by a discussion with the children.</li> </ul> </li> <li>➤ <b>Providing</b> opportunities to: <ul style="list-style-type: none"> <li>☛ analyse cause, effects and relationship between different river valley civilizations.</li> <li>☛ identify and define world's earliest civilizations.</li> </ul> </li> <li>➤ <b>Providing</b> opportunities to discuss: <ul style="list-style-type: none"> <li>☛ Reasons for river settlements.</li> <li>☛ Geographical significance to location of ancient civilizations.</li> <li>☛ Sources to know these civilizations.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Documentaries on different civilizations.</li> <li>➤ PPT on the sources to know these civilizations.</li> <li>➤ The documentary "The Masters of Rivers".</li> <li>➤ Guest lectures by local historians</li> <li>➤ Outline map of the world.</li> <li>➤ Maps showing River Valley Civilizations.</li> <li>➤ Clay</li> <li>➤ Audio-Visual materials.</li> <li>➤ Charts and pictures on different civilisations.</li> <li>➤ Museum.</li> </ul>

## The River Valley Civilizations

Key Concepts / Concerns	Suggested Transactional Processes	Suggested Learning Resources
<p>➤ <b>Decline</b></p>	<ul style="list-style-type: none"> <li>➤ <b>Assigning</b> a Project work as a group activity on undertaking a comparative study between river valley civilizations in different parts of the world.</li> <li>➤ <b>Making</b> models by children based on the Seal, Great bath (<i>using only environmental friendly materials</i>) - Clay models.</li> <li>➤ <b>Preparing</b> a Scrap Book by each child – on pictures related to the civilization.</li> <li>➤ <b>Enacting/ role plays</b>, for example: children can imagine themselves as traders from Harappa on a business trip and give an account of the trading systems.</li> <li>➤ <b>Making</b> projects (group/individual) on the Planning in Indus Valley Civilization /tracing the rise and decline of any ONE of the four civilizations in the theme.</li> <li>➤ <b>Showing</b> the extent of related civilizations and rivers through Map Work.</li> </ul>	

**Integration:** Geography

**Life Skills:** Appreciation for Heritage



## Theme 2: The Vedic Civilization

The aim of the theme 'Vedic Civilization' is to acquaint and inform children of India's glorious past dating back to 3500 years ago. They will understand and appreciate how ancient literatures like Vedas and Epics provide an insight into our past and the genesis of our present-day society.

### Learning outcomes:

Children will be able to:

- ☑ define the term 'Vedic' and list the various literature related to it;
- ☑ summarize the life style of the Vedic period by relating it to the epics;
- ☑ discuss and identify the differences and similarities between the early and later Vedic period;
- ☑ trace the changing position of woman in early and later Vedic society;
- ☑ analyze and appreciate the rich cultural heritage of India in terms of values, beliefs and traditions.

The Vedic Civilization		
Key Concepts / Concerns	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Aryans in the Sapta Sindhu &amp; Gangetic valley</li> <li>➤ 'Vedas' and 'Vedic' - meaning</li> <li>➤ The four Vedas, Upanishads, Puranas</li> <li>➤ Epics Ramayana &amp; Mahabharata</li> <li>➤ Brahmavarta (Early Vedic age)                             <ul style="list-style-type: none"> <li>☛ Political Organization</li> <li>☛ Social life</li> <li>☛ Economic life</li> </ul> </li> <li>➤ Aryavarta (Later Vedic age)                             <ul style="list-style-type: none"> <li>☛ Political Org.</li> <li>☛ Social Life</li> <li>☛ Four Ashramas</li> </ul> </li> <li><b>Gurukul System</b> <b>Economic life</b></li> </ul>	<p><b>Providing opportunities for:</b></p> <ul style="list-style-type: none"> <li>➤ Sharing their personal experiences on Epic stories of <i>Ramayana</i> and <i>Mahabharata</i>, <i>Hawan</i> and chanting of <i>Shlokas</i>.</li> <li>➤ Explaining the terms "Vedas' and 'Vedic'.</li> <li>➤ Comparing the society, lifestyles and position of women and discuss their ideas and views.</li> <li>➤ Highlighting the differences between early and later Vedic period. (Economic, Social and Cultural).</li> <li>➤ Underlining the difference in the evolution of religion: open air – temple, Gods and Goddesses.</li> <li>➤ Discussing with each other and their parents briefly the teachings of <i>Shrimad Bhagwadgita</i>.</li> <li>➤ <b>Preparing</b> a slide show on the oldest city (Vedic city) of India, Varanasi.</li> <li><b>Organising Audio Visual shows on:</b> <ul style="list-style-type: none"> <li>- The Ramayana and Mahabharata through animated videos.</li> <li>- "Bharat Ek Khoj."</li> </ul> </li> <li>➤ The early and later Vedic period – Comparing the society, lifestyles and position of women.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Narratives</li> <li>➤ Maps of ancient times – Indus, Sapt Sindhu and Gangetic valley.</li> <li>➤ Videos on the story of Ramayana and Mahabharata</li> <li>➤ Slide shows /Videos on Varanasi.</li> <li>➤ Animated version of Ramayana – "The Vedic Way".</li> <li>➤ Bharat Ek Khoj.</li> <li>➤ Documentary on 'Manual Scavengers'. – attend in later Vedic period.</li> <li>➤ PPTs on Vedic society.</li> <li>➤ Mapping skills</li> <li>➤ Visit to a museum</li> <li>➤ Role Play</li> <li>➤ Guest Lecture</li> <li>➤ Copy of the <i>Bhagwadgita</i></li> <li>➤ Amar Chittrakatha Series on:                             <ul style="list-style-type: none"> <li>☛ Ramayana.</li> <li>☛ Mahabhartha,</li> <li>☛ Krishna and</li> <li>☛ Bhagwadgita.</li> </ul> </li> <li>➤ Experts</li> </ul>

## The Vedic Civilization

Key Concepts / Concerns	Suggested Transactional Processes	Suggested Learning Resources
	<ul style="list-style-type: none"> <li>➤ <b>Preparing</b> a Scrap Book (by each child) on – Musical Instruments during the Vedic period.</li> <li>➤ <b>Using</b> maps to show the spread of the civilization along Saptasindhu and Gangetic valley through Map Work.</li> <li>➤ <b>Organising</b> a visit to a museum and interacting with a guide. Discuss what all children saw and their views on the same after the visit is over.</li> <li>➤ <b>Inviting</b> Experts/ special guests to class to discuss the ideas in the Vedic literature, the epics and the Bhagwad Gita.</li> <li>➤ <b>Enacting/ role plays</b> by children on the main characters from the Ramayana &amp; Mahabharata.</li> <li>➤ <b>Organising</b> a Skit – on the basic Gurukul System.</li> </ul>	

**Integration:** Arts Education and Mathematics



## Theme 3: Mahavira & Buddha - Great Preachers

The theme on 'Mahavira and Buddha' will enable children to understand and appreciate the teachings of Gautam Buddha and Mahavira. Use of interesting pedagogy can help them compare and find the similarities and dissimilarities between the two ideologies. It will also develop their understanding on the importance of Ahimsa and tolerance which will in turn help them become responsible citizens.

### Learning outcomes:

Children will be able to:

- ✔ discuss the social conditions that led to the rise of new religions ideology – Buddhism and Jainism;
- ✔ explain the teachings and ideologies of the two great preachers;
- ✔ compose and analyze the reasons that led to the spread and decline of Jainism and Buddhism;
- ✔ critically analyze the importance of Ahimsa and tolerance in today's society.

### Mahavira & Buddha - Great Preachers

Key Concepts / Concerns	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Social conditions for rise of Jainism and Buddhism.</li> <li>➤ Vardhamana Mahavira                             <ul style="list-style-type: none"> <li>☛ <i>Jainism</i></li> <li>☛ <i>Early life</i></li> <li>☛ <i>Teachings (Ahimsa, Caste system, Karma, Rebirth, Search for truth)</i></li> <li>☛ <i>Sub Sections of Jainism</i></li> </ul> </li> <li>➤ Gautama Buddha                             <ul style="list-style-type: none"> <li>☛ <i>Buddhism</i></li> <li>☛ <i>Early life</i></li> <li>☛ <i>Teachings (Four Noble Truths, Eight-Fold Path, Ahimsa, Karma, Nirvana, Caste System)</i></li> <li>☛ <i>Sub Sections of Buddhism</i></li> </ul> </li> <li>➤ A comparative study between Jainism and Buddhism                             <ul style="list-style-type: none"> <li>☛ <i>Spread and Decline.</i></li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ <b>Organising discussions</b> on:                             <ul style="list-style-type: none"> <li>☛ Explaining the social conditions during the later Vedic period.</li> <li>☛ Comparing the teachings of Mahavira and Buddha.</li> <li>☛ Explaining the ideas of Ahimsa, the Four Noble Truths, Nirvana and the Eight-fold path.</li> </ul> </li> <li>➤ <b>Narrating stories</b> on:                             <ul style="list-style-type: none"> <li>☛ The period of these times through Amar Chitra Katha.</li> <li>☛ The lives of Gautama Buddha and Mahavira.</li> </ul> </li> <li>➤ <b>Organising</b> a field trip to visit and explore caves like Ajanta, Ellora, Karla caves, and many more. (Buddhist era).</li> <li>➤ <b>Preparing</b> charts (by children) on:                             <ul style="list-style-type: none"> <li>☛ The Four Noble Truths</li> <li>☛ The Eight-Fold Path</li> </ul> </li> <li>➤ <b>Conducting</b> a Seminar and inviting resource person/s to enable children to understand the significance of 'Ahimsa' in today's world.</li> <li>➤ <b>Organising:</b> <ul style="list-style-type: none"> <li>☛ a debate on Ahimsa</li> <li>☛ a quiz competition/games on Buddha and Mahavira.</li> </ul> </li> <li>➤ <b>Enacting/ Role Plays</b> by children:                             <ul style="list-style-type: none"> <li>☛ of stories from the Jataka tales.</li> <li>☛ as Gautam Buddha and Mahavira on the stories based on their lives.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Videos and Films— films and life story of Gautam Buddha.</li> <li>➤ Experts.</li> <li>➤ Charts, pictures on Buddha and Mahavira.</li> <li>➤ Quizzes.</li> <li>➤ Guest lectures</li> <li>➤ Role Play</li> <li>➤ Creative expression - preparing Charts on:                             <ul style="list-style-type: none"> <li>☛ Four Noble Truths</li> <li>☛ Eight-Fold Path</li> </ul> </li> <li>➤ Comics – Amar Chitra Katha &amp; Jataka Tales.</li> <li>➤ Books on stories from the life of Gautama Buddha and Mahavira.</li> </ul>



## Theme 4: Rise of Kingdoms & Republicans

'Rise of Kingdoms and Republicans' will enable children to understand the way men became rulers in the past and their ambition for expansion of their empires resulted in wars and invasions. This will help them understand how our present day social and political life has evolved through the kingdoms of the past.

### Learning outcomes:

Children will be able to:

- ☑ identify and locate Janapadas and Mahajanapadas on an outline map of India;
- ☑ explain the terms "Janapadas" and "Mahajanapadas" and list the major powerful kingdoms;
- ☑ draw a time line, mark the rise of Magadha and list the rulers who ruled it;
- ☑ question and give reasons for the Mahajanapada being so powerful;
- ☑ reflect critically on the invasion of Alexandria.

### Rise of Kingdoms & Republicans

Key Concepts / Concerns	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Introduction to terms – Janapadas &amp; Mahajanapadas.</li> <li>➤ Powerful Kingdoms:                             <ul style="list-style-type: none"> <li>☛ Vatsa</li> <li>☛ Avanti</li> <li>☛ Kosala</li> <li>☛ Magadha</li> </ul> </li> <li>➤ Mighty Kingdom of Magadha:                             <ul style="list-style-type: none"> <li>☛ Rulers (Bimbisara, Ajatashatru)</li> <li>☛ Rule of Nandas</li> <li>☛ Alexander's Invasion</li> <li>☛ Chandragupta Maurya (Brief Mention of his life before he became the ruler)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ <b>Organising discussions on:</b> <ul style="list-style-type: none"> <li>☛ Constructing a timeline to plot the rise of Kingdoms, republicans using an ancient map of India.</li> <li>☛ Identifying and naming the powerful Kingdoms of Vatsa, Avanti, Kosala and Magadha.</li> <li>☛ Describing the keywords and Janapadas and Mahajanapadas.</li> <li>☛ Outlining the different rulers of Magadha and describing Alexander's invasion.</li> <li>☛ The discovery and use of Iron ore and development of new kingdoms.</li> <li>☛ The reasons for foreign invasions.</li> <li>☛ Analysing critically the reason for some Republican Janapadas.</li> </ul> </li> <li>➤ <b>Organising audio visual shows</b> to show the extent of the powerful Magadha Empire and the invasions of Alexander the Great.</li> <li>➤ <b>Narrating stories:</b> <ul style="list-style-type: none"> <li>☛ Of Alexander and King Porus.</li> <li>☛ Folk tales</li> </ul> </li> <li>➤ <b>Using</b> Maps to show the extent of the powerful kingdoms of India during this period.</li> <li>➤ <b>Enacting/ Role plays/Skits</b> by children on:                             <ul style="list-style-type: none"> <li>☛ The War between Alexander and King Porus and the famous dialogues between them.</li> <li>☛ 'Ashwamedha yagna' and becoming 'Chakravarty Samrat'.</li> </ul> </li> <li>➤ <b>Inviting</b> Resource personnel/ Guest lecturers /Local historian to talk on the reasons for Magadha being the most powerful Mahajanapada during those times.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Audio/Visuals</li> <li>➤ Books – The story of Alexander and Porus.</li> <li>➤ Outline map of India.</li> <li>➤ Materials necessary for roleplay.</li> <li>➤ Related PPT's/Videos.</li> </ul>

## Theme 5: The Mauryan Empire

The 'Mauryan Empire' with special mention of Emperor Ashoka who gave up war provides an insight into the glorious traditions of non-violence and a welfare state. The children will get to know about 'Chanakya' a famous Indian thinker and appreciate his ideas in 'Arthashastra'. It will enable children to understand the relationship between the concept of Ashoka's welfare state and present-day society.

### Learning outcomes:

Children will be able to:

- ☑ infer and illustrate the features of the Mauryan empire through the sources of Indica and Arthashastra and list the notable rulers;
- ☑ discuss and analyze the features of Mauryan administration;
- ☑ trace the ascent and extent of the Ashoka empire and outline the causes and effects of the Kalinga war;
- ☑ analyze the effects of Ashoka's 'Dhamma' and reflect on the relevance of the teachings of Dhamma in present day society;
- ☑ appreciate the public welfare activities of Ashoka.

The Mauryan Empire		
Key Concepts / Concerns	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Sources: Indica &amp; Arthashastra</li> <li>➤ Chandragupta Maurya                             <ul style="list-style-type: none"> <li>☛ <i>Role of Chanakya</i></li> </ul> </li> <li>➤ Bindusara</li> <li>➤ Ashoka (<i>Ascend to throne, extent of kingdom, Kalinga War, Welfare state</i>)</li> <li>➤ Ashoka's Dhamma &amp; Edicts.</li> <li>➤ Mauryan Administration                             <ul style="list-style-type: none"> <li>☛ <i>With reference to Pataliputra</i></li> </ul> </li> <li>➤ Mauryan Art and Economy</li> <li>➤ Decline.</li> </ul>	<ul style="list-style-type: none"> <li>➤ <b>Organising</b> Presentations / discussions on:                             <ul style="list-style-type: none"> <li>☛ The different sources from the Mauryan period and asking children to describe them.</li> <li>☛ Analysing the role and influence of Chanakya in the administration of Magadha.</li> <li>☛ Outlining the rule of Ashoka and the extent of his empire.</li> <li>☛ Critically analysing the reasons for Ashoka being called a great emperor.</li> <li>☛ Describing the influence of Ashoka's Dhamma and edicts.</li> <li>☛ The public welfare activities of Ashoka.</li> <li>☛ Exploring and analysing the reasons for the decline of the Mauryan Empire.</li> </ul> </li> <li>➤ <b>Conducting</b> Audio visual shows on: Bharat – Ek Khoj, Episodes on The Mauryan Empire, Ashoka the Great, Chanakya, followed by discussion.</li> <li>➤ <b>Tracing</b> the extent of Ashoka's Empire on an outline map of India.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Audio Visuals</li> <li>➤ Debate – Who was a greater King? Chandragupta or Ashoka</li> </ul>

## The Mauryan Empire

Key Concepts / Concerns	Suggested Transactional Processes	Suggested Learning Resources
	<ul style="list-style-type: none"> <li>➤ <b>Enacting/ Role Plays</b> by children on:               <ul style="list-style-type: none"> <li>☛ The Kalinga War;</li> <li>☛ Chanakya and Chandragupta Maurya.</li> </ul> </li> <li>➤ <b>Narrating:</b> <ul style="list-style-type: none"> <li>☛ stories on the Kalinga war.</li> <li>☛ short moral based stories.</li> </ul> </li> <li>➤ <b>Encouraging</b> children to write a brief report on the influences of Buddhism on Emperor Ashoka.</li> <li>➤ <b>Organising</b> a visit / field trip to any of Ashoka's rock edicts / local museum and then asking them to prepare individual or group reports.</li> </ul>	



## Theme 6: The Golden Age – Gupta Empire

'The Golden Age - Gupta Empire' will provide children an insight into the glorious past of India owing to advancements in trade, economy, literature, astronomy, Ayurveda, and mathematics. Interesting pedagogies will help children understand the reasons for this period of study to be known as the Golden Age in the History of India and they will learn to appreciate India's rich heritage.

### Learning outcomes:

Children will be able to:

- ☑ draw the extent of Gupta empire on an outline map of India;
- ☑ discuss and analyze the sources to know about Gupta rulers;
- ☑ identify and describe the important achievements of the Gupta rulers -Chandragupta I & II and Samudragupta;
- ☑ evaluate and appreciate the achievements during the Gupta period to summarize the golden age of India.

### The Golden Age – Gupta Empire

Key Concepts / Concerns	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Sources: The history of the Gupta Empire</li> <li>➤ Rulers of the Gupta Empire:                             <ul style="list-style-type: none"> <li>☛ Chandragupta I</li> <li>☛ Samudragupta</li> <li>☛ Chandragupta II</li> </ul> </li> <li>➤ The Golden Age:                             <ul style="list-style-type: none"> <li>☛ Features / Characteristics</li> <li>☛ Administration</li> <li>☛ Economy</li> <li>☛ Religious Life</li> <li>☛ Scientific Progress</li> <li>☛ Art, Architecture and Literature</li> <li>☛ Education</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ <b>Organising</b> discussions on:                             <ul style="list-style-type: none"> <li>☛ Exploring and understanding the term "Golden Age".</li> <li>☛ Listing the names of the rulers during the Gupta reign.</li> <li>☛ Comparing the periods of the Mauryan dynasty vs Gupta dynasty.</li> </ul> </li> <li>➤ <b>Showing</b> audio visuals on:                             <ul style="list-style-type: none"> <li>☛ Kalidasa, Aryabhata</li> <li>☛ Samudragupta – A Great Warrior</li> </ul> </li> <li>➤ <b>Drawing</b> the extent of the Gupta Empire on an outline map of India.</li> <li>➤ <b>Guiding</b> children individually or in groups to make a Collage/Scrap Book of Mauryan age Coins, value of coins, metals used, figures, etc.</li> <li>➤ <b>Helping</b> children to make coin models of the Gupta Age, using clay.</li> <li>➤ <b>Making</b> a chart to highlight the scientific progress during the Gupta Age with reference to contributions of Aryabhata.</li> <li>➤ <b>Discussing and writing reports:</b> <ul style="list-style-type: none"> <li>☛ explaining the accounts of Chinese traveller 'Fa Hein'.</li> <li>☛ on evidences of Gupta Age as seen in a Museum.</li> </ul> </li> <li>➤ <b>Organising</b> a visit to a Museum followed by writing either individual or group reports on the Visit.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Audio/Visuals</li> <li>➤ Mapping Skills</li> <li>➤ Research</li> <li>➤ Report writing</li> <li>➤ Visit to a museum</li> <li>➤ Bulletin Board-collate achievements of Golden age</li> <li>➤ Travellers account on India's Past &amp; Present</li> <li>➤ Children's history of India</li> </ul>

## Theme 1: Rural Local Self Government

The theme 'Rural Local Self Government' aims at children developing an understanding of the main features and functions of the Panchayati Raj System and other local bodies in India. Children will be able to understand the functioning of the three tiers of the Panchayati Raj System.

### Learning outcomes:

Children will be able to:

- ✔ describe the rural local self -government (Panchayati Raj system);
- ✔ explain the features and functions of local government at the village, block and district levels;
- ✔ appreciate the role played by the local bodies;
- ✔ initiate responsibilities to help local bodies.

### Rural Local Self Government

Key Concepts / Concerns	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Local-Self Government-meaning</li> <li>➤ Panchayati Raj System:               <ul style="list-style-type: none"> <li>☛ <i>Panchayats (Features and Functions)</i></li> </ul> </li> <li>➤ Gram Sabha:               <ul style="list-style-type: none"> <li>☛ <i>Gram Panchayat</i></li> <li>☛ <i>Nyaya Panchayat</i></li> </ul> </li> <li>➤ Block Samiti:               <ul style="list-style-type: none"> <li>☛ <i>Composition</i></li> <li>☛ <i>Functions</i></li> </ul> </li> <li>➤ Zila Parishads:               <ul style="list-style-type: none"> <li>☛ <i>Composition</i></li> <li>☛ <i>Functions</i></li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ <b>Working</b> with children to create a web chart of the Panchayati Raj System.</li> <li>➤ <b>Discussing</b> the composition and functions of each unit of the Panchayati Raj system.</li> <li>➤ <b>Assigning</b> groups, the activity of listing and discussing the composition and functions of each unit of the system.</li> <li>➤ <b>Conducting</b> a mock panchayat (role play) to – solve a money lending issue between two members of a village.</li> <li>➤ <b>Encouraging</b> children to write an essay on – 'A day in your area without supervision'.</li> <li>➤ <b>Asking</b> children to prepare a PowerPoint presentation on the role and responsibilities of a Zila Parishad (after accessing information on the related topic).</li> <li>➤ <b>Assigning</b> project to groups of children to show the working of all the tiers of the Panchayati Raj system.</li> <li>➤ <b>Organising</b> a field trip to a nearby village to see the working of the Panchayat.</li> <li>➤ Assigning groups of children, the task of conducting an interview with a member of Panchayat and the Sarpanch to discuss the common problems faced by them at the village level and the role of the Panchayat in solving them.</li> <li>➤ <b>Conducting</b> a survey in the locality to find the existing problems of the area and ways to solve them.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Learner's daily life experiences</li> <li>➤ Web chart</li> <li>➤ Writing essay, report, application</li> <li>➤ Mock Panchayat</li> <li>➤ An interview with a member of panchayat</li> <li>➤ Media and ICT on the Panchayat elections, and self-government.</li> <li>➤ Tracking the municipal elections</li> </ul>

## Theme 2: Urban Local Self Government

The theme 'Urban Local Self Government' aims at providing information and developing children's understanding of the composition and functions of Municipal Corporations. Transactional processes will help children in taking up responsibilities and solving common problems in their surroundings. These will also enable them to be proactive citizens who will give back to society through an understanding of their duties.

### Learning outcomes:

Children will be able to:

- ☑ explain the term 'Metropolitan' and state the names of four major cities;
- ☑ locate and identify metropolitan cities on an outline map of India;
- ☑ describe the functioning of Municipal Corporations;
- ☑ demonstrate the ability to take initiatives and responsibility in solving community problems such as sewage, traffic jam, pollution, cleanliness;
- ☑ create simple awareness programmes in the vicinity on public welfare issues.

### Urban Local Self Government

Key Concepts / Concerns	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Define the term – 'Metropolitan'</li> <li>➤ Names of major cities– Kolkata, Delhi, Mumbai, Chennai</li> <li>➤ Municipal Corporations</li> <li>➤ Composition</li> <li>➤ Functions (Water Supply, Public health Sanitation, Education, Lighting, Public Security, Public Works, Maternity and Child Welfare)</li> <li>➤ Municipalities</li> </ul> <p><i>*Brief Mention.</i></p>	<ul style="list-style-type: none"> <li>➤ <b>Sharing</b> of prior knowledge and experiences children have of small and big cities, and the city they live in.</li> <li>➤ <b>Building</b> on children's previous learning.</li> <li>➤ <b>Providing opportunities</b> to children for participating in activities such as:                             <ul style="list-style-type: none"> <li>☛ Describing the term 'Metropolitan' and listing the major cities of India.</li> <li>☛ Showing and locating the major cities on an outline map of India.</li> <li>☛ Listing and explaining the composition and functions of the Municipal corporations.</li> <li>☛ Principles and practices of local governance among officials and elected members.</li> </ul> </li> <li>➤ <b>Assigning</b> children, the task of conducting an interview with the local municipal corporation on common problems of the area. E.g. garbage collection, unsafe water, poor street lighting, etc.</li> <li>➤ <b>Writing</b> a report (individually or in groups) on problems faced by people in metropolitan cities, such as the water logging during monsoons.</li> <li>➤ <b>Organizing</b> a cleanliness drive in the school - under the Swachh Bharat Initiative.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Collate data to compare population in towns and in cities (any four)</li> <li>➤ Newspaper, ICT.</li> <li>➤ Mapping skills.</li> <li>➤ Hands on experience.</li> <li>➤ Map of India.</li> <li>➤ Local Municipality Office and people working there.</li> <li>➤ Questions to conduct an interview.</li> <li>➤ Tracking the municipal elections</li> </ul>

## The Medieval World

### Theme 1: Medieval Europe – Rise and Spread of Christianity

'Medieval Europe – Rise and Spread of Christianity' aims at exposing and providing children information to be able to understand the transition of Europe from the Ancient Roman Empire to the Medieval Byzantium Empire. The rise and spread of Christianity will broaden their perspectives on beliefs across the globe.

#### Learning outcomes:

Children will be able to:

- ✓ trace the origin and spread of Christianity;
- ✓ reflect on the basic principles and teachings of Christianity;
- ✓ identify similarities in the good teachings of the various forms of Religion;
- ✓ discuss and analyse the relevance of Christ's teachings in the present-day context;
- ✓ analyse the relationship between the decline of the Roman empire and the spread of Christianity;
- ✓ study the impact of crusades in Europe;
- ✓ analyse the influence of the church on the life of the people in Europe.

### Medieval Europe – Rise and Spread of Christianity

Key Concepts / Concerns	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Meaning of the term 'Medieval', tracing the beginning of the Medieval period in the world and India on the basis of evidences.</li> <li>➤ Socio / political circumstances.</li> <li>➤ Birth of Christianity.</li> <li>➤ Roman conquest of Palestine.</li> <li>➤ Birth of Jesus in Bethlehem.</li> <li>➤ Main Teachings of Jesus.</li> <li>➤ Jesus's opposition with Jewish leaders.</li> <li>➤ Crucifixion of Jesus.</li> <li>➤ Role of Emperor Constantine in spreading Christianity.</li> <li>➤ Emergence of Constantinople as a new Christian Capital.</li> </ul>	<ul style="list-style-type: none"> <li>➤ <b>Mind mapping</b> of the European society during the medieval period and the circumstances that led to the rise of Christianity.</li> <li>➤ <b>Organising</b> discussions with children on:               <ul style="list-style-type: none"> <li>☛ sharing their previous knowledge (if any) about Christianity.</li> <li>☛ appreciating the good teachings that various religions offer.</li> <li>☛ constructing a time line on the rise and spread of the Roman Empire.</li> <li>☛ analysing the reasons and impact of the Barbarian and Byzantium invasions.</li> <li>☛ explaining the meaning and the impact of the crusades.</li> </ul> </li> <li>➤ <b>Showing</b> Audio Visuals on:               <ul style="list-style-type: none"> <li>☛ practices in Christianity – Crusades and Sacred journeys.</li> <li>☛ suggested film – Greatest Story ever told as a movie experience.</li> <li>☛ related videos on the medieval society- the three orders, Barbarian</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Related films, videos and documentaries.</li> <li>➤ Role play</li> <li>➤ Mind mapping</li> <li>➤ Flowcharts</li> <li>➤ Quizzes</li> <li>➤ Children's illustrated Bible and Encyclopaedia.</li> <li>➤ PPTs.</li> <li>➤ Heritage walks – to a Church</li> <li>➤ Outline map of the world</li> <li>➤ Newspapers clippings and articles.</li> </ul>

## Medieval Europe – Rise and Spread of Christianity

Key Concepts / Concerns	Suggested Transactional Processes	Suggested Learning Resources
<p><b>Medieval Europe.</b></p> <ul style="list-style-type: none"> <li>➤ Decline of the Ancient Roman Empire.</li> <li>➤ Barbarian Invasions by Goths, Vandals and Franks; its impact on Europe.</li> <li>➤ Byzantium: birth of a new empire.</li> <li>➤ Emergence of the Turks and the Crusades.</li> <li>➤ Monasteries and their impact.</li> </ul>	<p>invasions and crusades followed by discussions.</p> <ul style="list-style-type: none"> <li>➤ <b>Enactment</b> of scenes by children from the life of Jesus Christ through role plays / skits.</li> <li>➤ <b>Organising</b> a visit to a church and discussing what was seen.</li> <li>➤ <b>Conducting</b> activities related to:               <ul style="list-style-type: none"> <li>☛ celebrating Christmas in School.</li> <li>☛ organising 'a day of Selfless Service' in school.</li> <li>☛ designing web charts and flow charts (individually and in groups) on the rise and spread of Christianity.</li> <li>☛ class presentations on the common features of different religions.</li> <li>☛ Flow chart of chronology of events</li> </ul> </li> <li>➤ <b>Creating</b> an imaginary role of a monk or a nun living in a monastery during the medieval period – writing an account of his/her daily routine.</li> <li>➤ <b>Showing</b> on an outline map of the world, the routes taken by the crusaders and marking the countries in which Christianity is the official religion.</li> </ul>	





## Theme 2: Rise and Spread of Islam

The theme 'Rise and Spread of Islam' aims at enabling the children to understand a major turning point in the history of mankind with the emergence of a new faith that spread across many continents and affected the politics, life and culture of many places. The theme will generate an awareness and provide the children with an insight into the conditions and processes that led to the rise and spread of Islam. The Pedagogies will help the children to appreciate the 'welfare of mankind' as the basis of all religions.

### Learning outcomes:

Children will be able to:

- trace the emergence and spread of Islam in Saudi Arabia;
- discuss the basic principles and teachings of Islam;
- report on observations related to some other beliefs and practices;
- appreciate a humanitarian approach as the basis of all religions.

Rise and Spread of Islam		
Key Concepts / Concerns	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Pre-Islamic times - conditions in Saudi Arabia</li> <li>➤ Birth of Prophet Mohammad</li> <li>➤ Early life teachings and five basic principles of Islam</li> <li>➤ Migration of Prophet Mohammad to Medina-Hizrat</li> <li>➤ Prophet Mohammad's return to Mecca (Mecca and Medina – the two holy places for Muslims)</li> <li>➤ Death of Prophet Mohammad and the beginning of the Caliphate</li> <li>➤ Spread of Islam</li> <li>➤ The Abbasid and Umayyad Dynasties</li> </ul>	<ul style="list-style-type: none"> <li>➤ <b>Organising discussions on:</b> <ul style="list-style-type: none"> <li>☛ the socio-political conditions responsible for the rise and spread of Islam.</li> <li>☛ appreciating the similarities in the basic teachings and principles of all the religions.</li> <li>☛ inculcating a sense of compassion, empathy and welfare among humans that forms the basis of all religions.</li> </ul> </li> <li>➤ <b>Showing</b> documentaries on - the cities of Mecca and Medina, Haj, Eid celebrations. This may be followed by discussions.</li> <li>➤ <b>Narrating</b> / reading stories from 'illustrated Quran Stories', followed by discussions.</li> <li>➤ <b>Undertaking</b> a visit / trip to a Mosque.</li> <li>➤ <b>Conducting</b> activities:           <ul style="list-style-type: none"> <li>☛ celebrating the festival of Eid in school.</li> <li>☛ making a project (by children) on the holy cities of Mecca and Medina, and the celebration of Ramzan and Eid.</li> <li>☛ Writing a report on the month of Ramzan explaining the significance of this special month; describing the main events of Eid-ul-Fitr.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Documentary on "Sacred Journeys – Haj'</li> <li>➤ Mosque</li> <li>➤ Timeline</li> <li>➤ Mind mapping</li> <li>➤ Films and documentaries.</li> <li>➤ Subject-related videos and PPTs</li> <li>➤ Books, magazines and encyclopaedias</li> <li>➤ Flash cards – Pillars of Islam – Words, Symbols and actions</li> </ul>

## Theme 3: The Delhi Sultanate

'The Delhi Sultanate' will provide children with an insight of the period and enable them to understand the rule of the Sultanate period in Delhi, their capital, administration, achievements and socio-cultural developments. Interesting pedagogy will motivate children to discuss, explore, compare and analyse the information on this period and relate it to present day life. It will help children to understand how the past has helped in shaping the present.

### Learning outcomes:

Children will be able to:

- ☑ discuss the emergence of Delhi as a seat of power;
- ☑ name the five dynasties that ruled Delhi;
- ☑ analyse the influence and impact of notable rulers on the Sultanate;
- ☑ evaluate the key features of the different dynasties of the Delhi Sultanate;
- ☑ draw out a comparative analysis between the policies of the different dynasties;
- ☑ evaluate the reasons for the decline of the Delhi Sultanate.

<b>The Delhi Sultanate</b>		
<b>Key Concepts / Concerns</b>	<b>Suggested Transactional Processes</b>	<b>Suggested Learning Resources</b>
<ul style="list-style-type: none"> <li>➤ The Turkish invasions</li> <li>➤ The rule of the five dynasties of Delhi Sultanate</li> <li>➤ Time line exercise, (expansion of empire, administration, significance of court, nobility and land control).</li> <li>➤ A case study of the Tughlaqs</li> <li>➤ A comparative study between the Tughlaqs and the Khaljis.</li> <li>➤ Art and architecture, socio-cultural development during this period</li> </ul>	<ul style="list-style-type: none"> <li>➤ <b>Organising</b> discussions with children on:                             <ul style="list-style-type: none"> <li>☛ interpreting the meaning of "Sultanate".</li> <li>☛ analysing the reasons and the impact of invasions.</li> <li>☛ familiarising with the capital, administration, achievements and court rooms of Sultans</li> <li>☛ reflecting on the art, architecture and poetry of this period.</li> </ul> </li> <li>➤ <b>Organising</b> a time-line and a mind-mapping exercise on the spread of Islam in different parts of the World.</li> <li>➤ <b>Showing</b> Audio visuals on:                             <ul style="list-style-type: none"> <li>☛ the Impact of the Sultanate period</li> <li>☛ the invasions of Mahmud of Ghazini and his plunder of temples.</li> <li>☛ "Bharat ek Khoj".</li> <li>☛ the Episodes on the rulers of Delhi Sultanate.</li> </ul> </li> <li>➤ <b>Organising</b> Heritage walks and interaction with guides – or walk coordinators</li> <li>➤ <b>Encouraging</b> children to prepare a power point presentation on the architectural development of this period.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Charts, Maps</li> <li>➤ Flowchart</li> <li>➤ Related Videos, films, documentaries and slide shows.</li> <li>➤ Written expression</li> <li>➤ Books, Comics, Encyclopaedias and plays (Tughlaq).</li> <li>➤ Illustrations made by learners.</li> <li>➤ Bulletin Board.</li> <li>➤ Puppets.</li> <li>➤ Coins, Costumes – images or actual.</li> <li>➤ Museums.</li> </ul>

## The Delhi Sultanate

Key Concepts / Concerns	Suggested Transactional Processes	Suggested Learning Resources
	<ul style="list-style-type: none"> <li>➤ <b>Making</b> a Flow chart activity on Sultans of Delhi</li> <li>➤ <b>Enactment/ role plays/skits</b> on:               <ul style="list-style-type: none"> <li>☛ the failed experiments of Muhammad bin Tughlaq.</li> <li>☛ an actual transfer of Class to comprehend Muhammad bin Tughlaq's transfer of capital.</li> <li>☛ creating a simulation of markets in the Khilji dynasty and designing market policies.</li> </ul> </li> <li>➤ <b>Organizing</b> a debate on the views of historians on Muhammad bin Tughlaq (wisest fool/way ahead of his time)</li> <li>➤ <b>Written assignments</b> may include:               <ul style="list-style-type: none"> <li>☛ designing a Delhi Sultanate Newspaper</li> <li>☛ creating a royal officials account in Ghiyasuddin Balban's Court – Giving an account of their observations of the usual day to day proceedings in the Royal court.</li> <li>☛ comparative study between the Tughlaqs and the Khaljis</li> <li>☛ timeline exercise on the Sultans of Delhi.</li> </ul> </li> <li>➤ <b>Conducting</b> Activities relating to:               <ul style="list-style-type: none"> <li>☛ narrating events based on the Delhi Sultanate.</li> <li>☛ preparing flannel boards (Basic scene of Delhi Court, with different rulers as characters as the background) that has the teacher narrating the sequence of events.</li> <li>☛ reading excerpts from the play "Tughlaq" by Girish Karnad</li> <li>☛ designing a class bulletin board on the Monuments of the Delhi Sultanate.</li> <li>☛ writing a historian's account of any one of the policies introduced in the Delhi Sultanate and the impact it caused.</li> </ul> </li> <li>➤ <b>Organising</b> visits to Historical buildings, monuments and Museum related to the period of the Delhi Sultanate, followed by discussions.</li> </ul>	

## Theme 4: The Vijayanagar and Bahamani Kingdoms

'The Vijayanagar and Bahamani Kingdoms' theme deals with two of the most prominent kingdoms that existed in South India. Decline and disintegration of the Tughlaq Empire paved the way for the rise of these two Kingdoms. Interesting pedagogies will help children to appreciate the development of art and architecture of the Vijayanagar and the Bahamani Kingdoms. This understanding is critical for our children to feel proud of the rich cultural heritage of our country.

### Learning outcomes:

Children will be able to:

- ☑ identify the location of the kingdoms;
- ☑ assess the reasons for the emergence of the Vijayanagar and the Bahamani Kingdoms;
- ☑ understand and discuss the major achievements of the Kingdoms;
- ☑ appreciate the architectural legacy left behind.

### The Vijayanagar and Bahamani Kingdoms

Key Concepts / Concerns	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Disintegration of Tughlaq empire – causes</li> <li>➤ Rise of the Vijayanagar and the Bahamani Kingdoms</li> <li>➤ Case study of Krishnadeva Raya</li> <li>➤ Mahamud Gawan – the founder of Bahamani Kingdom</li> <li>➤ Achievements, Administration, Art and Architecture – special mention of Hampi and Gol Gumbaz</li> </ul>	<ul style="list-style-type: none"> <li>➤ <b>Organising</b> discussions on:                             <ul style="list-style-type: none"> <li>☛ Explaining the reasons for the rise of the prominent kingdoms of the South.</li> <li>☛ Encouraging children to share stories of Krishnadeva Raya.</li> <li>☛ Depicting the extent of the kingdoms of Vijayanagar and Bahamani and discussing the achievements of various kings.</li> </ul> </li> <li>➤ <b>Showing films/documentaries</b> on:                             <ul style="list-style-type: none"> <li>☛ The Architectural marvels of the Vijayanagar and the Bahamani Kingdoms/</li> <li>☛ Hampi followed by discussions.</li> </ul> </li> <li>➤ <b>Enactment /role play</b> of stories from Tenali Raman</li> <li>➤ <b>Written</b> work could include:                             <ul style="list-style-type: none"> <li>☛ A comparative study of life and conditions of people during the rule of the Vijayanagar Kings and the Bahamani Kings.</li> <li>☛ Tracing the location of the Vijayanagar and Bahamani Kingdoms on an outline map of India.</li> </ul> </li> <li>➤ <b>Organising</b> a visit to Hampi / a museum and encouraging children to share their experiences by writing a report.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Learners' experiences</li> <li>➤ Audio – Visual aids; Videos, films, Power Point presentations</li> <li>➤ Books and Encyclopaedia</li> </ul>

## Theme 5: The Mughal Empire

The theme will expose children to the Mughal Empire and enable them to understand why and how it became the most important Empire of the later period of Medieval Indian History. The Empire stretched over a vast area of the Indian subcontinent and had a rich diversity of people and cultures. The children will also be able to appreciate the Mughal Art and Architecture which form a part of the rich heritage of India.

### Learning outcomes:

Children will be able to:

- trace the emergence of the Mughal dynasty in India;
- identify the factors that led to the conquest of India by Babur;
- analyse the achievements and failures of Mughal emperors;
- discuss the impact of Sher Shah Suri on the Mughal empire;
- discuss and appreciate the administration, foreign policy, relation with regional kings and Din-e-Illahi of Akbar;
- discuss Jahangir and Shah Jahan as the patrons of art and architecture;
- evaluate the influence of the legacy this period left behind;
- examine the rise of regional powers posing a threat to the Mughal empire.

The Mughal Empire		
Key Concepts / Concerns	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ An overview of the Mughal Empire.</li> <li>➤ The first battle of Panipat and establishment of Mughal Empire.</li> <li>➤ Babur and Humayun</li> <li>➤ Sher Shah Suri – The great administrator.</li> <li>➤ A case study of Akbar and his times. (relation with other rulers, administration, revenue system, religious policy).</li> <li>➤ Jahangir and Nur Jahan.</li> <li>➤ Jahangir's and Shah Jahan's patronage of architecture.</li> <li>➤ Aurangzeb and his Deccan policy.</li> <li>➤ Decline of the Mughal Empire</li> </ul>	<ul style="list-style-type: none"> <li>➤ <b>Organising</b> discussions on:                             <ul style="list-style-type: none"> <li>☛ the origin of the Mughals.</li> <li>☛ difference in the origins of the Mughals and the rulers of the Delhi Sultanate.</li> <li>☛ analysing the reasons for the defeat of Ibrahim Lodi in the first battle of Panipat and the establishment of the Mughal Empire.</li> <li>☛ the main features of administration of Sher Shah Suri and evaluating the same.</li> <li>☛ tracing the patterns of political developments and military conquests of the Mughal Emperors.</li> <li>☛ Akbar's policy towards Indian rulers with special reference to the Rajputs and his Din-E-Illahi</li> <li>☛ The political developments and military conquests during the times of Akbar, Jahangir, Shah Jahan and Aurangzeb.</li> <li>☛ role of Jahangir and Shah Jahan as patrons of art and architecture.</li> <li>☛ the varied types of monumental architecture, wide range of materials, skills and styles used and resources required for building these monuments</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Flannel Board</li> <li>➤ Interactions</li> <li>➤ Interaction with guests</li> <li>➤ Pictures of Mughal era.</li> <li>➤ Videos and films.</li> <li>➤ Illustrations made by children</li> <li>➤ Visits and trips</li> <li>➤ Games designed by children.</li> <li>➤ Books and encyclopaedia's</li> <li>➤ Creating a Mughal newspaper</li> <li>➤ Organising art festivals, Mughal festivals.</li> <li>➤ Pictorial depictions</li> <li>➤ Diary recording</li> <li>➤ Quizzes.</li> <li>➤ Web chart, flow charts</li> </ul>

## The Mughal Empire

Key Concepts / Concerns	Suggested Transactional Processes	Suggested Learning Resources
	<ul style="list-style-type: none"> <li>➤ <b>Audio Visual</b> shows on:                             <ul style="list-style-type: none"> <li>☛ the Mughal rulers and their achievements</li> </ul> </li> <li>➤ <b>Narrating</b> stories of this period through printed / published material that is age appropriate.</li> <li>➤ <b>Enactment/ Role Plays</b> by children on:                             <ul style="list-style-type: none"> <li>☛ a simulation of Diwan-i-aam, where the class resolves their conflict on different issues.</li> <li>☛ Akbar - Birbal stories.</li> <li>☛ any one ruler of the Mughal dynasty – Babur, Humayun, Akbar, Jahangir, Shah Jahan, Aurangzeb</li> <li>☛ Ad- acting on the rich legacy of the Mughal era – art, culture, language, jewellery, dresses, and many more.</li> </ul> </li> <li>➤ <b>Conducting</b> activities based on:                             <ul style="list-style-type: none"> <li>☛ integrating Mughal art in art classes (miniature paintings)</li> <li>☛ organising art festivals for exploration of the variety of Mughal art.</li> <li>☛ creating a class bulletin board – elect and create ‘Hall of fame’.</li> <li>☛ interaction with artists who specialise in contemporary Mughal art.</li> <li>☛ organising heritage walks/visits to sites of historical significance- Agra, Delhi, etc.</li> <li>☛ visit to a museum.</li> <li>☛ organising a ‘Mughal festival” that showcases the rich art, culture, dress, and cuisine based on that era.</li> </ul> </li> <li>➤ <b>Written assignments</b> may include:                             <ul style="list-style-type: none"> <li>☛ launching a Newspaper based on events of the Mughal era.</li> <li>☛ devising Web charts and flow charts</li> <li>☛ assembling a ‘Recipe book of Mughal Cuisine.</li> </ul> </li> <li>➤ <b>Creating</b> a Newspaper Ad- Games inviting membership to Designing Board Games Din – I - Illahi.                             <ul style="list-style-type: none"> <li>☛ achievement of rulers.</li> <li>☛ a diary recording of Shah Jahan’s plight when imprisoned in the Agra Fort.</li> </ul> </li> </ul>	

**Integration:** Arts Education

## Theme 6: Making of Composite Culture

'Making of Composite Culture' will enable children to understand and appreciate the legacy of the Bhakti and Sufi movements that have evolved in India since the eighth century. The period after the thirteenth saw a strong wave of the Bhakti movement when Islam, Brahmanical Hinduism, Sufism and many other different strands of Bhakti influenced one another. The teachings of Bhakti and Sufi saints will develop and inculcate a sense of humanity among children. The Pedagogy used will help them to appreciate common features of all religions for the welfare of mankind.

### Learning outcomes:

Children will be able to:

- ☑ analyse and appreciate the ideas of Bhakti and Sufi saints;
- ☑ discuss their influence on making of a composite culture;
- ☑ compare and list the similarities in ideas of the Bhakti and Sufi saints;
- ☑ list the similarities and dissimilarities between the Alwars and the Nayanars;
- ☑ appreciate and narrate the contribution of the Bhakti and Sufi saints.

### Making of Composite Culture

Key Concepts / Concerns	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Bhakti and Sufi Movements (Causes, significant features, role of saints).</li> <li>➤ Teachings of Kabir, Guru Nanak Dev, Shankara, Jananeswara.</li> <li>➤ Alwars and Nayanars.</li> <li>➤ Sufi saints and their teachings.</li> <li>➤ Impacts on society</li> </ul>	<ul style="list-style-type: none"> <li>➤ <b>Organising</b> discussions on: <ul style="list-style-type: none"> <li>☛ different religions - beliefs and practices.</li> <li>☛ sharing views on the teachings of Bhakti and Sufi Saints.</li> <li>☛ analysing and comparing the teachings of Bhakti and Sufi Saints. Similarities between the two movements.</li> </ul> </li> <li>➤ <b>Audio-Visual shows</b> on: <ul style="list-style-type: none"> <li>☛ famous Gurudwaras and Gurubani.</li> <li>☛ Bijak and dohas of Kabir.</li> <li>☛ famous Dargahs and Qawwalis.</li> <li>☛ prominent exponents of Sufi music</li> <li>☛ Alwars, Nayanars, Shankara Jananeswara etc</li> </ul> </li> <li>➤ <b>Organising</b> Role Plays/ Recitation/ Musical concerts on: <ul style="list-style-type: none"> <li>☛ Gurubani, Bhajans, Qawwalis and dohas of the saints.</li> <li>☛ life and teachings of any of the Bhakti saints.</li> <li>☛ Sufi-Bhakti music.</li> </ul> </li> <li>➤ <b>Written</b> assignments may include: <ul style="list-style-type: none"> <li>☛ reasons for the rise and growth of the Bhakti and Sufi movements.</li> <li>☛ making of a Composite culture.</li> <li>☛ similarities between the teachings of Bhakti and Sufi Saints.</li> </ul> </li> <li>➤ <b>Organising</b> a visit to a Gurudwara or a Dargah followed by class discussion.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Musical concert</li> <li>➤ Related videos / PPTs / Audio tapes</li> <li>➤ Books like Bijak and Guru Granth Sahib.</li> <li>➤ Books on the lives of famous Bhakti &amp; Sufi Saints.</li> <li>➤ Itinerary for tour and visits.</li> <li>➤ Dargahs, Gurudwaras and interaction with the preachers.</li> <li>➤ Books containing Dohas of Kabir, Bhajans, poetry etc. of other saints.</li> </ul>

## Theme 1: The Constitution of India

The theme 'The Constitution of India' aims at providing information and an insight to children into the supreme law of India containing the fundamental rules governing its politics and society as a whole. Children will also be able to discuss and understand the need and main features of a Constitution. This understanding is necessary for them to grow into responsible citizens in a secular democracy.

### Learning outcomes:

Children will be able to:

- ☑ infer and illustrate the idea of a Constitution and its purpose;
- ☑ discuss the role of the Constituent Assembly;
- ☑ understand the Preamble, its aims and objectives;
- ☑ appreciate the contribution of great Indian thinkers in framing the Constitution of India.

### The Constitution of India

Key Concepts / Concerns	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ The Constitution – its meaning.</li> <li>➤ The role of the Constituent Assembly.</li> <li>➤ The Preamble.</li> <li>➤ The nature of State – Sovereign, Socialist, Secular, Democratic, Republic.</li> <li>➤ The other objectives of the Constitution: Justice, Equality, Fraternity and Liberty.</li> </ul>	<ul style="list-style-type: none"> <li>➤ <b>Organising</b> discussions on:               <ul style="list-style-type: none"> <li>☛ the meaning of 'Constitution'.</li> <li>☛ purpose of a Constitution</li> <li>☛ the important elements of the Preamble</li> <li>☛ the ideas of the Indian Constitution</li> <li>☛ the role of Dr B.R. Ambedkar - architect of the Constitution.</li> </ul> </li> <li>➤ <b>Audio Visual shows:</b> <ul style="list-style-type: none"> <li>☛ Documentary - Tryst with Destiny</li> <li>☛ the making of India's Constitution Parts 1 -2.</li> </ul> </li> <li>➤ <b>Organising</b> visits/ trips to the Parliament House museum / local museum followed by class discussion.</li> <li>➤ <b>Enactment/ Role Plays</b> by children on: the practice of Justice, Liberty, Equality and Fraternity in our lives.</li> <li>➤ <b>Conducting</b> a mock Parliament in the class and understanding the functions of its constituents.</li> <li>➤ <b>Inviting</b> a judge or an advocate and organising a talk and discussion on the salient features of the Constitution.</li> </ul>	<ul style="list-style-type: none"> <li>➤ A copy of the Indian Constitution.</li> <li>➤ Videos and Films.</li> <li>➤ Experts/ Judge/Advocate</li> </ul>



## Theme 2: Directive Principles of State Policy

'Directive Principles of State Policy' will enable children to understand the principles that direct the State to create opportunities for the welfare of all citizens. Pedagogies help children grasp the interconnectedness between political, social and economic issues. This understanding in turn will help them grow as sensitive, deliberative, responsible and transformative citizens.

### Learning outcomes:

Children will be able to:

- ☑ discuss the meaning of the Directive Principles of State Policy;
- ☑ examine the features of a welfare state;
- ☑ enlist welfare activities conducted by the concerned local authorities;
- ☑ assess the importance of the Directive Principles;
- ☑ analyse the welfare activities performed by various kings in the Indian history;
- ☑ compare the welfare activities in the past with the welfare activities in the present day.

### Directive Principles of State Policy

Key Concepts / Concerns	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Welfare state – Features.</li> <li>➤ Directive Principles of State Policy – Meaning.</li> <li>➤ Principles promoting economic equality: general principles, Gandhian principles.</li> <li>➤ Difference between Fundamental Rights and Directive Principles.</li> </ul>	<ul style="list-style-type: none"> <li>➤ <b>Organising</b> discussions on:               <ul style="list-style-type: none"> <li>☛ need for a welfare state.</li> <li>☛ rulers in history who believed in and created welfare states.</li> <li>☛ a comparative study of a welfare state of earlier times with that of today.</li> </ul> </li> <li>➤ <b>Conducting</b> a class debate on:               <ul style="list-style-type: none"> <li>☛ The Directive Principles of state policy – A dream or a reality.</li> </ul> </li> <li>➤ <b>Audio Visual shows:</b> <ul style="list-style-type: none"> <li>☛ short documentaries on initiatives started by Government.</li> <li>☛ building toilets</li> <li>☛ removal of child labour.</li> <li>☛ promotion of Cottage Industries.</li> </ul> </li> <li>➤ <b>Enactment/ Role plays</b> by children on: An effective Village Panchayat' which can resolve daily problems of villagers and help them towards establishing a welfare state.</li> <li>➤ <b>Written</b> Assignments may include:               <ul style="list-style-type: none"> <li>☛ writing a letter to the DM giving suggestions for fixing the street lights in your area.</li> <li>☛ a 'welfare school' plan</li> <li>☛ a case study on repair of roads in the child's colony (they can write applications and fix meetings with</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Discussions/Debate               <ul style="list-style-type: none"> <li>☛ News Paper articles</li> <li>☛ Magazine articles and Images.</li> <li>☛ Films/videos and Documentaries.</li> <li>☛ Experts.</li> </ul> </li> <li>➤ Visits and Excursions to               <ul style="list-style-type: none"> <li>☛ Visit to a local village.</li> <li>☛ Visit to an NGO</li> <li>☛ NGOs</li> <li>☛ Local Village</li> </ul> </li> <li>➤ Audio – visuals</li> <li>➤ Project work</li> </ul>

## Directive Principles of State Policy

Key Concepts / Concerns	Suggested Transactional Processes	Suggested Learning Resources
	<p>the concerned authorities to provide a solution).</p> <ul style="list-style-type: none"> <li>➤ <b>Undertaking</b> a visit to:                             <ul style="list-style-type: none"> <li>☛ an NGO and understanding how it supports the government in its vision of a welfare state.</li> <li>☛ a local village and enlisting the needs of the people in order to promote the vision of a welfare state.</li> <li>☛ a local village and meeting members of the village panchayat, exploring/finding solutions to their problems.</li> </ul> </li> <li>➤ <b>Preparing</b> a project report – (by children, individually or in groups), based on a survey/ research conducted on local craftsmen and the help provided to them by the government / NGOs.</li> </ul>	



## The Modern World

### Theme 1: A Period of Transition

The theme 'A Period of Transition' will enable children to understand the process of change in the world due to the renaissance, industrial revolution and imperialism. The renaissance was a socio-cultural movement that spanned between the 14th-18th centuries. It influenced literature, philosophy, art, politics, science and religion. Industrial revolution and imperialism marked a lasting impact on the countries across the globe. In a globalized society, an understanding of the different periods of transition is critical for developing the understanding of children about the modern world.

#### Learning outcomes:

Children will be able to:

- ☑ create a general idea of events and changes that occurred all over the world during the period of study;
- ☑ identify the basic differences between primary and secondary sources;
- ☑ recognize, understand and reflect on the important movements such as renaissance, reformation;
- ☑ analyse the radical changes brought about by the industrial revolution;
- ☑ evaluate the impact of imperialism on the world.

### A Period of Transition

Key Concepts / Concerns	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ The period of transition – basic understanding.</li> <li>➤ Sources – Primary and Secondary.</li> <li>➤ Transition from Medieval to Modern Age (a brief mention of Renaissance, Reformation, Voyages, discoveries).</li> <li>➤ The Industrial Revolution – meaning and reasons why it began in England, major inventions, Impacts of Industrial Revolution.</li> <li>➤ Imperialism- Its meaning, caused and impacts with special reference to South Asian Countries.</li> </ul>	<ul style="list-style-type: none"> <li>➤ <b>Organising</b> discussions on:                             <ul style="list-style-type: none"> <li>☛ the Renaissance – its meaning features, impact, etc.</li> <li>☛ the voyages and discoveries in the 16<sup>th</sup> - 18<sup>th</sup> centuries.</li> <li>☛ studying history through various sources and evidences.</li> <li>☛ the preservation/conservation of historical records.</li> <li>☛ life and times before the industrial revolution.</li> <li>☛ analysing the impacts of imperialism and colonialism with special reference to India.</li> </ul> </li> <li>➤ <b>Conducting</b> a debate on the positive and negative impacts of the Industrial Revolution on societies all over the world.</li> <li>➤ <b>Planning and organising</b> a visit to the archives, followed by the children preparing a report on the trip.</li> <li>➤ <b>Enactment/role plays/skit</b> by children on the Industrial revolution, voyages and discoveries.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Charlie and the Chocolate Factory</li> <li>➤ Industrial Revolution through Charlie Chaplin.</li> <li>➤ Audio-visual aids                             <ul style="list-style-type: none"> <li>☛ News Papers and ICT.</li> <li>☛ Local villages.</li> <li>☛ Archives.</li> <li>☛ Factory or Industrial Unit.</li> </ul> </li> </ul>

## A Period of Transition

Key Concepts / Concerns	Suggested Transactional Processes	Suggested Learning Resources
	➤ <b>Assigning</b> project work (after a visit to a factory or an industry manufacturing goods), on preparing a comparative analysis on handmade and manufactured goods.	

**Life Skills:** Social skills- respect, empathy, sensitivity, compassion

**Communication skills:** Listening and verbalizing



## Theme 2: The Growth of Nationalism

The theme 'The Growth of Nationalism' is crucial for enabling children to understand the changes in the thought process of people and the demand for equality and liberty in France and America. These movements finally resulted in social, political, religious and economic justice to the people of France and America and ended monarchy. This theme will help children understand how the world they live in has evolved in last three centuries.

### Learning outcomes:

Children will be able to:

- ☑ identify the earliest Nationalist movements in history;
- ☑ examine major changes that occurred in the world due to the French revolution and the American War of Independence;
- ☑ analyse various factors leading to the French revolution;
- ☑ trace the history of the American War of Independence;
- ☑ identify the reasons for the Civil war;
- ☑ analyse the role played by Abraham Lincoln;
- ☑ evaluate and assess the impact of the civil war.

### The Growth of Nationalism

Key Concepts / Concerns	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ The French Revolution – causes, the outbreak, impact, the post – revolution period, Napoleon Bonaparte (brief study of the revolution).</li> <li>➤ The American War of Independence - colonies, causes, beginning, birth of the United States of America.</li> <li>➤ American Civil War - background, causes, beginnings, role of Abraham Lincoln and the Gettysburg Address.</li> </ul>	<ul style="list-style-type: none"> <li>➤ <b>Organising</b> discussions on:                             <ul style="list-style-type: none"> <li>☛ the pros &amp; cons of War</li> <li>☛ the French Revolution and the ideas of Freedom, Equality and Fraternity.</li> <li>☛ impact of the American Civil War.</li> </ul> </li> <li>➤ <b>Audio Visual shows:</b> <ul style="list-style-type: none"> <li>☛ Documentaries on 'The French Revolution' and 'The American War of Independence'.</li> <li>☛ the Life and times of Abraham Lincoln.</li> </ul> </li> <li>➤ <b>Enactment/ role plays/skits</b> by children:                             <ul style="list-style-type: none"> <li>☛ based on the meeting of the Constituent Assembly in the French Revolution.</li> <li>☛ on 'Abraham Lincoln.'</li> </ul> </li> <li>➤ <b>Conducting</b> activities:                             <ul style="list-style-type: none"> <li>☛ preparing a mind map of the related topics in a sequential order.</li> <li>☛ organising a one-day seminar on the American Civil War.</li> <li>☛ interactive time line.</li> <li>☛ developing and showing a PPT on the American Civil war.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Audio-visual aids- documentaries, clippings on American, French Revolution.</li> <li>➤ Books.</li> <li>➤ Short questions.</li> <li>➤ Quizzes.</li> </ul>

## Theme 3: India in the 18<sup>th</sup> Century

The theme 'India in the 18th Century' focuses on developing an understanding of how the medieval period in Indian history gradually drew to a close following the death of Aurangzeb which marked the decline of the Mughal Empire. This was followed by the rise of independent regional kingdoms. These kingdoms were founded by powerful nobles who took advantage of the weak central authority and began to break away from the Mughal Empire. Children will also understand and appreciate the transition of India from medieval Mughal era to the modern British Period.

### Learning outcomes:

Children will be able to:

- ☑ identify the Mughal rulers who ruled after Aurangzeb (later Mughals);
- ☑ discuss factors responsible for the decline of the Mughal empire;
- ☑ examine the rise of regional kingdoms;
- ☑ recognize the rising power of the Marathas under the Peshawas.

### India in the 18<sup>th</sup> Century

Key Concepts / Concerns	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Decline of the Mughal Empire – (Major factors/causes).</li> <li>➤ Rise of independent/regional kingdoms- Hyderabad, Awadh, Bengal, Rajputs, Sikhs, Mysore, Marathas (brief).</li> </ul>	<ul style="list-style-type: none"> <li>➤ <b>Building on</b> children's previous learning.</li> <li>➤ <b>Organising</b> discussions on:                             <ul style="list-style-type: none"> <li>☛ various reasons leading to the decline of the Mughal Empire.</li> <li>☛ the invasion of Nadirshah and Ahmad Shah Abdali.</li> <li>☛ factors that led to the rise of independent kingdoms.</li> <li>☛ achievements of Hyder Ali and Tipu Sultan.</li> </ul> </li> <li>➤ <b>Tracing</b> the important independent kingdoms on an outline map of India.</li> <li>➤ Audio Visual shows on:                             <ul style="list-style-type: none"> <li>☛ invasions of Nadir Shah and Ahmad Shah Abdali.</li> <li>☛ the times of later Mughal Emperors.</li> <li>☛ Haider Ali and Tipu Sultan.</li> </ul>                             This may be followed by discussions.                         </li> <li>➤ <b>Enactment/role play</b> by children on 'Tipu Sultan.'</li> <li>➤ <b>Conducting</b> quizzes on various aspects of the theme. For e.g. Tipu Sultan, Ahmad Shah Abdali, Mughal Emperors.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Essays and articles writings.</li> <li>➤ Animated clips, videos and photographs of revolution.</li> <li>➤ Quizzes.</li> <li>➤ Map of India.</li> <li>➤ Costumes and articles required for role plays.</li> </ul>

## Theme 4: Traders to Rulers

'Traders to Rulers' will help children understand how the British gradually gained political control over India and established their supremacy over different parts of the country. They will discover and gain insights into how the Battles of Plassey and Buxar led to the establishment of the British as a major power in India. Most parts of India were either directly or indirectly controlled by the British through various expansionist policies. They will also develop the ability to analyse the conditions of 18th century India and the impact of colonial rule on the country.

### Learning outcomes:

Children will be able to:

- ☑ understand and discuss the system of trade and commerce in India in the 17<sup>th</sup> and 18<sup>th</sup> centuries;
- ☑ identify the intense rivalry among the trading companies;
- ☑ discuss the impact of the Battle of Plassey and Buxar in strengthening the British position in India;
- ☑ understand the expansionist policy of the British with reference to dual government, doctrine of lapse, subsidiary alliance and annexation of Avadh.

### Traders to Rulers

Key Concepts / Concerns	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Advent of English East India Company- a brief mention</li> <li>➤ Conquest of Bengal- Battle of Plassey, Buxar- causes and results.</li> <li>➤ Dual Government- Drawbacks of Dual government.</li> <li>➤ Policy of British Expansion (meaning and examples) – Doctrine of lapse, Subsidiary Alliance, Annexation of Awadh (pretext).</li> </ul>	<ul style="list-style-type: none"> <li>➤ <b>Building</b> on children's previous learning and experiences.</li> <li>➤ <b>Drawing</b> a timeline and understanding dates on it</li> <li>➤ <b>Organising</b> discussions on:                             <ul style="list-style-type: none"> <li>☛ Political, Trade and Commerce conditions of 18<sup>th</sup> century India.</li> <li>☛ Conspiracies and rivalries for succession in the kingdoms.</li> <li>☛ Strategies and new type of arms of the East India Company.</li> <li>☛ Expansionist policy of the East India company.</li> </ul> </li> <li>➤ <b>Written</b> assignments may include:                             <ul style="list-style-type: none"> <li>☛ Research work by children in groups or individually on the impact of British policies of expansion. They can write a small report.</li> <li>☛ Mind mapping on the annexation of Awadh.</li> <li>☛ The reasons for victory of the British over native rulers.</li> </ul> </li> <li>➤ <b>Narrating</b> events based on the rivalry among the trading communities and the monopoly of the East India. Company.</li> <li>➤ <b>Depicting</b> the British policy of expansion in the form of a small skit/play.</li> <li>➤ <b>Screening</b> of a documentary/films/audio-videos on the advent of the East India Company in India.</li> <li>➤ <b>Organising</b> a role play by children on the East India Company coming to India and the British taking over the country.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Audio-visual aids</li> <li>➤ Documentary, videos and films</li> <li>➤ Books</li> <li>➤ E-Content</li> </ul>

## Theme 5: British Policies and Impacts

'British Policies and Impacts' will enable children to understand that apart from the pro-western educational policy, the British also made administrative decisions, which affected India's economic structures. The main aim of the British government was to establish India as an agricultural supplier of cheap raw materials to the industries in England. Children will also be able to analyse the impact of British Rule on native traders, peasants and artisans.

### Learning outcomes:

Children will be able to:

- critically analyze and reflect on the economic policy of India under the Company;
- identify the different land revenue systems introduced by the British;
- discuss and examine the impacts of the British rule on the traditional industries;
- evaluate and analyze the educational policy of the British.

British Policies and Impacts		
Key Concepts / Concerns	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Economic policy                             <ul style="list-style-type: none"> <li>☛ <i>Land Revenue system (Permanent Settlement, Mahalwari, Ryotwari), highlight Permanent Settlement only,</i></li> </ul> </li> <li>➤ Exploitation of artisans and weavers.</li> <li>➤ Drain of wealth.</li> <li>➤ Introduction of Modern Education.</li> </ul> <p><i>Wood's Despatch (What was Wood's despatch and its effects).</i></p>	<ul style="list-style-type: none"> <li>➤ <b>Building</b> on children's previous learning and daily life experiences.</li> <li>➤ <b>Organising</b> discussions on:                             <ul style="list-style-type: none"> <li>☛ Comparing the economic condition of peasants, artisans and traders before and after the British rule.</li> <li>☛ The pros and cons of the Land Revenue System with special mention of the permanent settlement.</li> <li>☛ The objectives of British rulers for the introduction of modern education and its impacts.</li> <li>☛ The long-term impact of the economic policy of British rulers.</li> </ul> </li> <li>➤ <b>Written</b> assignments on:                             <ul style="list-style-type: none"> <li>☛ A Case study on 'Wood's Despatch' and its effects.</li> <li>☛ Research undertaken in groups/individually on the impacts of colonial policies on peasants and artists.</li> </ul> </li> <li>➤ <b>Conducting</b> a debate on the impact of modern education and introduction of English language in India - pros and cons.</li> <li>➤ <b>Screening</b> of a movie on different aspects of the theme.</li> <li>➤ <b>Enactment/ role plays</b> to highlight the exploitation of peasants under the British rule.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Case study</li> <li>➤ Research</li> <li>➤ Mind Mapping</li> </ul>



## Theme 6: The Great Uprising of 1857

'The Great Uprising of 1857' deals with the first War of Independence of India against the oppressive colonial rule. The theme aims at enabling children to understand the reasons and results of the uprising and also the beginning of the National Movement in India.

### Learning outcomes:

Children will be able to:

- ☑ analyse the reasons for the great uprising;
- ☑ trace and locate centres of the great uprising on an outline map of India;
- ☑ discuss the policy of lapse;
- ☑ examine the consequences of the great uprising of 1857.

### The Great Uprising of 1857

Key Concepts / Concerns	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Reasons – political, socio religious, economic, military.</li> <li>➤ Immediate causes.</li> <li>➤ Leaders and Spread of the uprising</li> <li>➤ Consequences.</li> <li>➤ Nature of uprising.</li> </ul>	<ul style="list-style-type: none"> <li>➤ <b>Organising</b> discussions on:               <ul style="list-style-type: none"> <li>☛ The social, political and economic conditions in the 19<sup>th</sup> century India.</li> <li>☛ Analysing reasons for discontentment of the sepoys in the British army.</li> <li>☛ Lord Dalhousie's policy of Lapse.</li> </ul> </li> <li>➤ <b>Audio-Visuals</b> shows on:               <ul style="list-style-type: none"> <li>☛ Events that led to the great uprising of 1857.</li> <li>☛ Leaders and centres of the Uprising and their contribution to the uprising of 1857.</li> </ul> </li> <li>➤ <b>Enactment /Role plays</b> by children:               <ul style="list-style-type: none"> <li>☛ preparing a script for role play on Rani Laxmi Bai and its enactment in class.</li> <li>☛ scripting a dialogue between Mangal Pandey and a British officer insisting on using the Enfield rifle.</li> </ul> </li> <li>➤ <b>Written</b> assignment based on: The last Mughal Emperor Bahadur Shah Jaffar and receiving threats of annexation of Empire by the British Rulers - ask children to write a report on the oppressive policies of the British rulers and read it in class.</li> <li>➤ On an <b>outline map</b> of India ask children to <b>mark</b> the important centres of the uprising.</li> <li>➤ <b>Organising</b> visits to important places related to the uprising and sharing their experiences.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Related videos and PPTs.</li> <li>➤ ICT.</li> <li>➤ Related books and comic series.</li> </ul>

## Theme 7: Socio-Religious Reforms

The theme 'Social Reformers' deals with the socio-religious awakening in the 19th century India during which period educated Indians initiated a number of movements to bring about socio-cultural changes in the Indian society. This was the result of the British era bringing about many changes in almost every aspect of Indian society. British imperialism led to the imposition of western ideas about rationality and scientific thinking on Indian society. The theme aims at enabling children to understand how the native people in India started resisting colonial ideas of superiority.

### Learning outcomes:

Children will be able to:

- ☑ identify the socio-religious practices that existed in Indian society in the 19<sup>th</sup> century;
- ☑ discuss the importance of social reform movements during the 19<sup>th</sup>& 20<sup>th</sup> century raising awareness about prevalent social practices;
- ☑ explain the efforts of the reformers to deal with issues such as caste system, child marriage, sati pratha, etc.;
- ☑ analyse the impact of the reform movement on the Indian society;
- ☑ appreciate the role of social reformers.

<b>Socio-Religious Reforms</b>		
<b>Key Concepts / Concerns</b>	<b>Suggested Transactional Processes</b>	<b>Suggested Learning Resources</b>
<ul style="list-style-type: none"> <li>➤ Contribution of Social Reformers in brief: Raja Ram Mohan Roy, Ishwar Chand Vidyasagar, Dayanand Saraswati, Swami Vivekanand, Jyotiba Phule, Annie Beasant, Veerasalingam, Kandukuri, Sree Narayana Guru, Sir Syed Ahmad Khan and Singh Sabhas</li> </ul>	<ul style="list-style-type: none"> <li>➤ <b>Building</b> on children's previous learning and daily experiences and views.</li> <li>➤ <b>Organising</b> discussions on:                             <ul style="list-style-type: none"> <li>☛ the social evils in the Indian society in 18<sup>th</sup> century India under the British rule.</li> <li>☛ Comparing society in India in the 19<sup>th</sup> century with that of the present day.</li> <li>☛ role of the different social reformers and their impact on society.</li> </ul> </li> <li>➤ <b>Enactment /Role Plays/Skits</b> by children on the evils present in the Indian society during the British rule.</li> <li>➤ <b>Conducting</b> debates on existing social evils (post-independence).</li> <li>➤ <b>Written</b> assignments on:                             <ul style="list-style-type: none"> <li>☛ Preparing multiple choice questions for revision.</li> <li>☛ Case study on the contribution of different social reformers.</li> <li>☛ Research undertaken on the British rule and writing project reports on the conditions of women in the 19<sup>th</sup> century.</li> </ul> </li> <li>➤ <b>Preparing</b> a collage of social reformers.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Related PPT's/Audios/visuals.</li> <li>➤ Books/ICT.</li> <li>➤ Essays, Articles, animated clips.</li> <li>➤ Audio visuals.</li> <li>➤ Role Play</li> <li>➤ Debate</li> <li>➤ Creative expression</li> <li>➤ Collage making</li> </ul>

## Theme 8: India's Struggle for Freedom

India's Struggle for Freedom is one of the important turning points in the history of India. This theme provides an insight into a phase that changed the course of India's future. The end of the 19th century and the beginning of 20th century witnessed the rise of nationalist feelings among many Indians. These feelings ultimately led to the birth of Indian National Movement. The foundation of Indian National Congress marked the beginning of an organised political movement by Indians. The politically active Indians expressed their dissatisfaction with the exploitation of Colonial rule in India that gradually gained the momentum for the demand of self-rule. Mahatma Gandhi adopted the unique method of protest based on Satyagraha and Non-Violence that finally led the country to its independence. This theme will enable children to understand and appreciate the contributions and the sacrifices made by our nationalist leaders for the sake of freedom of our country.

### Learning outcomes:

Children will be able to:

- ☑ define nationalism and identify factors giving rise to nationalism;
- ☑ state the objectives of the Indian National Congress;
- ☑ discuss and comprehend the methods and demands of the moderates;
- ☑ appreciate the ideas of Nationalism and Swadeshi;
- ☑ identify the significance of the Home Rule Movement and the Lucknow Pact;
- ☑ discuss various campaigns initiated by Gandhi;
- ☑ explain the various factors responsible for the launching of Non-Cooperation and Civil Disobedience movement and Quit India movement;
- ☑ discuss the impact of the mass movements;
- ☑ analyse the objectives of Forward Bloc and the INA;
- ☑ examine the various clauses of the Indian Independence Act;
- ☑ appreciate and reflect on the sacrifices made by our national heroes.

## India's Struggle for Freedom

Key Concepts / Concerns	Suggested Transactional Processes	Suggested Learning Resources
<p><b>Phase 1</b></p> <ul style="list-style-type: none"> <li>➤ Rise of nationalism – factors- economic exploitation, spread of western education, role of the Press, repressive policy of Lord Lytton (to be covered briefly)</li> <li>➤ Early political associations – The Indian National Congress (formation and objectives), The Moderates- leaders, methods, demands Partition of Bengal- only the Anti Partition</li> </ul>	<ul style="list-style-type: none"> <li>➤ <b>Building</b> on children's previous learning.</li> <li>➤ <b>Providing</b> opportunities for children to share their experiences and views on the theme both individually and in groups.</li> <li>➤ <b>Organising</b> discussions on:                             <ul style="list-style-type: none"> <li>☛ Factors giving rise to nationalism with special reference to the role of the press.</li> <li>☛ Ideas of Swadeshi and Boycott.</li> <li>☛ Emergence to Gandhi as a leader of the masses.</li> <li>☛ Ahimsa and Satyagraha</li> <li>☛ Split and Rule policy of the British</li> <li>☛ Mind mapping of causes, events and impact of the mass movements.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Movie on Mahatma Gandhi and S.C Bose.</li> <li>➤ Class assembly depicting-mass movements of Mahatma Gandhi</li> <li>➤ Collage/charts on the contribution of Mahatma Gandhi.</li> <li>➤ Case study.</li> <li>➤ Flow Chart.</li> <li>➤ Videos.</li> <li>➤ Documentaries on Freedom Struggle, experts/Historians/Freedom Fighters.</li> <li>➤ Projects.</li> </ul>

## India's Struggle for Freedom

Key Concepts / Concerns	Suggested Transactional Processes	Suggested Learning Resources
<p>Movement-Swadeshi and Boycott to be covered briefly, Surat split- a brief understanding.</p> <p><b>Phase 2</b></p> <ul style="list-style-type: none"> <li>➤ Home Rule Movement- leaders and objectives, Lucknow Pact (1916)- as Unity Pact (a brief understanding).</li> <li>➤ Gandhian Era (1917 – 1947).</li> <li>➤ Early campaigns- Kheda, Champaran, Ahmedabad (a brief description).</li> <li>➤ Mass Movements-Non-cooperation (causes, withdrawal, impact), Rowlatt Act, Jallianwala, Khilafat (Chauri-Chaura).</li> <li>➤ Civil Disobedience Movement (causes) Simon Commission, Lahore Session Quit India-Forward Bloc and INA (objectives only) Independence and partition – Cabinet Mission Plan, Mountbatten plan, Indian Independence Act (only clauses).</li> </ul>	<ul style="list-style-type: none"> <li>➤ <b>Preparing</b> a project on the role of the press in the rise of nationalism in India.</li> <li>➤ <b>Audio Visuals/documentaries</b> on: <ul style="list-style-type: none"> <li>☛ the role of Subhash Chandra Bose or other freedom fighters in the freedom struggle.</li> <li>☛ The mass movements of Mahatma Gandhi.</li> </ul> </li> <li>➤ <b>Written Assignments</b> on: <ul style="list-style-type: none"> <li>☛ Preparing a project report on the 'Role of Mahatma Gandhi in the freedom struggle'.</li> <li>☛ Preparing a flow chart of important dates and events in the national movement.</li> <li>☛ The contribution of local leaders in the National movement.</li> <li>☛ Preparing a Flow chart of important dates.</li> </ul> </li> <li>➤ <b>Making</b> a Case Study on: <ul style="list-style-type: none"> <li>☛ Mohammad Ali Jinnah and the demand for Pakistan.</li> <li>☛ Partition and its impact.</li> <li>☛ Subhash Chandra Bose and the forward block.</li> </ul> </li> <li>➤ <b>Organising</b> visits/ trips to: <ul style="list-style-type: none"> <li>☛ Public libraries.</li> <li>☛ museums and Archives.</li> <li>☛ historical places related to the freedom movement.</li> </ul> </li> <li>➤ <b>Conducting</b> a seminar and inviting resource persons to reinforce learning concepts about related issues.</li> <li>➤ <b>Organising</b> a class assembly on the Role of Mahatma Gandhi in the Freedom Struggle.</li> <li>➤ <b>Tracing</b> the important sessions of the Congress on the map of India.</li> <li>➤ <b>Enactment/ role plays</b> by children on: <ul style="list-style-type: none"> <li>☛ The life of Mahatma Gandhi, Netaji Subhash Chandra Bose, Sardar Vallabhai Patel, etc.</li> <li>☛ The famous movements of Mahatma Gandhi.</li> </ul> </li> <li>➤ <b>Depicting</b> the Anti-partition movements i.e. Swadeshi &amp; Boycott.</li> </ul>	

## Theme 1: The Three main Organs of the Indian Government: Legislature, Executive, Judiciary

The Legislature, Executive and the Judiciary form the main organs of governance in India. The Union Legislature is entrusted with the task of making laws. Similarly, the Union Executives are entrusted with the task of enforcing laws throughout the country. The Legislature includes Lok Sabha and Rajya Sabha, whereas the Executive includes the President, the Vice-President and the Prime Minister and the other Ministers. The Judiciary is the third branch or the pillar of the Indian democratic setup. This theme will enable children to understand the nature and functions of the government of their country.

### Learning outcomes:

Children will be able to:

- ✓ discuss the composition of the Indian parliament - the Lok Sabha and Rajya Sabha;
- ✓ compare and understand the working of the Lok Sabha and the Rajya Sabha;
- ✓ describe the relation between the two houses;
- ✓ explain the powers and the functions of the Union Parliament;
- ✓ state the qualifications, elections, powers and functions of the President, Prime minister and Council of ministers;
- ✓ discuss the composition of the Supreme court and High court and state the qualifications and appointment of judges to the Supreme court and High court;
- ✓ highlight the powers and functions of Judges of the supreme court and high courts;
- ✓ discuss the concept of judicial review and court of record;
- ✓ explain the term 'writ' giving examples.

### The Three main Organs of the Indian Government: Legislature, Executive, Judiciary

Key Concepts / Concerns	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Legislature – Lok Sabha and Rajya Sabha, composition, term, election, qualifications, Presidency officer. Powers &amp; functions of the Union Parliament.</li> <li>➤ Executive – The President, The Vice-President, Prime Minister and Council of Ministers- qualifications, election (method not procedure) powers and functions.</li> <li>➤ The Judiciary– The Supreme Court and High Court – Composition, qualifications of judges, appointment, Jurisdiction and functions: Original, Appellate, Revisory, Judicial Review, Court of Record, Writs, what are Writs-few examples</li> </ul>	<ul style="list-style-type: none"> <li>➤ <b>Organising discussions with children on:</b> <ul style="list-style-type: none"> <li>☛ The composition and working of the Union Parliament.</li> <li>☛ The Composition of the Supreme Court and High Court, qualifications of the President, the Prime minister and the Council of ministers.</li> <li>☛ Powers and functions of the Union parliament.</li> </ul> </li> <li>➤ <b>Conducting Visits/Field Trips to:</b> <ul style="list-style-type: none"> <li>☛ The Rashtrapati Bhawan, Supreme Court, Parliament House, etc. to facilitate a better comprehension.</li> <li>☛ To the State Assembly House/ High Court/ Local Courts to understand the functioning of the Judiciary.</li> </ul> </li> <li>➤ <b>Conducting</b> a Mock Court session to know about the working of the Judiciary.</li> <li>➤ <b>Planning</b> and organising a “Mock Parliament” to explain the working of the Parliament.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Audio-visual aids.</li> <li>➤ Clippings of newspapers and magazines.</li> <li>➤ Rashtrapati Bhawan.</li> <li>➤ Parliament in session.</li> <li>➤ Local Courts.</li> </ul>

## Theme 2: United Nations

The beginning of the 20th century witnessed World War I, the horror and tragedy of which devastated the world. There was an overwhelming desire for an end to the war and an establishment of peace and security in the world. The United Nations was formed for this purpose in 1945. Some other objectives of UN organs and agencies that work together is to improve the lives of poor people, to eradicate hunger, disease and illiteracy and to encourage mutual respect for each other's right and freedoms. This theme will help children appreciate the role and services of United Nations.

### Learning outcomes:

Children will be able to:

- understand and describe the aims and principles of the United Nations(U.N.);
- outline the organs of the U.N.;
- discuss the composition of the General Assembly, Security Council and the International Court of Justice;
- highlight the functions of the U.N. Agencies (UNESCO, UNICEF, WHO);
- appreciate the role and services provided by U.N. Agencies.

United Nations		
Key Concepts / Concerns	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Aims and Principles, Organs (all SLR mention in brief)- General Assembly, Security Council, International Court of Justice (detail) – Composition and functions.</li> <li>➤ Agencies of UN – UNESCO, UNICEF, WHO – functions only.</li> </ul>	<ul style="list-style-type: none"> <li>➤ <b>Carrying</b> out survey on the functioning of the UN</li> <li>➤ <b>Preparing</b> Bulletin Boards-agency of UN</li> <li>➤ <b>Organising</b> discussions on:                             <ul style="list-style-type: none"> <li>☛ The aims and principles of the United Nations.</li> <li>☛ The composition and functions of Different Organs of the UN.</li> </ul> </li> <li>➤ <b>Writing</b> a report on the working of WHO on eradication of life threatening diseases in the world.</li> <li>➤ <b>Model making</b> on: Any one heritage site under protection from the UNESCO.</li> <li>➤ <b>Analysing</b> the work done by the UNICEF in providing clean and safe drinking water to children of developing countries.</li> <li>➤ <b>Conducting</b> a role Play based on a Model United Nation “MUN” for a first-hand experience.</li> <li>➤ <b>Showing</b> short documentaries on the UNICEF, WHO, ILO, UNESCO.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Audio-visual aids.</li> <li>➤ Project work-research work/making report on eradication of Zika &amp; Ebola viruses</li> </ul>

# Geography



The Geography Curriculum deals with the development of children's understanding and appreciation of the world through a continuous interaction and exploration of the natural and human environment. It aims at encouraging children to appreciate the interdependence of individuals, groups and communities and promotes a healthy respect for different types of cultures and ways of life of people around the world. The curriculum brings about a focus on developing geographical skills that enables children to make informed judgements at local, national and international levels. It brings to the fore the influence of Geographical phenomenon in terms of changes in temperature, climate and weather, availability of resources and material etc. and their impact on our daily lives.

**Core concepts of Geography for Classes VI-VIII are as under:**

## Class VI

Representation of  
Geographical  
Features

Landforms

Water Bodies

Agriculture

Minerals

Study of Continents:  
North America  
and  
South America

## Class VII

Representation of  
Geographical  
Features

Atmosphere

Weather and Climate

Weathering and Soil  
Formation

Industries

Energy and Power  
Resources

Study of Continents:  
Europe, Africa,  
Australia, Antarctica

## Class VIII

Representation of  
Geographical  
Features

Population Dynamics

Migration

Urbanisation

Natural and  
Man-made disasters

Asia: The Largest  
Continent

India: Geographical  
Features

India - Human  
Resources

## Theme 1: Representation of Geographical Features

Maps are the basic tools of Geography. In this theme children will learn to identify the different types of maps based on scale and also learn about representation of scale, the use of symbols and directions on a map through various methods. The theme would also enable children to understand the significance of diagrammatic representation of geographical features.

### Learning outcomes:

Children will be able to:

- ☑ identify the difference between a map, sketch, plan and globe;
- ☑ interpret maps on the basis of scale i.e. large scale, small scale;
- ☑ list the elements of a map;
- ☑ identify directions and the eight cardinal points;
- ☑ know uses of scales and symbols for measurement on a map;
- ☑ represent geographical features through diagrams.

### Representation of Geographical Features

Key Concepts	Suggested transactional processes	Suggested Learning resources
<ul style="list-style-type: none"> <li>➤ Maps: introduction, difference between map, sketch, plan and globe.</li> <li>➤ Importance of maps.</li> <li>➤ Types of maps based on scale.</li> <li>➤ Scale: meaning and uses.</li> <li>➤ Direction: eight cardinal points.</li> <li>➤ Symbols.</li> <li>➤ Diagrams (with brief explanation): rivers, meander, anticline, syncline, tributaries, distributaries, delta, block mountain.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Providing opportunities to children for:                             <ul style="list-style-type: none"> <li>☛ observing a map and a globe and listing differences between the two.</li> <li>☛ using practically and discussing the benefits of a map over a globe.</li> <li>☛ creating a sketch and a plan of their locality and comparing it with a map.</li> <li>☛ using a scale, symbols and directions on the sketch of their locality or school.</li> <li>☛ sharing previous knowledge of the four directions and relating it to the cardinal directions using digital media or black board.</li> </ul> </li> <li>➤ Demonstrating the use of a scale by measuring actual classroom size and its representation on paper.</li> <li>➤ Making a clay model of the globe with major latitudes and longitudes (Blue, Green and Brown).</li> <li>➤ Creating a layout or plan of the following on a A3 size paper: building</li> </ul>	<ul style="list-style-type: none"> <li>➤ Mapping skills</li> <li>➤ Wall map of the world – (political, physical), Topographical Maps.</li> <li>➤ Clay models.</li> <li>➤ Layout plans.</li> <li>➤ Models and diagrams of Geographical features.</li> <li>➤ Audio-visual materials, smart class modules, etc.</li> <li>➤ Charts and diagrams.</li> </ul>



## Representation of Geographical Features

Key Concepts	Suggested transactional processes	Suggested Learning resources
	<p>complex, club house, locality or area with garden.</p> <ul style="list-style-type: none"> <li>▶ Using the world map and the district map to discuss difference between large scale and small scale.</li> <li>▶ Identification of different patterns of drainage by children through diagrams on interactive boards.</li> <li>▶ Explaining diagrammatic representation of physical features through audio visual aids.</li> </ul>	

**Integration:** Mathematics and Arts Education



## Theme 2: Landforms

Landforms are natural features of the earth surface. In this theme children will be introduced to and develop an understanding about the forces responsible for the formation of mountains and valleys, plateaus and plains on the earth. Description and spatial distribution of landforms will enable children to locate the same on the world map. Activities such as map based quizzes or group work in the classroom will enhance cooperative learning.

### Learning outcomes:

Children will be able to:

- identify different types of landforms in their immediate surroundings and on visuals;
- locate important mountain ranges on the world map;
- differentiate between processes of formation of Fold mountains and Block mountains;
- discuss the process of formation of Volcanic mountains and locate important mountains on the world map;
- appreciate the importance of mountains in our life;
- compare and describe the formation and characteristics of Valleys and Plateaus;
- discuss the effects of geography on the history of our country;
- understand how landforms affect the lives of people.

<b>Landforms</b>		
<b>Key Concepts</b>	<b>Suggested transactional processes</b>	<b>Suggested Learning resources</b>
<ul style="list-style-type: none"> <li>➤ Types of landforms;</li> <li>➤ Mountains and Valleys: processes of formation of mountains and valleys – endogenous and exogenous processes</li> <li>➤ <b>Mountains:</b> <ul style="list-style-type: none"> <li>➤ Formation of Mountains, folding, meaning and characteristics of Young Fold Mountains, distribution of Young Fold Mountains in the world – Rockies, Andes, Alps, Great Dividing Range, Himalayas and Atlas Mountains; meaning and characteristics of Old Fold Mountains, distribution of old fold mountains in the world (Urals, Appalachians, Aravalis). Location on world map.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Initiating a discussion about what children already know about different landforms and building on their previous knowledge and learning.</li> <li>➤ Providing opportunities to children to draw and colour maps and make models and diagrams.</li> <li>➤ Discussing the meaning, formation and characteristics of fold and block mountains.</li> <li>➤ Comparing the fold, block and volcanic mountains.</li> <li>➤ Conducting group /individual activity of children listing things obtained from mountains.</li> <li>➤ Making a model of an active volcano.</li> <li>➤ Discussing the formation and characteristics of rift valleys and relating them to the river valley civilizations in past.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Documentaries.</li> <li>➤ Models of landforms, World maps and Atlas.</li> <li>➤ Diagrams</li> <li>➤ Satellite imageries of different landforms.</li> <li>➤ Other online resources and videos.</li> <li>➤ Quizzes.</li> <li>➤ Children’s experiences.</li> </ul>

## Landforms

Key Concepts	Suggested transactional processes	Suggested Learning resources
<ul style="list-style-type: none"> <li>☛ Faulting - meaning of faulting, formation and characteristics of Block mountains, distribution of Block mountains in the world (Black Forest, Vosges, Vindhyas)</li> <li>☛ Importance of mountains</li> <li>☛ Volcanic mountains: formation and characteristics (Mount. Kilimanjaro in Africa and Mt. Fujiyama in Japan)</li> <li>➤ <b>Valleys:</b> Formation and characteristics of rift Valley, distribution of rift valleys in the world - Rhine, Narmada, Nile</li> <li>➤ <b>Plateaus:</b> formation and characteristics, types of plateaus, distribution in the world (The Deccan plateau in India, Tibet Plateau, The east African Plateaus in Kenya, Tanzania and Uganda), rich in mineral deposits. Location on world map.</li> <li>➤ <b>Plains:</b> formation and characteristics, types of plains, distribution of plains in the world (plains of North America, Gangetic plains of India). Location on world map.</li> <li>➤ <b>Landforms and people:</b> Landforms – impact on the life of people. (comparison between life in the mountains and life in the plains)</li> </ul>	<ul style="list-style-type: none"> <li>➤ Showing documentaries on the life of people living in mountains and plateaus.</li> <li>➤ Conducting a research on the minerals found in Deccan Plateau in India using technology backed skills.</li> <li>➤ Conducting a discussion on comparing life in mountains and in the plains.</li> <li>➤ Conducting a class discussion on how geographical features of India have shaped its history.</li> <li>➤ Drawing and colouring the map of India showing different physical features and displaying it on class wall magazine.</li> <li>➤ Discussing the processes of formation of landforms with the help of audio-visual materials.</li> <li>➤ Encouraging children to locate different landforms on an outline map of India and speak about the same.</li> <li>➤ Organising quiz competitions in the classroom for locating important landforms on the world map.</li> <li>➤ Encouraging children to develop clay models of landforms in groups.</li> </ul>	

**Integration:** History, Languages

**Life Skills:** Conservation of environment, sensitive towards society



## Theme 3: Water Bodies

About three fourths of the earth's surface is covered by water. The purpose of this theme is to introduce and make children aware about the various types of water bodies such as seas, rivers, lakes and their spatial distribution in the world. Activities related to location of water bodies on the world map will enhance mapping skills among children. Discussion related to water pollution will enable children to appreciate and understand the linkages between local and global issues.

### Learning outcomes:

Children will be able to:

- locate oceans, important seas, rivers and lakes, on the world map and in the atlas;
- describe importance of seas, rivers, lakes for development of any area;
- understand different water bodies and how they relate to river valley civilizations and sea voyages in history;
- discuss problems related to water pollution.

<b>Water Bodies</b>		
Key Concepts	Suggested transactional processes	Suggested Learning resources
<p><b><i>Oceans, Seas, Lakes and Rivers</i></b></p> <ul style="list-style-type: none"> <li>➤ <b>Oceans</b> - Pacific Ocean, Atlantic Ocean, Indian Ocean, Arctic Ocean and Southern Ocean; their characteristics and importance</li> <li>➤ <b>Sea</b> – distribution of marginal and inland seas (Bering sea, Caribbean Sea, North Sea, Black sea, Caspian Sea, Aral Sea, Arabian sea, Red sea and dead sea).</li> <li>➤ <b>Lakes</b> – distribution of major lakes in the world, their characteristics and importance (Baikal, Five Great lakes of the U.S.A, Lake Omega, Lake Titicaca, Lake Victoria and Chilka lake).</li> <li>➤ <b>Rivers</b> - distribution of major rivers in the world, their characteristics and importance, (Mackenzie, St Lawrence, Mississippi,</li> </ul>	<ul style="list-style-type: none"> <li>➤ Initiating discussions on children's experiences about different water bodies.</li> <li>➤ Encouraging children to locate various water bodies on the world map with the help of the interactive board and atlas.</li> <li>➤ Promoting discussion among children about water pollution using newspapers clippings and articles.</li> <li>➤ Engaging children (groups/whole class) to discuss causes of water pollution in their own area and what action could be taken to improve the situation) Brainstorming on harmful impacts of water pollution on aquatic life and on human beings.</li> <li>➤ Organizing whole class/group wise quiz competitions in class for locating important rivers, seas, lakes etc. on the world map.</li> <li>➤ Giving project work to children in groups to prepare a report on a dying/ disappearing lake /water body in a nearby area. (Findings can be based on information gathered from the internet; the report could include pictures, reasons, current status,</li> </ul>	<ul style="list-style-type: none"> <li>➤ Discussion</li> <li>➤ Brainstorming</li> <li>➤ Mind mapping</li> <li>➤ World map, interactive board.</li> <li>➤ Newspaper clippings and articles.</li> <li>➤ Quizzes.</li> <li>➤ Project work.</li> <li>➤ Field Visits.</li> </ul>

## Water Bodies

Key Concepts	Suggested transactional processes	Suggested Learning resources
<p>Amazon, Nile, Rhine, Danube, Indus, Ganga, Yangtze, Huang Ho, Ob, Murray).</p> <ul style="list-style-type: none"> <li>➤ Causes of pollution of water bodies (in general).</li> <li>➤ Locating the above on the world map.</li> </ul>	<p>involvement of local bodies/ awareness programs organised, etc.)</p> <ul style="list-style-type: none"> <li>➤ Organising a class trip to a nearby water body-sea, river or a lake under supervision, followed by discussions on children's observations.</li> <li>➤ Showing videos on famous voyages and relating them to the voyages of Columbus and Vasco da Gama.</li> <li>➤ Showing videos and PPTs on oceans, seas, lakes and rivers in the world.</li> </ul>	

**Life Skills:** Conservation of environment.

**Integration:** Biology, History, Languages



## Theme 4: Agriculture

Agriculture is one of the major economic activities in the world. The aim of this theme is to make children aware and understand about various farming practices in the world and relate them to the development of the region. They will also be able to identify various crops, the geographical factors responsible for their growth and distribution of major crops in the world.

### Learning outcomes:

Children will be able to:

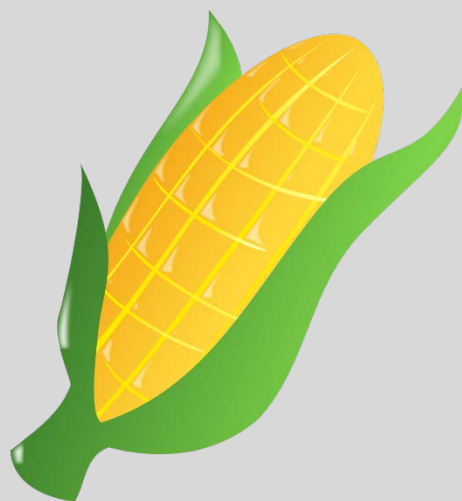
- recognise different types of agricultural practices in the world;
- locate major crop regions of the world.
- differentiate between food and cash crops;
- compare modern methods of farming with the traditional ones;
- relate agricultural development to the economy of a country;
- discuss agriculture in light of their own country – a land of farmers;
- discuss how the green revolution has helped in agricultural development.

<b>Agriculture</b>		
<b>Key Concepts</b>	<b>Suggested transactional processes</b>	<b>Suggested Learning resources</b>
<ul style="list-style-type: none"> <li>➤ Introduction to different types of agricultural practices in the world.</li> <li>➤ Subsistence Farming                             <ul style="list-style-type: none"> <li>☛ Intensive Farming</li> <li>☛ Extensive Farming</li> <li>☛ Shifting Cultivation</li> </ul> </li> <li>➤ Food crops and cash crops: meaning with examples –wheat, rice, cotton, jute, sugarcane</li> <li>➤ Commercial farming: meaning with examples                             <ul style="list-style-type: none"> <li>☛ Plantation Farming: meaning with examples (tea, coffee, rubber)</li> </ul> </li> <li>➤ Locate major crop producing regions on the world map.</li> <li>➤ Green Revolution: A brief idea of how green revolution helped in agricultural development.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Organising a visit to a field followed by either individual or group work on:                             <ul style="list-style-type: none"> <li>☛ Observing crops, soil, farming tools and machines, etc.</li> <li>☛ Interacting with the farmer about the different types of crops grown in their area, agricultural output, marketing, help if any, provided by the government, using fertilizers and pesticides, different methods of farming and difficulties involved.</li> <li>☛ Preparing a report on the visit and presenting it in class.</li> </ul> </li> <li>➤ Providing opportunities for:                             <ul style="list-style-type: none"> <li>☛ Discussing traditional and modern methods of farming practices with children.</li> <li>☛ Asking children to locate areas of subsistence farming and commercial farming on the world map.</li> <li>☛ Analysing the differences between cash crops and food crops.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Discussions</li> <li>➤ Wall maps of the world map, Atlas.</li> <li>➤ Satellite imageries of plantation</li> <li>➤ Internet resources</li> <li>➤ Smart class modules.</li> <li>➤ Visuals and Articles from Newspapers, journals, magazines, etc.</li> <li>➤ Reports.</li> <li>➤ Project work.</li> <li>➤ Experts/Agricultural Scientists.</li> </ul>

Agriculture		
Key Concepts	Suggested transactional processes	Suggested Learning resources
	<ul style="list-style-type: none"> <li>▶ Audio-visual materials may be used to discuss different types of agriculture and their relationship with the development of any area.</li> <li>▶ Preparing a project report in groups /individually on the 'Green Revolution and its Impact' on different regions of the country.</li> <li>▶ Inviting an agricultural scientist to the class and organising a discussion on the related topic.</li> </ul>	

**Life Skills:** Conservation of environment, sensitive towards society

**Integration:** Biology, History, Languages



## Theme 5: Minerals

The theme aims at providing children the knowledge and developing their understanding about minerals and ores and their distribution in the world. The theme will also create awareness in children about the need to conserve minerals.

### Learning outcomes:

Children will be able to:

- differentiate between metallic and non-metallic minerals;
- describe the importance of minerals in daily life;
- locate important minerals on the world map.
- discuss the different types of mining;
- appreciate the need to conserve mineral resources.

<b>Minerals</b>		
Key Concepts	Suggested transactional processes	Suggested Learning resources
<ul style="list-style-type: none"> <li>➤ Minerals and Ores (meaning and examples).</li> <li>➤ Types of minerals - metallic and non-metallic                             <ul style="list-style-type: none"> <li>➤ Metallic: Iron ore, uranium, bauxite, manganese, gold, silver, copper</li> <li>➤ Non-Metallic: Lime stone, mica and mineral fuels (coal and petroleum) natural gas</li> </ul> </li> <li>➤ Distribution of these minerals in India and the world, leading producers in the world; uses of these minerals.</li> <li>➤ Types of mining.</li> <li>➤ Conservation of minerals.</li> <li>➤ Location of above minerals on the world map.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Initiating a discussion about what children already know about minerals and their uses on our daily life and building on this.</li> <li>➤ Asking children to list different items made of metallic minerals, that they see in daily life.</li> <li>➤ Explaining the meaning of minerals and ores followed by examples.</li> <li>➤ Providing children opportunities to collect locally available minerals and explain the concept of metallic and non-metallic minerals.</li> <li>➤ Using the Atlas and wall maps of the world and asking children to locate important mining areas of the world.</li> <li>➤ Facilitating children in observing and interpreting satellite imageries by NASA and understanding the colour bands for finding reserves of minerals.</li> <li>➤ Engaging children in discussion about the importance of minerals and their conservation.</li> <li>➤ Using articles, newspaper clippings, videos, etc. for generating discussion amongst children towards conversation of non-renewable minerals and encouraging them to search for alternatives to these minerals.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Wall maps of the world map, Atlas.</li> <li>➤ Internet resources.</li> <li>➤ Samples of different types of minerals.</li> <li>➤ Visuals and articles from Newspapers, journals, magazines, etc.</li> </ul>



Minerals		
Key Concepts	Suggested transactional processes	Suggested Learning resources
	<ul style="list-style-type: none"> <li>▶ Asking children (individually /groups) to prepare posters on pollution due to mining activity and conservation of minerals.</li> <li>▶ Creative expressions while preparing posters.</li> </ul>	

**Integration:** Chemistry, Languages

**Life Skills:** Conservation of environment



## Theme 6: Study of Continents: North America and South America

This theme is an introduction to the study of the Continents of the world which begins with the study of North America and South America. Children will be provided a broad overview of the two continents. They will also get an opportunity to do a case study from each continent.

### Learning outcomes:

Children will be able to:

- ☑ locate North America and South America on the world map and in the Atlas;
- ☑ identify and mark the different countries in North America and South America on their respective maps;
- ☑ locate and identify the physical features of North America and South America on the map;
- ☑ compare the life in lumbering (Canada) with the life in the Amazon basin;
- ☑ understand how the geography of a place affects the life of people (through case studies).

Study of Continents: North America and South America		
Key Concepts	Suggested transactional processes	Suggested Learning resources
<ul style="list-style-type: none"> <li>▶ A brief idea of the formation of continents.</li> </ul> <p><b>North America</b></p> <ul style="list-style-type: none"> <li>▶ Introduction</li> <li>▶ Location</li> <li>▶ Boundaries</li> <li>▶ Political divisions (countries and capitals)</li> <li>▶ Major Physical features</li> <li>▶ Locating the above on the map.</li> <li>▶ Case Study: Lumbering in Canada</li> </ul> <p><b>South America</b></p> <ul style="list-style-type: none"> <li>▶ Introduction</li> <li>▶ Location</li> <li>▶ Boundaries</li> <li>▶ Political divisions (countries and capitals)</li> <li>▶ Major Physical features</li> <li>▶ Locating the above on the map.</li> <li>▶ Case Study: Life in the Amazon river basin</li> </ul>	<ul style="list-style-type: none"> <li>▶ Showing videos on the location and geography of North and South America.</li> <li>▶ Sharing children's knowledge about countries in these two continents and building on the same.</li> <li>▶ locating countries and their capitals in the two continents using audio visuals, maps, atlas or globe, by the teacher followed by children being asked to locate the same.</li> <li>▶ Showing videos on Lumbering in Canada and life in the Amazon river basin and conducting a discussion afterwards.</li> <li>▶ Encouraging children in groups, to prepare a comparative study on the two Continents.</li> <li>▶ Asking children to prepare a chart to show the significance of the Amazon rainforest and the mighty river Amazon on the locals and the flora and fauna of the surrounding countries.</li> <li>▶ Facilitating Mind mapping on political divisions in the two continents by children.</li> <li>▶ Analysing and discussing the impacts of physical features of a place on life and occupations with children.</li> <li>▶ Discussing the impact of geographical features on the history of the continents.</li> </ul>	<ul style="list-style-type: none"> <li>▶ Audio-visuals.</li> <li>▶ Maps, atlas, globe.</li> <li>▶ Videos.</li> </ul>

**Life Skills:** Conservation of environment, sensitivity towards society

**Integration:** Biology, History, Languages, Arts Education

## Theme 1: Representation of Geographical Features

This theme aims at developing in children the ability to interpret topographical sheets by identifying directions, colours and conventional symbols. They will also be able to measure distances using a scale.

### Learning outcomes:

Children will be able to:

- ☑ identify purpose of using different colours scheme on the map;
- ☑ use different signs and symbols on the map;
- ☑ identify features on a topographical sheet on the basis of colours;
- ☑ use scales for measurement of distance;
- ☑ identify conventional signs and symbols used on a topographical sheet.

### Representation of Geographical Features

Key Concepts	Suggested transactional processes	Suggested Learning resources
<ul style="list-style-type: none"> <li>➤ Use of colours on Topographical sheets Blue – Water body Red – Settlements Yellow – Agriculture Brown – High relief Green – Forests</li> <li>➤ Use of scales for measurement: types of scales (representative fraction, linear scale).</li> <li>➤ Measuring distance on the map using scales (straight line, curved line).</li> <li>➤ Conventional signs &amp; symbols (based on topographical sheets of Survey of India).</li> </ul>	<ul style="list-style-type: none"> <li>➤ Engaging children in a group activity for identifying features on topographical maps.</li> <li>➤ Asking children to prepare individual maps on plain paper showing roads, settlements, water bodies, etc. with colours and conventional symbols.</li> <li>➤ Engaging children in observing and using different types of scales. This is to be followed by a discussion on the scales and their uses.</li> <li>➤ Organising activities like measuring the classroom, playground, corridor, etc. using a scale.</li> <li>➤ Organising a visit to the office of Survey of India and observing cartographers at work.</li> <li>➤ Organising a talk with a cartographer on the uses of colours, scale, signs and symbols on maps.</li> <li>➤ Demonstrating the use of thread for measurement of curved line on the map e.g. length of the river. Asking children to do the same in pairs.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Power point presentation and Blackboard/whiteboard/ interactive boards.</li> <li>➤ Mind mapping</li> <li>➤ Hands on activity</li> <li>➤ Atlas and maps.</li> <li>➤ Visits</li> <li>➤ Experts.</li> </ul>

**Integration:** Mathematics, Arts Education

## Theme 2: Atmosphere

This theme aims at enabling children to understand the importance and composition of gases found in the atmosphere. Children will also be made aware and sensitised towards global warming and its impact on humans.

### Learning outcomes:

Children will be able to:

- describe the importance of gases that comprise the atmosphere;
- describe the composition of different gases in the atmosphere;
- highlight importance of layers of atmosphere to sustain life on the earth;
- draw diagram to show the structure of atmosphere;
- discuss causes for global warming and ways to reduce it;
- understand the impact of global warming on life on earth;
- analyse the reasons for the depletion of the ozone layer and suggest ways to reduce it.

<b>Atmosphere</b>		
<b>Key Concepts</b>	<b>Suggested transactional processes</b>	<b>Suggested Learning resources</b>
<ul style="list-style-type: none"> <li>➤ Introduction</li> <li>➤ Composition of the Atmosphere</li> <li>➤ Structure of the Atmosphere (brief description of Troposphere, Stratosphere (ozone layer), Thermosphere, Mesosphere, Exosphere).</li> <li>➤ Green House Effect: meaning and causes.</li> <li>➤ Global warming:                             <ul style="list-style-type: none"> <li>➤ Introduction</li> <li>➤ Causes of ozone depletion (Greenhouse gases, deforestation, burning of fossil fuels);</li> <li>➤ Impact of global warming (Melting of Ice caps &amp; sea level rise, changing patterns of distribution of precipitation and temperature, etc.)</li> </ul> </li> <li>➤ Ways to reduce global warming (in general).</li> </ul>	<ul style="list-style-type: none"> <li>➤ Encouraging children to:</li> <li>➤ collect information and data about weather from various sources such as newspapers, articles and internet.</li> <li>➤ develop models /diagrams to show structure and composition of atmosphere.</li> <li>➤ prepare posters or charts to show the causes and consequences of global warming.</li> <li>➤ Participate in awareness campaigns and preparing materials for the same.</li> <li>➤ Discussing the changing patterns of distribution of rainfall in the country.</li> <li>➤ Modelling the greenhouse effect in a bottle.</li> <li>➤ Organising poster making and slogan writing competition on 'Save Trees, Save Environment'.</li> <li>➤ Sensitising children towards global warming and organising awareness campaign on it.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Clay models for the structure</li> <li>➤ Weather station, Weather report from the website of IMD.</li> <li>➤ Weather crossword puzzle.</li> <li>➤ Graphs and statistical data from internet resources to study the changes in the variation of temperature and precipitation</li> <li>➤ Awareness campaigns</li> </ul>

**Integration:** Biology, Chemistry, Languages

**Life Skills:** Environmental Conservation

## Theme 3: Weather and Climate

This theme will enable children to understand the elements that affect the weather of a place and also differentiate between weather and climate. They will know about instruments used for measurement of rain, temperature, atmospheric pressure, etc.

### Learning outcomes:

Children will be able to:

- list the elements that affect the weather of a place;
- distinguish between weather and climate;
- identify different instruments used to measure elements of weather;
- describe isohyets and isotherms through diagrams.

Weather and Climate		
Key Concepts	Suggested transactional processes	Suggested Learning resources
<ul style="list-style-type: none"> <li>➤ Elements of Weather:                             <ul style="list-style-type: none"> <li>☛ Temperature</li> <li>☛ Atmospheric pressure</li> <li>☛ Humidity</li> <li>☛ Precipitation (rain, dew, hail, snow)</li> <li>☛ Winds</li> <li>☛ Cloud (different types)</li> </ul> </li> <li>➤ Difference between Weather and Climate.</li> <li>➤ Weather Instruments:                             <ul style="list-style-type: none"> <li>☛ Thermometer</li> <li>☛ Rain gauge</li> <li>☛ Barometer</li> <li>☛ Hygrometer</li> <li>☛ Anemometer and wind vane</li> </ul>                             (Brief explanation with diagrams)                         </li> <li>➤ Isohyets and Isotherms - meaning and diagrams only.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Encouraging children to:                             <ul style="list-style-type: none"> <li>☛ discuss the weather conditions of the place they live in with their peers.</li> <li>☛ collect information and data about weather from various sources such as newspapers, articles and internet and then writing a report on it.</li> </ul> </li> <li>➤ Demonstrating the use of weather instruments to understand the measurement of different elements of weather.</li> <li>➤ Encouraging children to draw diagrams of weather instruments and discussing how to use them with peers.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Weather station, Weather report from the website of IMD.</li> <li>➤ Newspapers, articles and internet.</li> <li>➤ Report writing</li> <li>➤ Diagrams.</li> </ul>

**Integration:** Languages, Physics, Chemistry



## Theme 4: Weathering and Soil formation

This theme aims to introduce children to weathering and its types and how it contributes to soil formation. Children will also understand the importance of soil profile and the need to conserve soil.

### Learning outcomes:

Children will be able to:

- list the different types of rocks;
- discuss the different types of weathering;
- analyse the factors that affect weathering;
- relate weathering to soil formation;
- discuss the importance of soil conservation and describe ways to conserve it.

<b>Weathering and Soil formation</b>		
Key Concepts	Suggested transactional processes	Suggested Learning resources
<ul style="list-style-type: none"> <li>➤ Types of rocks (igneous, metamorphic, sedimentary): formation with examples;</li> <li>➤ Weathering: meaning; factors affecting weathering;</li> <li>➤ Types of weathering (mechanical, chemical, biological): brief explanation; soil formation as a result of weathering;</li> <li>➤ Soil profile; importance of soil conservation, methods of soil conservation.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Showing different types of rocks through Videos/PPTs.</li> <li>➤ Promoting children to collect samples of different types of soil and rocks and then discuss the type of crops cultivated with them.</li> <li>➤ Discussing reasons for weathering and the importance of tree plantation.</li> <li>➤ Discussing the types of soils in India and showing the regions where these are found on a wall or a digital map.</li> <li>➤ Asking children (individually/in groups/in pairs) to make a models of soil profile using rock, silt and clay.</li> <li>➤ Showing films on terrace farming and the Chipko movement.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Rocks, silt and clay to make a soil profile.</li> <li>➤ Films on terrace farming and the Chipko movement.</li> <li>➤ Videos.</li> <li>➤ PPTs.</li> <li>➤ Maps.</li> <li>➤ Charts.</li> <li>➤ Samples of different types of soil and rocks.</li> </ul>

**Integration:** Biology, Languages, Chemistry

**Life Skill:** Sensitivity towards environment



## Theme 5: Industries

This theme aims to develop children's understanding of how geographical and other factors are responsible for the location of industries. Children will also develop the ability to classify industries on the basis of inputs such as capital, labour and raw materials used. They will also be made aware and sensitised towards pollution caused by industries and measures that need to be taken to prevent the same.

### Learning outcomes:

Children will be able to:

- differentiate large scale, small scale and cottage industries;
- discuss our dependence on industries for fulfilment of our daily needs;
- identify agro based industries and their raw materials;
- discuss factors responsible for localisation of industries.
- name some important industrial centres of the world;
- discuss how industries contribute towards environmental pollution and suggest ways to prevent the same.

<b>Industries</b>		
<b>Key Concepts</b>	<b>Suggested transactional processes</b>	<b>Suggested Learning resources</b>
<ul style="list-style-type: none"> <li>➤ Introduction</li> <li>➤ Need for industries in the world.</li> <li>➤ Types of industries: large scale, small scale, cottage industries; agro based industries.</li> <li>➤ Factors related to establishment of an industry.</li> <li>➤ Important industries of the world: Iron and Steel, Cotton Textile, Information Technology, Sugar Industry, ship building, fishing, automobile; important centres of these industries and their location on world map.</li> <li>➤ Pollution due to industries and its prevention.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Mind mapping and familiarising children with the kind of resources required for industrial development through audio-visuals and interactive board.</li> <li>➤ Organising a visit to a nearby industry to understand the process of production and use of human resource in an industry.</li> <li>➤ Facilitating children interviewing a factory/ industry owner and discussing various issues like availability of raw material, labour, machines, marketing, etc.</li> <li>➤ Organising group activity where children prepare a poster or model to display industrial pollution.</li> <li>➤ Tracing the journey of any item from raw material to finished product (e.g.: your shirt from a cotton field to your wardrobe).</li> <li>➤ Organising a role play on life without machines.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Wall maps and Atlas.</li> <li>➤ Internet resources.</li> <li>➤ Visuals and Articles from Newspapers, journals, magazines, etc.</li> <li>➤ Industries/Factories in the neighbourhood.</li> <li>➤ Posters and models.</li> </ul>

**Life Skills:** Conservation of environment

**Integration:** Biology, Languages, Chemistry

## Theme 6: Energy and Power Resources

Energy and power resources play an important role in the development of any area. This theme will enable children to understand the difference between renewable and non-renewable energy resources. Children will also be made aware and sensitised towards the conservation of energy resources in their daily life.

### Learning outcomes:

Children will be able to:

- describe sources of energy;
- classify renewable and non – renewable energy resources;
- describe characteristics of solar power, hydro power and wind power;
- critically analyse distribution of energy resources among various sections of society;
- reflect on the judicious use and conservation of energy resources.

<b>Energy and Power Resources</b>		
Key Concepts	Suggested transactional processes	Suggested Learning resources
<ul style="list-style-type: none"> <li>➤ Introduction: sources of energy; renewable and non-renewable energy resources;</li> <li>➤ Renewable Energy Sources (Solar Power, Hydro-Power and Wind Power).</li> <li>➤ Non-renewable Energy Sources (coal and petroleum).</li> <li>➤ Hydroelectric projects: names of the major hydroelectric power projects in India with the names of the river and the state in which they are located. Locating on a map.</li> <li>➤ Conservation of energy and power resources.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Promoting discussion amongst children on distribution and consumption of energy resources in their own home/ among various sections of society/ different parts of the country/ rural and urban areas.</li> <li>➤ Conducting a survey by children in groups to understand the consumption of energy in the school/ own home and suggesting measures to reduce the consumption.</li> <li>➤ Finding out the consumption of electricity at home over a period of time. Depicting the same graphically.</li> <li>➤ Displaying major hydroelectric projects on a wall map of India and providing brief information about them to children.</li> <li>➤ Organising activities to make 3D models to show river and multipurpose projects.</li> <li>➤ Discussing the impact of building large hydroelectric projects on the environment and life of people.</li> <li>➤ Organising a visit of children to a nearby dam or hydroelectric project and writing a report on the observations made.</li> <li>➤ Demonstrating methods to show generation of electricity with the help of a magnet.</li> <li>➤ Inculcating the habit of switching off fans, A.C.s, lights at home and in school.</li> <li>➤ Giving project/ Case Study on rural electrification in India.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Pie chart – energy consumption.</li> <li>➤ Magnet and wires</li> <li>➤ Questionnaire.</li> <li>➤ Models</li> <li>➤ Online resources</li> <li>➤ Reports.</li> <li>➤ Case Study.</li> <li>➤ Wind Farms and Hydroelectric projects.</li> </ul>

**Integration:** Biology, Physics, Chemistry, Languages

**Life Skills:** Environmental conservation



## Theme 7: Study of Continents: Europe, Africa, Australia and Antarctica

In the previous class, as a part of the Study of Continents, children were given an overview of North and South America. In this class the theme will take the study of different Continents further as children will be introduced to the Continents of: Europe, Africa, Australia and Antarctica. As in the previous class, children will also get an opportunity to undertake case studies.

### Learning outcomes:

Children will be able to:

- ☑ locate Europe, Africa, Australia and Antarctica on the world map;
- ☑ identify the countries in Europe, Africa and Australia;
- ☑ locate the major physical features of these continents on the map;
- ☑ analyse why Antarctica is a human free zone.
- ☑ understand how the geography of a place affects the life of people through case studies.

### Study of Continents: Europe, Africa, Australia and Antarctica

Key Concepts	Suggested transactional processes	Suggested Learning resources
<ul style="list-style-type: none"> <li>➤ Europe, Africa, Australia:                             <ul style="list-style-type: none"> <li>☑ Introduction</li> <li>☑ Location</li> <li>☑ Boundaries</li> <li>☑ Political divisions (countries with capitals)</li> <li>☑ Major Physical features</li> <li>☑ Locating the above on the world map.</li> </ul> </li> <li>➤ Case Studies:                             <ul style="list-style-type: none"> <li>☑ Tourism in Switzerland (Europe)</li> <li>☑ Cocoa cultivation in Ghana (Africa)</li> <li>☑ Sheep rearing in Australia (or any other)</li> </ul> </li> <li>➤ Antarctica – the uninhabited continent                             <ul style="list-style-type: none"> <li>☑ Location</li> <li>☑ Boundaries</li> <li>☑ Climate</li> <li>☑ Human void zone</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Mind mapping and encouraging children to locate Europe, Africa, Australia and Antarctica on the World map.</li> <li>➤ Locating the different countries of Europe, Africa, Australia and Antarctica on the political map.</li> <li>➤ Providing opportunities to children to share their experiences if they have visited any countries in the 4 Continents being focussed on in the theme and make flags of a few countries of Europe, Africa and Australia.</li> <li>➤ Encouraging discussions on the life of people in these continents.</li> <li>➤ Making a scrap book (individually/groups) about the people of different continents.</li> <li>➤ Making a Project on changing climatic conditions and their impact on the climate of the world (reference to melting of ice sheets in Antarctica).</li> </ul>	<ul style="list-style-type: none"> <li>➤ Map of Europe, Africa, Australia and Antarctica</li> <li>➤ Mind mapping</li> <li>➤ Flags</li> <li>➤ Scrap book</li> <li>➤ Political outline map</li> <li>➤ Project Work</li> </ul>

**Integration:** Biology, Languages, history, Arts Education

**Life Skills:** Sensitivity towards environment

## Theme 1: Representation of Geographical Features

Topographical sheets or top sheets are large scale maps. On these maps various features (natural or human made) are represented by conventional symbols and colours, which have already been discussed in previous classes. In this class children will be introduced to contours and enabled to interpret toposheets on the basis of contours and features represented through symbols and colours. Children will also develop the ability to represent landforms such as valleys, hills, plateaus, etc. through contours on plain sheets.

### Learning outcomes:

Children will be able to:

- ✓ read contours on toposheets;
- ✓ distinguish between steep and gentle slopes through contours;
- ✓ identify landforms through contours on the toposheet;
- ✓ differentiate patterns of settlements on the toposheet;
- ✓ draw contours and related landforms on plain paper;
- ✓ interpret and analyse the toposheets.

### Representation of Geographical Features

Key Concepts	Suggested transactional processes	Suggested Learning resources
<p><b>On the basis of Topographical Sheet:</b></p> <ul style="list-style-type: none"> <li>➤ Interpret contours on the sheet (height, shape).</li> <li>➤ Identify landforms through contours.                             <ul style="list-style-type: none"> <li>☛ Types of slopes (steep, gentle).</li> <li>☛ Hills, Plateaus, Ridges (gap, saddle, col, pass).</li> </ul> </li> <li>➤ Settlement patterns:                             <ul style="list-style-type: none"> <li>☛ Temporary and permanent</li> <li>☛ Nucleated, dispersed and linear</li> </ul> </li> <li>➤ Interpret and analyse the given toposheet.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Providing examples of landforms through visuals, models or diagrams to children in order to explain contour patterns.</li> <li>➤ Showing Satellite images from the different parts of the world and using them to analyse settlement patterns, by children.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Visuals.</li> <li>➤ Toposheets.</li> <li>➤ Atlas and maps.</li> <li>➤ Internet resources.</li> </ul>

**Integration:** Mathematics, Arts Education

**Life Skill:** Using a topographical sheet

## Theme 2: Population Dynamics

The theme aims at enabling children to understand the causes of population growth in different parts of the world. They will also be able to comprehend terms such as birth rate, death rate, population density, migration, etc. A case study approach will help in developing children understanding about the impact of high growth rate of population on socio-economic development of the region.

### Learning outcomes:

Children will be able to:

- describe the factors affecting the population of a place;
- identify over and under populated countries in the world;
- analyse the impact of over and under population on society;
- interpret a population pyramid showing composition of the population on the basis of age and sex.

<b>Population Dynamics</b>		
<b>Key Concepts</b>	<b>Suggested transactional processes</b>	<b>Suggested Learning resources</b>
<ul style="list-style-type: none"> <li>➤ Distribution of population in the world.</li> <li>➤ Overpopulation and under population: meaning with examples of countries from the world.</li> <li>➤ Impact of overpopulation and under population on the society.</li> <li>➤ Factors affecting the population of a place, birth and death rate, immigration and emigration.</li> <li>➤ Composition of population – Age and sex, rural and urban; population pyramid.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Demonstrating the effect of increasing/ decreasing population by including more/less children in one classroom, followed by a discussion.</li> <li>➤ Organising a debate and encouraging children to participate to give their views on the impact of the population growth on economic development of the country.</li> <li>➤ Conducting a survey by children in groups to collect data of children in their school on the basis of their age and gender and construct a population pyramid diagram.</li> <li>➤ Project work on Environmental effects of population growth</li> <li>➤ Case Study on: A country which is over populated/ underpopulated</li> </ul>	<ul style="list-style-type: none"> <li>➤ Population data from internet, journals, newspapers, etc.</li> <li>➤ Clay or paper mesh method to make population pyramids.</li> <li>➤ Report of the Census(<a href="http://www.census.gov">www.census.gov</a>).</li> <li>➤ Collection of Movies/documentaries/story, flash cards, visuals, maps, atlas.</li> <li>➤ Project Work</li> <li>➤ Case Study</li> </ul>

**Life Skills:** Co-operation

**Integration:** Mathematics, History, Languages

## Theme 3: Migration


Human movement from one place to another for different purposes is the focus of this theme. Children will be made aware of the types of migration and its impact on the socio-economic development of the area.

Movement of highly skilled and qualified persons to different parts of the world for better opportunities has been a cause of concern for India. This theme will enable children to understand and investigate the issues related to brain-drain in India and its impact on society.

### Learning outcomes:

Children will be able to:

- differentiate the terms - immigration and emigration;
- explain reasons for migration from and to any area;
- analyse impact of migration on any area;
- identify regions of the world where huge migration took place during historical period.
- explain the meaning of brain-drain;
- identify causes of brain drain in India;
- analyse the positive and negative impact of brain- drain in India.

<b>Migration</b>		
Key Concepts	Suggested transactional processes	Suggested Learning resources
<ul style="list-style-type: none"> <li>➤ Migration: Introduction.</li> <li>➤ Types of migration- immigration, emigration, rural- urban and urban-urban. (examples from the world).</li> <li>➤ Impact of migration on socio-economic structure of the society (examples from India and the world).</li> <li>➤ Brain Drain: introduction, causes of brain-drain, positive and negative impacts of brain- drain.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Showing an audio-visual/ movie /documentary or telling a story on migration.</li> <li>➤ Initiating a discussion (based on the movie/ story) with children to analyse the impact of migration or brain drain.</li> <li>➤ Joining the dots /treasure hunts to know the history of migration.</li> <li>➤ Organising a class discussion on the problems of refugees.</li> <li>➤ Collecting information about brain -drain from various sources e.g. newspapers, journals, magazines, internet, etc. and facilitating a discussion or debate.</li> <li>➤ Case Study on positive and negative impacts of migration</li> </ul>	<ul style="list-style-type: none"> <li>➤ Movies/documentaries/stories, flash cards, visuals, maps, atlas.</li> <li>➤ Newspapers, magazines, journals, web resources, etc.</li> <li>➤ Case study</li> </ul> <div style="text-align: center;">  </div>

**Integration:** Mathematics, History, Languages

## Theme 4: Urbanisation

The aim of the theme is to enable children to understand the concept of urbanisation, its causes and effects. They will also be able to relate the knowledge gained in the previous theme to understand how rapid increase in urbanisation in the world is one of the major causes of migration.

### Learning outcomes:

Children will be able to:

- describe the term urbanisation;
- identify causes of urbanisation;
- describe impacts of urbanisation;
- differentiate a smart city from any other urban centre;
- explain strategies/ steps taken at the local level to keep the urban areas clean.
- Discuss ways to reduce negative impact of urbanisation.

<b>Urbanisation</b>		
<b>Key Concepts</b>	<b>Suggested transactional processes</b>	<b>Suggested Learning resources</b>
<ul style="list-style-type: none"> <li>➤ Urbanisation – meaning and causes.</li> <li>➤ Positive and negative impacts of urbanisation; satellite cities.</li> <li>➤ Concept of Smart Cities (examples from the World).</li> </ul>	<ul style="list-style-type: none"> <li>➤ Organising a field trip to study the functions of the municipal corporations and understand the problems related to population growth, urbanization and public utility services.</li> <li>➤ Facilitating a discussion to compare the life in a village and in a city.</li> <li>➤ Conduct a brainstorming session /class discussion on the relationship between technological development, skilled human resource and urbanisation.</li> <li>➤ Discussing strategies to reduce negative impact of urbanisation.</li> <li>➤ Project Work on smart cities to be developed in India.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Movies/documentaries/stories, flash cards, visuals, maps and an atlas.</li> <li>➤ Discussions</li> <li>➤ Research</li> <li>➤ Project Work</li> </ul>

**Integration:** Mathematics, History, Languages

**Life Skills:** Co-operation




## Theme 5: Natural and Man-made Disasters

The aim in this theme is to enable children to build on knowledge gained in previous classes. Children will get an opportunity to study selected disasters in greater detail through case studies and will also learn about disaster management and the role of the Government in disaster management.

### Learning outcomes:

Children will be able to:

- differentiate between natural and manmade disasters;
- discuss the importance of disaster management;
- demonstrate (through drills) measures to be taken in case of an earthquake, flood, fire;
- describe the causes, effects and impact of floods, earthquakes and oil spills on life and environment.
- list measures to be taken to prevent disasters.

<b>Natural and Man-made Disasters</b>		
Key Concepts	Suggested transactional processes	Suggested Learning resources
<ul style="list-style-type: none"> <li>▶ Natural and manmade disasters: Meaning and examples.</li> <li>▶ Disaster management and its importance (in general); safety measures to be taken in case of floods, earthquake and fire.</li> <li>▶ Role of the government in disasters and its management.</li> </ul> <p><b>Case Studies:</b></p> <ul style="list-style-type: none"> <li>▶ Floods in Assam/Bihar (Causes, effects, impacts on life and environment).</li> <li>▶ Earthquake in Nepal (2014): (Causes, effects, impacts on life and environment).</li> <li>▶ Oil Spills-Coastal areas of the United States: (Causes, effects, impacts on life and environment).</li> </ul>	<ul style="list-style-type: none"> <li>▶ Building on children’s previous learning.</li> <li>▶ Providing opportunities to children to discuss the impact of recent/known natural and man-made disasters.</li> <li>▶ Conducting a Mock drill/ Role play on disaster preparedness.</li> <li>▶ Collecting information about disasters from newspapers, internet sources and discussing the various disasters and their implications on life and people.</li> <li>▶ Encouraging children to take initiatives to create an awareness among people in their own locality about disaster preparedness.</li> <li>▶ Organising mock drills of providing first aid.</li> <li>▶ Discussing the lessons learnt from past disasters and listing corrective measures</li> </ul>	<ul style="list-style-type: none"> <li>▶ Documentary films on different types of disasters.</li> <li>▶ Visuals, articles from newspapers, journals and magazines.</li> <li>▶ Case Study</li> <li>▶ Internet.</li> <li>▶ Mock drills</li> <li>▶ Discussions</li> </ul> <div style="text-align: center; margin-top: 20px;">  </div>

**Integration:** Biology, Languages

**Life Skills:** Environmental conservation

## Theme 6: Asia: The Largest Continent

In the previous class, as a part of the Study of Continents, children have already been given an overview of North America, South America, Europe, Africa, Australia and Antarctica. In this class children will be introduced to the largest continent - Asia. Asia is the largest and the most populous continent in the world. The purpose of introducing this theme is to enable children to understand the physical features and the natural environment of Asia.

### Learning outcomes:

Children will be able to:

- identify countries of Asia on the globe and on the world map;
- locate physical features e.g. important mountains, plateaus, deserts, rivers, lakes, islands. on the map of Asia;
- describe the impact of latitudinal extent and distinct relief features on the climate of Asia;
- analyse interrelationship between climate and natural vegetation found in the different regions of Asia.

<b>Asia: The Largest Continent</b>		
<b>Key Concepts</b>	<b>Suggested transactional processes</b>	<b>Suggested Learning resources</b>
<ul style="list-style-type: none"> <li>➤ Location and Extent</li> <li>➤ East Asia, North Asia, Central Asia, South-East Asia, South-Central Asia, Western Asia</li> <li>➤ Physiography: Northern lowlands, Central highlands, Plateaus, River basins, Islands.</li> <li>➤ Climate: Factors affecting Climate of Asia, Types of Climate: Tundra, Temperate, Tropical, Desert, Equatorial.</li> <li>➤ Natural Vegetation and Wildlife, Tundra, Taiga, Tropical Deciduous, Thorny, Equatorial.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Engaging children in group activity to locate the physical features on the map of Asia.</li> <li>➤ Using audio - visual materials to highlight geographical and cultural differences in different parts of Asia.</li> <li>➤ Promoting children's participation to draw an interrelationship between latitudes, relief, climate and vegetation found in different parts of Asia.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Maps.</li> <li>➤ Atlas.</li> <li>➤ Clay and /or papier mache.</li> <li>➤ Flow chart and/or tables.</li> <li>➤ Web resources and scrap books.</li> <li>➤ Audio-visual materials.</li> </ul>

**Integration:** Biology, Languages

**Life Skills:** Environmental Conservation

## Theme 7: India: Geographical Features

The theme aims to build on children's previous knowledge of Class VI and focus and develop a more in-depth understanding of one country in Asia i.e. India.

### Learning outcomes:

Children will be able to:

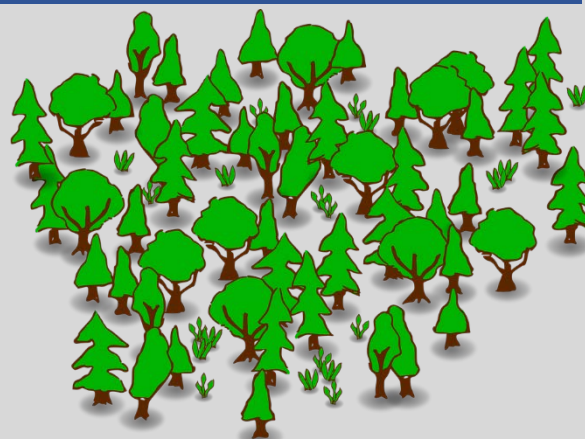
- interpret location and extent of India with reference to other countries of Asia;
- locate important mountains, plateaus, deserts, islands, rivers on the map of India;
- compare the relief, climate and vegetation of India with other parts of Asia;
- discuss the importance of monsoon and its impact on the socio-cultural unity of India.

### India: Geographical Features

Key Concepts	Suggested transactional processes	Suggested Learning resources
<ul style="list-style-type: none"> <li>➤ India- Its location and extent, its neighbouring countries.</li> <li>➤ Political divisions of India – States/ UTs and Capitals.</li> <li>➤ Physiographic Divisions of India –The Himalayas, Northern plains, Peninsular plateau, Thar desert, Coastal regions, Islands.</li> <li>➤ Conservation of Forest and wildlife in India.</li> <li>➤ National parks, biosphere reserve, wildlife sanctuaries.</li> <li>➤ Climate and Natural vegetation:                             <ul style="list-style-type: none"> <li>• Factors affecting climate, Monsoon.</li> <li>• Types of Natural vegetation: Tropical rain forest, deciduous forest, thorny, Tidal Forest, Montane forest.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Organising quizzes to locate places and physical features on the map of India.</li> <li>➤ Encouraging children to draw an interrelationship between the relief, climate and natural vegetation available in different parts of India.</li> <li>➤ Giving project work on different types of natural vegetation and their importance.</li> <li>➤ Discussing the importance of conserving the natural vegetation with children.</li> <li>➤ Discussing and explaining the mechanism of monsoon in India.</li> <li>➤ Discussing the role of the Monsoon in the socio-cultural unity of India.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Maps.</li> <li>➤ Atlas.</li> <li>➤ Web resources and scrap books.</li> <li>➤ Projects.</li> <li>➤ Quizzes.</li> <li>➤ Discussions</li> </ul>

**Integration:** Biology, Physics

**Life Skills:** Environmental Conservation





## Theme 8: India: Human Resources

This theme aims at introducing and making children aware of the concept of people as resources for the socio-economic development of the country. Children will be made aware that a healthy, educated and skilled human being is an asset for the country. Children will also be enabled to investigate areas of the World/India where natural resources are not being used properly without skilled humans.

### Learning outcomes:

Children will be able to:

- discuss the meaning of human resource;
- describe the role of health and education in developing human resources;
- understand the meaning of skilled and unskilled human resource;
- identify areas in India lagging behind in development due to unavailability of unskilled human resource;
- analyse factors responsible for development of any area.

<b>India: Human Resources</b>		
<b>Key Concepts</b>	<b>Suggested transactional processes</b>	<b>Suggested Learning resources</b>
<ul style="list-style-type: none"> <li>➤ Human resources – meaning.</li> <li>➤ Distribution of population in India (rural urban, geographical distribution, sex ratio).</li> <li>➤ Role of health and education in developing human resources (to be done briefly)</li> <li>➤ Skilled and unskilled human resource (meaning and examples only).</li> <li>➤ Impact of skilled human resource on the socio-economic development of the country (examples from India).</li> </ul>	<ul style="list-style-type: none"> <li>➤ Familiarising children with the different skills related to employment.</li> <li>➤ Encouraging children to define aspects of population in terms of: - rural, urban, male, female etc.</li> <li>➤ Explaining the meaning of skilled and unskilled human resources with relevant examples.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Newspapers, magazines, journals, maps, web resources, etc.</li> <li>➤ Graphs, statistical data</li> </ul>

**Integration:** Mathematics, Languages, Biology

**Life Skills:** Understanding the potential of humans as resources





*SCIENCE*



# Science



**S**cience is an organised body of knowledge about physical and biological environment around us. It has developed out of our attempt to understand things and events in nature, through systematic observation. Science is dynamic in nature, with many old concepts being modified or discarded with the advent of new findings. Science is also multidimensional.

For a long time, the emphasis of teaching-learning of Science has been on only one dimension, that is, the content of Science. However, over the years, researches in Science education have improved our understanding of Science and Science education. According to Prof. Robert E. Yager, Emeritus Professor of Science Education, University of Iowa, USA, Science consists of six domains: Concepts, Processes, Applications, Attitudes, Creativity and Worldview (Nature of Science).

**(i) Concept Domain:** It includes facts, concepts, laws or principles, hypotheses and theories. Understanding of these concepts is important for successful teaching and learning. These concepts are further classified and organised into different topics. For example, matter, energy, plant development, animal behaviour. As Science develops, our understanding about things and events in nature grows, new concepts are added; old ones are sometimes redefined or rejected. In fact, this domain presents our current understanding of a particular subject or topic.

**(ii) Process Domain:** “Experiment is the sole source of truth”, wrote Henry Poincare in his famous book, *Science and Hypothesis* (1905). Scientists use processes to investigate. Some processes are: Observing and describing, classifying and organising, measuring and charting, communicating, predicting and inferring, hypothesizing, hypothesis testing, identifying and controlling variables, interpreting data, constructing instruments, simple devices and physical models. Development of process skills among children is a primary aim of Science education. This helps them to understand Science or investigate a problem scientifically. Hands-on/minds-on activities have been integrated in the Science curriculum so that children master these process skills.

**(iii) Creativity Domain:** Scientific activities related to this domain include: visualizing - producing mental images, combining objects and ideas in new ways, producing alternative and unusual uses for objects, solving problems and puzzles, designing devices and machines, and producing unusual ideas. Creativity is required when we attempt to answer, “what, how and why”

about things or events around us. Special efforts should be made to provide opportunities to children which bring out creativity in them.

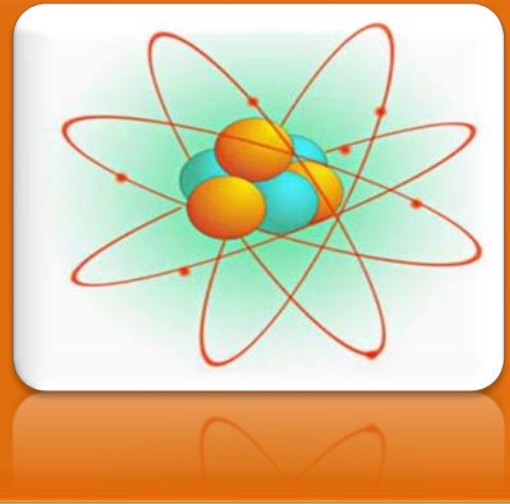
**(iv) Attitude Domain:** This domain includes developing positive attitudes towards Science in general; development of positive attitude towards oneself (as “I can do it” attitude), exploration of human emotions, develop sensitivity to, and encourage respect for the feeling of other people, expression of personal feelings in a constructive way, decision- making about personal values and decision- making about social and environmental issues. A positive attitude towards Science not only helps children in learning Science but also encourages them to seek answers for their own problems. ‘Attitude towards Science’ is not the same as ‘Scientific attitude’. The latter refers to ‘open-minded’, ‘honesty’ or ‘scepticism’.

**(v) Application Domain:** Children should be able to apply learning of Science in new situations. This includes recognising instances of scientific concepts in everyday life experiences; application of science concepts and skills learnt to everyday technological problems; understanding scientific and technological principles involved in common technological devices; using scientific processes in solving problems that occur in everyday life; understanding and evaluating mass media reports of scientific developments; making decision related to personal health, nutrition and life-style based on knowledge of scientific concepts rather than on hearsay and emotions; integrating science with other subjects (interdisciplinary). Science knowledge must be associated with the social and living experiences of children.

**(vi) Worldview Domain:** Teaching-learning of Science should present the nature of Science, as a whole. The development of Science is through the process of validating old concepts, discarding/modifying old concepts based on new experimental evidences and evolving theories to explain different phenomena. This domain should help children develop understanding of the ways in which the scientific knowledge is created; the nature of research processes; the meaning of basic concepts of scientific research (e.g., hypothesis, assumptions, controls, replication); the history of development of scientific ideas; the ways scientists work, organise and work as a team; the interaction among science, economics, politics, history, sociology, philosophy.

The present science curriculum follows a disciplinary approach. Science has been presented as Physics, Chemistry and Biology. Instructional material and teaching-learning processes in each subject, should pay due attention to all six domains of Science, as described above.

# Physics



**P**hysics is the study of matter, energy and its interactions. It attempts to explain how nature works using the language of mathematics. Physics generates fundamental knowledge which is needed for the future technological advancements. Study of Physics is essential for inspiring young children and expanding their knowledge of other disciplines.

The Core concepts of Physics for Classes VI – VIII are as follows:

## Class VI

Matter  
Physical Quantities  
and Measurement  
Force  
Energy  
Light  
Magnetism

## Class VII

Physical Quantities  
and Measurement  
Force and Pressure:  
Motion  
Energy  
Light Energy  
Heat  
Sound  
Electricity and  
Magnetism

## Class VIII

Matter  
Physical Quantities  
and Measurement  
Force and Pressure  
Energy  
Light Energy  
Heat Transfer  
Sound  
Electricity

**Theme 1: Matter**

Objects that take shape and have mass are called matter. A block of wood, milk and air are all made of matter. Matter is made up of tiny particles called atoms and molecules that cannot be seen by the human eye as they are very small. Matters exists in form of solid, liquid or gas. A solid has a certain size and shape, like a block of wood. A liquid, like water, has a size but does not have a definite shape. It takes the shape of the container it is put in. A gas, like air, is a form of matter that has no definite shape or size.

**Learning Outcomes:**

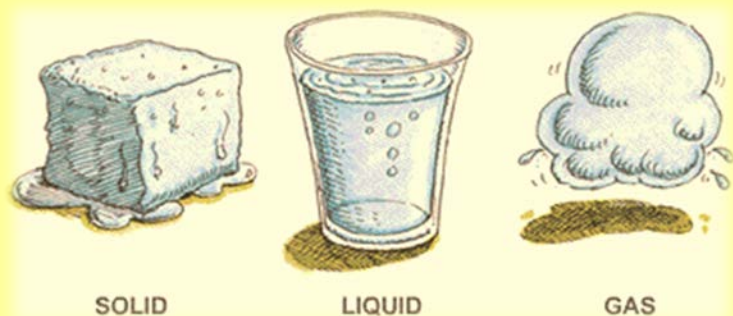
Children will be able to:

- ☑ define matter;
- ☑ describe what matter is made of;
- ☑ list the distinguishing properties of solid, liquid and gas;
- ☑ classify different objects in terms of solid, liquid and gas.

<b>Matter</b>		
<b>Key Concepts</b>	<b>Suggested Transactional Processes</b>	<b>Suggested Learning resources</b>
<p>➤ Matter- its meaning and composition.</p> <p><b>States of Matter</b></p> <p>➤ Solids, Liquids and Gases.</p> <p>➤ Characteristics of Solids, Liquids and Gases (Shape, texture and Volume).</p> <p>➤ Distinguishing properties of Solids, Liquids and Gases.</p>	<p>➤ Revising previously learnt concepts.</p> <p>➤ Building on children’s previous learning.</p> <p>➤ Demonstrating different types of matter.</p> <p>➤ Children will be provided learning opportunities to:</p> <ul style="list-style-type: none"> <li>☛ recognize different states of matter, using qualitative observation</li> <li>☛ distinguish between objects in terms of solid, liquid and gas, using qualitative observation.</li> </ul>	<p>➤ Objects in the immediate environment.</p> <p>➤ Objects in the form of solid, liquid and gas.</p> <p>➤ Video on matter and its forms.</p> <p>➤ Charts and pictures.</p>

**Life Skills:** Decision making, cooperation and working together

**Integration:** Chemistry, Technology in daily life





## Theme 2: Physical Quantities and Measurement

Whenever we make a measurement, we require a number which answers the 'how' part of it and a unit which tells us that we are talking about. The unit that is used for a physical quantity is universally accepted and used so that science is communicated and understood all over the world, without any ambiguities. Length, mass, time and temperature are some of the physical quantities that are discussed in detail. They have their own units and symbols for representation. Different devices are required to make measurements of these quantities. How to use a device properly for measurement is an important aspect of learning physics. Area is an example of a physical quantity that can be expressed in terms of a product of two measurements in length. Children learn to develop skills of converting the magnitude of a physical quantity from one unit to its other related unit.

### Learning outcomes:

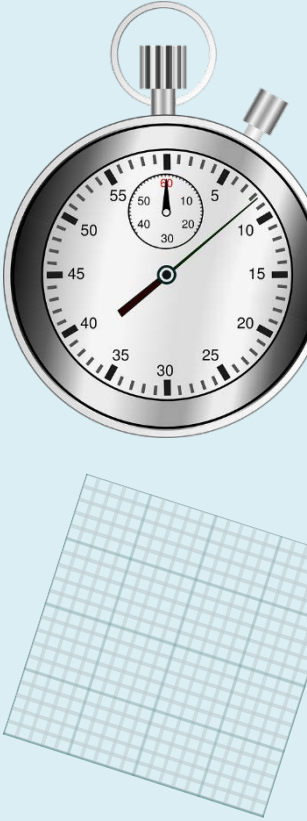
Children will be able to:

- define length, mass and time;
- express length, mass, time, temperature and area in proper units with proper symbols;
- measure length of objects using a ruler and a measuring tape;
- measure mass of an object using a beam balance and an electronic balance;
- measure time using a clock, a watch and a stop-watch;
- relate temperature of an object with its hotness or coldness;
- measure temperature of a person using a clinical thermometer;
- measure temperature of an object using a laboratory thermometer;
- measure area of a regular object using a graph paper;
- convert a physical quantity from one unit into other related units.

### Physical Quantities and Measurement

Key Concepts	Suggested Transactional Processes	Suggested Learning resources												
<p>➤ Measurement of Length:</p> <ul style="list-style-type: none"> <li>➤ Concept of length as distance between two points.</li> <li>➤ Measurement of length (ruler, measuring tape).</li> <li>➤ Units (with symbol and full name).</li> </ul> <table border="1" style="margin-left: 20px; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="padding: 2px;">Name of unit</th> <th style="padding: 2px;">Symbol</th> </tr> </thead> <tbody> <tr> <td style="padding: 2px;">centimetre</td> <td style="padding: 2px;">cm</td> </tr> <tr> <td style="padding: 2px;">meter</td> <td style="padding: 2px;">m</td> </tr> <tr> <td style="padding: 2px;">Kilometre</td> <td style="padding: 2px;">km</td> </tr> <tr> <td style="padding: 2px;">inch</td> <td style="padding: 2px;">inch</td> </tr> <tr> <td style="padding: 2px;">foot</td> <td style="padding: 2px;">ft</td> </tr> </tbody> </table> <p>➤ Measurement of Mass:</p> <ul style="list-style-type: none"> <li>➤ Concept of Mass as matter contained in an object.</li> <li>➤ Measurement of Mass (Beam Balance, Electronic Balance).</li> <li>➤ Units (with symbol and full name).</li> </ul>	Name of unit	Symbol	centimetre	cm	meter	m	Kilometre	km	inch	inch	foot	ft	<ul style="list-style-type: none"> <li>➤ Explaining the concept of length as a distance between two points using objects in classroom like books, table, blackboard or length of classroom, etc.</li> <li>➤ Demonstrating with the help of a ruler and a measuring tape and explaining the marking on each.</li> <li>➤ Explaining the correct method of measurement using a ruler and a measuring tape</li> <li>➤ Measuring the length of an object using a ruler / measuring tape.</li> <li>➤ Explaining different units of length like cm, m, km, inch, ft and the relation between them.</li> <li>➤ Practice converting one unit into others.</li> <li>➤ Explaining the concept of mass as matter contained in an object using objects around us.</li> <li>➤ Demonstrating a Beam balance and Electronic balance and explaining the marking on each.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Objects around us.</li> <li>➤ Ruler and measuring tape.</li> <li>➤ Video on measurement of length using a ruler and a measuring tape.</li> <li>➤ Objects in classroom.</li> <li>➤ Beam balance and Electronic balance.</li> <li>➤ Video on measurement of mass using beam balance and electronic balance.</li> <li>➤ Clock, watch, stop watch.</li> <li>➤ Video on measurement of time using a clock, watch and stopwatch.</li> </ul>
Name of unit	Symbol													
centimetre	cm													
meter	m													
Kilometre	km													
inch	inch													
foot	ft													

## Physical Quantities and Measurement

Key Concepts	Suggested Transactional Processes	Suggested Learning resources																				
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Name of unit	Symbol																					
milligram	mg																					
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Celsius	°C																					

**Life Skills:** Health, Communication skills, problem solving, Cooperation and working together.

**Integration:** Mathematics, Chemistry, Biology, Technology in daily life.

## Theme 3: Force

This theme will enable children to understand the terms 'Force' and 'Friction'. The push or pull of an object is called Force. A force can cause a stationary object to move and can change the direction of a moving object. When an inflated football is pressed from all sides its shape changes. When a ball is rolled on a floor, it stops after some time. Children will understand why this happens because the force acting between the surface of the ball and the floor slows down the ball. This force is called Friction. Friction can be static, sliding or rolling. There are situations where friction is advantageous and situations where it is disadvantageous.

### Learning outcomes:

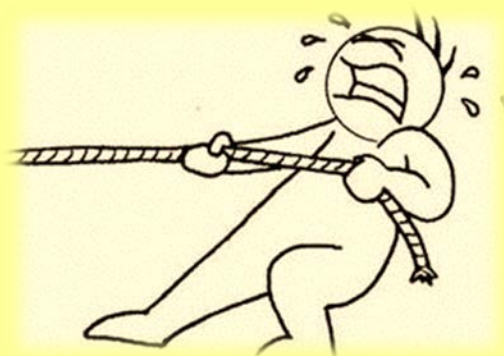
Children will be able to:

- ☑ define force;
- ☑ explain that a force can change the state of motion;
- ☑ explain that a force can change the shape of an object;
- ☑ describe force of friction with examples from daily life;
- ☑ describe situations where static/ sliding / rolling frictions are in play;
- ☑ explain advantage and disadvantage of force of friction in daily life situations.

<b>Force</b>		
<b>Key Concepts</b>	<b>Suggested Transactional Processes</b>	<b>Suggested Learning resources</b>
<ul style="list-style-type: none"> <li>➤ Force as a push or pull.</li> <li>➤ Effects of force on                             <ul style="list-style-type: none"> <li>☛ Mass (No effect)</li> <li>☛ Speed</li> <li>☛ Direction (rest and motion)</li> <li>☛ Change in shape and size</li> <li>☛ Using real world examples only.</li> </ul> </li> <li>➤ Force of Friction:                             <ul style="list-style-type: none"> <li>☛ Types – Rolling, Sliding and Static.</li> <li>☛ Advantages and Disadvantages.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Demonstrating to and discussing with children:                             <ul style="list-style-type: none"> <li>☛ force as push or pull.</li> <li>☛ that a force can change a state of motion.</li> <li>☛ that a force can change shape of an object.</li> <li>☛ the play of force of friction in an object in motion.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ A couple of tennis balls.</li> <li>➤ An inflated football,</li> <li>➤ A toy cart.</li> <li>➤ Surface of a table.</li> <li>➤ Video showing force, different types of frictional forces and effect of force.</li> </ul>

**Integration:** Geography, Technology in daily life.

**Life Skills:** Communication, problem-solving.



## Theme 4: Energy

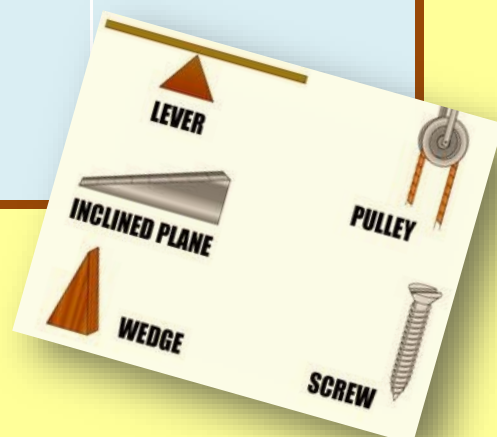
The ability to do work is called Energy. Machines help us to do work. For example, a bottle opener is a machine. A needle, a doorknob are also machines. Some machines are more complex than others. A simple machine changes the direction or the magnitude of force applied. The six simple machines are the lever, the pulley, the wheel-and-axle, the inclined plane, the wedge and the screw. The factor by which a machine multiplies the force applied is called 'mechanical advantage'. On the basis of location of fulcrum (the pivot point), the load and the effort, levers may be classified into three types or orders. The aim of this theme is to enable children know and understand about different types of machines and levers.

### Learning outcomes:

Children will be able to:

- ☑ define what a machine is;
- ☑ describe six simple machines with examples from daily life;
- ☑ describe different types of levers;
- ☑ define mechanical advantage of a lever;
- ☑ solve problems based on formula for mechanical advantage of a lever.

<b>Energy</b>		
<b>Key Concepts</b>	<b>Suggested Transactional Processes</b>	<b>Suggested Learning resources</b>
<ul style="list-style-type: none"> <li>➤ Simple Machines:                             <ul style="list-style-type: none"> <li>➤ Basic Concept</li> <li>➤ Mechanical Advantage</li> </ul> </li> <li>➤ Types of Simple Machines:                             <ul style="list-style-type: none"> <li>➤ Lever</li> <li>➤ Wheel and axle</li> <li>➤ Pulley</li> <li>➤ Inclined plane</li> <li>➤ Wedge</li> <li>➤ Screw</li> </ul> </li> <li>➤ Different Orders of Levers</li> <li>➤ Numericals based on mechanical advantage or leverage  <math>\text{Load} \times \text{Load arm} = \text{Effort} \times \text{Effort arm}</math> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Demonstrating and explaining the use of simple machines.</li> <li>➤ Identifying simple machines in devices used in daily life.</li> <li>➤ Explaining the level and location of fulcrum, load and effort with help of diagram.</li> <li>➤ Explaining the three types of levers.</li> <li>➤ Explaining the term, 'mechanical advantage' of a machine.</li> <li>➤ Helping children solve simple numerical problems based on MA.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Charts of simple machine.</li> <li>➤ Six simple machines.</li> <li>➤ Models of three types of levers.</li> <li>➤ Interactive videos on simple machines.</li> </ul>



**Integration:** Mathematics, Technology in daily life.

**Life Skills:** Cooperation and working together, Problem-solving.

## Theme 5: Light

Light is an important element that helps in making objects visible. It travels in a straight line. When light falls on an object it casts a shadow. The earth and the moon and, in fact, planets cast their shadows in space. Sometimes, on a full-moon day, the moon passes through the shadow of the earth. The Earth casts two shadows that fall on the moon during a lunar eclipse. The umbra is a full dark shadow. The penumbra is a partial outer shadow.

### Learning outcomes:

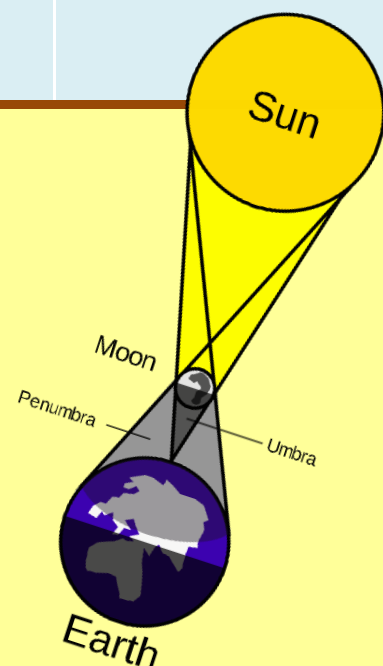
Children will be able to:

- ✓ give examples of evidence that light travels in straight lines;
- ✓ describe principle, construction and working of a pinhole camera;
- ✓ explain the factors on which the size of the image in a pinhole camera depends;
- ✓ explain the formation of shadows;
- ✓ explain the occurrence of lunar eclipse;
- ✓ explain the term umbra and penumbra.

Light		
Key Concepts	Suggested Transactional Processes	Suggested Learning resources
<ul style="list-style-type: none"> <li>➤ Rectilinear Propagation of Light.</li> <li>➤ Applications of rectilinear propagation of light.</li> <li>➤ Pinhole camera:                             <ul style="list-style-type: none"> <li>➤ Principle and Working</li> <li>➤ Factors on which the size of the image produced depends</li> </ul> </li> <li>➤ Shadows:                             <ul style="list-style-type: none"> <li>➤ Umbra</li> <li>➤ Penumbra</li> <li>➤ Natural Shadows – Eclipses</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Demonstration of activities to show that light travels in straight line.</li> <li>➤ Demonstration of construction of a pinhole camera.</li> <li>➤ Explanation of working of a pinhole camera.</li> <li>➤ Engaging children in construction of a pinhole camera.</li> <li>➤ Engaging children in use of a pinhole camera.</li> <li>➤ Demonstration of shadow and eclipse formation.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Candle, a rubber tube, three identical cardboards, moulding clay (Rectilinear propagation of Light).</li> <li>➤ Pinhole camera: Two boxes so that one can slide into another with no gap in between, Tracing paper (for screen).</li> <li>➤ Video on Pinhole camera.</li> <li>➤ Video on lunar eclipse.</li> </ul>

**Integration:** Geography, Art

**Life Skills:** Cooperation and working together, problem solving.



## Theme 6: Magnetism

Substances that have property of attracting iron are called magnets. The materials that get attracted towards a magnet are known as magnetic materials. For example, iron, nickel and cobalt. Materials that are not attracted towards a magnet are non-magnetic- for example, glass, plastic, wood. When a magnet is suspended freely, it always rests in the same direction. The end of the magnet that points toward North is called North pole. The end that points towards south is called South pole. This property of magnets helps us to find directions. Opposite poles of two magnets attract each other and similar poles repel one another. Each magnet is surrounded by a magnetic field. Permanent magnets retain their magnetism for a long time. Temporary magnets behave like a magnet only till they are under influence of a magnetic field. When an electric current flows through a coil of wire, the coil behaves like a magnet. This type of magnet is called electromagnet. Electromagnets are useful because their strength can be varied and they can be turned off and on, as desired.

### Learning outcomes:

Children will be able to:

- ✓ state characteristics of a magnet;
- ✓ distinguish between magnetic and non-magnetic substances;
- ✓ state the properties of magnets;
- ✓ recognise the magnetic field around a magnet;
- ✓ recognize the Earth's magnetic field;
- ✓ describe different ways to make a magnet;
- ✓ distinguish between permanent and temporary magnets;
- ✓ make a simple electromagnet;
- ✓ list precautions for care and storage of magnets;
- ✓ discuss loss of magnetic property due to heating, hammering and electricity.

<b>Magnetism</b>		
<b>Key Concepts</b>	<b>Suggested Transactional Processes</b>	<b>Suggested Learning resources</b>
<ul style="list-style-type: none"> <li>➤ Magnetic and non-magnetic substances.</li> <li>➤ Characteristics of a magnet.</li> <li>➤ properties of magnets</li> <li>➤ Magnetic field around a magnet.</li> <li>➤ Earth's magnetic field.</li> <li>➤ Making of Magnets</li> <li>➤ Permanent &amp; temporary magnets and their uses</li> <li>➤ Electromagnets and</li> <li>➤ choice of material for the core of an electromagnet</li> <li>➤ Care &amp; storage of magnets</li> <li>➤ Demagnetization by heating, hammering and electricity.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Demonstrating magnetic and non-magnetic substances.</li> <li>➤ Demonstrating properties of a magnet through activities.</li> <li>➤ Engaging children in recognizing magnetic fields around a magnet.</li> <li>➤ Demonstrating different ways of making a magnet.</li> <li>➤ Explaining difference between permanent and temporary magnets and their uses.</li> <li>➤ Demonstration of an electromagnet.</li> <li>➤ Explaining demagnetization by heating, hammering and electricity.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Bar magnets.</li> <li>➤ Iron nails and filings.</li> <li>➤ Stand and thread to suspend a magnet.</li> <li>➤ Compass.</li> <li>➤ A coil of wire.</li> <li>➤ A battery.</li> <li>➤ A key.</li> <li>➤ A long nail.</li> <li>➤ Videos about magnets and electromagnets.</li> <li>➤ Video about Earth as a magnet</li> </ul>

**Integration:** Geography, Technology in daily life.

**Life Skills:** Cooperation and working together, critical thinking.

## Theme 1: Physical Quantities and Measurement

In the earlier classes, teaching-learning emphasised on the measurement of length, mass, time and temperature using devices made for such measurements and how a particular unit and symbol are used to express the result of measurement of each physical quantity. In continuity, this theme aims at enabling children to develop the ability to measure volume and determine the density of a regular solid. They will be introduced to the concept of speed, that contains simple problems to provide an idea of the speed of objects around us and also to know how fast or slow an object is moving.

### Learning outcomes:

Children will be able to:

- ✓ define volume;
- ✓ express volume of an object in a proper unit with proper symbols;
- ✓ measure volume of a liquid using a graduated cylinder and a graduated beaker;
- ✓ estimate the area of an object of irregular shape using a graph paper;
- ✓ measure the volume of an irregular solid using a graduated cylinder /a graduated beaker;
- ✓ define density and write its formula;
- ✓ express density in a proper unit and symbol;
- ✓ measure density of a regular/irregular solids;
- ✓ express result of measurement in a proper unit with proper symbol;
- ✓ define speed and write its formula;
- ✓ express speed in proper units with proper symbol;
- ✓ solve simple numerical problems based on formulas of density and speed.

### Physical Quantities and Measurement

Key Concepts	Suggested Transactional Processes	Suggested Learning resources
<ul style="list-style-type: none"> <li>▷ Measurement of Volume (3D concept):                             <ul style="list-style-type: none"> <li>☛ Concept of unit volume</li> </ul> </li> <li>▷ Measurement of Area:                             <ul style="list-style-type: none"> <li>☛ Estimate the Area of irregular shape using a Graph paper</li> </ul> </li> <li>▷ Measurement of Density of regular solids:                             <ul style="list-style-type: none"> <li>☛ Basic concept</li> <li>☛ Formula</li> <li>☛ Simple Numericals (SI units not required)</li> </ul> </li> <li>▷ Calculation of Speed:                             <ul style="list-style-type: none"> <li>☛ Basic Concept</li> <li>☛ Formula</li> <li>☛ Simple Numericals (SI units not required).</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▷ Demonstration of graduated cylinder and graduated beaker</li> <li>▷ Explanation of process of measurement of volume</li> <li>▷ Explaining use of graph paper to measure area of irregular shape</li> <li>▷ Explanation of process of measurement of density of a regular solid</li> <li>▷ Explanation of concept of speed with examples from daily life</li> <li>▷ Explaining calculation of speed</li> <li>▷ Engaging children in activities involving measurement of volume, area, and density.</li> <li>▷ Engaging children in simple problem solving involving the concepts of density and speed.</li> </ul>	<ul style="list-style-type: none"> <li>▷ Graduated cylinder</li> <li>▷ graduated beaker in activities</li> <li>▷ a small piece of stone</li> <li>▷ a regular object</li> <li>▷ objects of irregular shape</li> <li>▷ use of graph papers</li> <li>▷ video on volume measuring devices</li> <li>▷ video on motion and speed</li> </ul>

**Integration:** Chemistry, Technology in daily life

**Life Skills:** Creative thinking, Problem-solving

## Theme 2: Force and Pressure: Motion

An object is said to be in motion if its position changes with time. When walking, running or cycling or when a bird is flying, there is motion involved. Various objects have different types of motion. They can be classified into translatory motion, circular motion and oscillatory motion. Motion of an object can also be classified as periodic and non-periodic. If an object travels equal distance in equal time, its motion is said to be uniform, if not, the motion is said to be non-uniform. A physical quantity used to distinguish between uniform and non-uniform motion is average speed.

### Learning outcomes:

Children will be able to:

- ✓ define motion;
- ✓ identify objects in motion and at rest;
- ✓ describe different types of motion, with examples from daily life;
- ✓ define uniform and non-uniform motion with examples from daily life;
- ✓ define the concept of speed (average speed);
- ✓ calculate average speed of objects based on data provided;
- ✓ define weight;
- ✓ relate weight of an object with its mass.

### Force and Pressure: Motion

Key Concepts	Suggested Transactional Processes	Suggested Learning resources
<ul style="list-style-type: none"> <li>➤ Motion as a change in position of an object with respect to time.</li> <li>➤ Types of motion:                             <ul style="list-style-type: none"> <li>➤ Translatory</li> <li>➤ Circulatory</li> <li>➤ Oscillatory</li> <li>➤ Repetitive (Periodic and Non Periodic)</li> <li>➤ Random</li> </ul> </li> <li>➤ Uniform and Non Uniform Motion: concept of distance and speed (average speed)</li> <li>➤ Weight:                             <ul style="list-style-type: none"> <li>➤ Concept</li> <li>➤ Differences between Mass and Weight.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Demonstrating objects at rest and in motion.</li> <li>➤ Demonstrating different types of motion.</li> <li>➤ Asking children to work in groups and list objects in different types of motion in a table.</li> <li>➤ Demonstrating motion of a pendulum as case of a periodic motion.</li> <li>➤ Demonstrating uniform and non-uniform motion using examples from daily life</li> <li>➤ Explaining the concept of speed; unit of speed. Simple numericals for calculating average speed of objects in daily life.</li> <li>➤ Explaining the concept of weight.</li> <li>➤ Explaining the difference between mass and weight.</li> </ul>	<ul style="list-style-type: none"> <li>➤ A ball.</li> <li>➤ A stop watch.</li> <li>➤ A bob with hook.</li> <li>➤ Thread.</li> <li>➤ Laboratory stand.</li> <li>➤ Video on motion and types of motion.</li> <li>➤ Video on uniform and non-uniform motion.</li> <li>➤ Video on speed of objects in daily life.</li> <li>➤ Videos on ocean currents, cyclones/ anti cyclones, atmospheric pressure</li> </ul>

**Integration:** Mathematics, Chemistry, Geography, Technology in daily life.

**Life Skills:** Problem-solving, Cooperation and working together.



## Theme 3: Energy

This theme aims at enabling children to know about energy and the different its forms namely, kinetic energy, potential energy, heat energy and electrical energy. They will also understand that one form of energy can be converted into another form and that this is known as transformation of energy. Energy is conserved during transformation. This is known as the law of Conservation of Energy.

### Learning outcomes:

Children will be able to:

- ☑ define energy;
- ☑ express energy in proper units;
- ☑ discuss about different forms of energy;
- ☑ describe conversion of energy from one form to another in different situations;
- ☑ state law of conservation of energy, with examples.

Energy		
Key Concepts	Suggested Transactional Processes	Suggested Learning resources
<ul style="list-style-type: none"> <li>➤ Energy:                             <ul style="list-style-type: none"> <li>☛ Energy as capacity to do work.</li> <li>☛ Units of energy (joule and calorie).</li> <li>☛ Different forms of energy.</li> <li>☛ Inter-conversion of energy</li> </ul> </li> <li>➤ Law of Conservation of Energy:                             <ul style="list-style-type: none"> <li>☛ Real world examples.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Explanation of the term Energy and encouraging children to share their experiences with examples from daily life.</li> <li>➤ Explanation of relation between Work and Energy.</li> <li>➤ Discussion with children about the different forms of Energy, with examples.</li> <li>➤ Demonstration of inter-conversion of Energy, examples from daily life</li> <li>➤ Demonstration of the conservation of Energy</li> <li>➤ Providing examples of different applications of conservation of energy (Roller coaster, production of hydroelectricity etc.) and encouraging children to carefully make energy conversion diagrams and deduce that energy is conserved.</li> </ul>	<ul style="list-style-type: none"> <li>➤ A simple pendulum.</li> <li>➤ Charts showing different forms of energy.</li> <li>➤ Video/s showing interconversion of different forms of energy.</li> </ul>

**Integration:** Chemistry, Biology, Technology in daily life.

**Life Skills:** Cooperation and working together, problem-solving.



## Theme 4: Light Energy

Light travels in a straight line. Light from an object can move through space and reach the human eye which enables one to see this page, or a face in a mirror. This process is known as reflection. It obeys a law known as law of reflection. Light travels in air at a constant speed of  $3 \times 10^8$  m/s or 3 lakh kilometre per second. In other mediums, like glass or water, it slows down. Light from sun is composed of seven colours. The colours of objects fascinates everybody, Physicists have found that all colours can be explained as addition of three primary colours. The primary colours are red, green and blue. Colours that is seen on a TV or computer screen arise due to combination of these primary colours. Appearance of colour of an object is due to process of absorption and reflection of different colours by the object.

### Learning outcomes:

Children will be able to:

- ☑ explain the phenomenon of reflection;
- ☑ define the terms, plane, normal to the plane, point of incidence, angle of incidence and angle of reflection;
- ☑ state the law of reflection;
- ☑ describe reflection of light from a plane mirror;
- ☑ use law of reflection to show formation of image by a plane mirror;
- ☑ describe the characteristics of image formed by a plane mirror;
- ☑ state the value of speed of light;
- ☑ state primary colours;
- ☑ describe formation of secondary colours by addition of primary colours;
- ☑ explain the observed colour of an object based on reflection and absorption of light of different colours from the object.

<b>Light Energy</b>		
<b>Key Concepts</b>	<b>Suggested Transactional Processes</b>	<b>Suggested Learning resources</b>
<ul style="list-style-type: none"> <li>➤ Reflection:                             <ul style="list-style-type: none"> <li>☛ Definition and Examples.</li> <li>☛ Terms related to reflection - normal, plane, point of incidence, angle of incidence, angle of reflection.</li> </ul> </li> <li>➤ Laws of Reflection.</li> <li>➤ Plane mirror:                             <ul style="list-style-type: none"> <li>☛ Uses.</li> <li>☛ Ray Diagram (no mention of virtual image). Characteristics of the image formed (Lateral Inversion, same size, distance is preserved).</li> </ul> </li> <li>➤ Speed of light (<math>3 \times 10^8</math> m/s).</li> <li>➤ Primary colours (RGB).</li> <li>➤ Formation of secondary colours by colour addition.</li> <li>➤ Appearance of colour of an object (based on reflection and absorption)</li> <li>➤ Colour subtraction.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Demonstrating on plane mirror and reflection of light. Explaining the point of incidence, normal, angle of incidence and angle of reflection.</li> <li>➤ Engaging children in activities to show reflection of light.</li> <li>➤ Helping children to draw a diagram to show a reflection by mirror.</li> <li>➤ Demonstrating primary colours and formation of secondary colours using primary colours and asking children to do the same in pairs/groups.</li> <li>➤ Explaining the colour of an object based on absorption and reflection.</li> <li>➤ Showing children a video on primary colours and mixing of primary colours and then discussing the same with them.</li> <li>➤ Explaining to children how rainbow is formed.</li> </ul>	<ul style="list-style-type: none"> <li>➤ A plane mirror.</li> <li>➤ Reflecting surfaces.</li> <li>➤ A laser pencil pointer.</li> <li>➤ Pencil, scale, eraser, marker.</li> <li>➤ White paper sheet.</li> <li>➤ A set of primary colours.</li> <li>➤ A set of colour filters.</li> <li>➤ A source of white light.</li> <li>➤ Interactive video on primary colours and mixing of primary colours.</li> <li>➤ Picture/ video on rainbow.</li> </ul>

**Integration:** Art, Mathematics, Technology in daily life.

**Life Skills:** Cooperation and working together, problem-solving.

## Theme 5: Heat

Heat is a form of energy. Sunlight carries heat that gives warmth when exposed to it. When water is heated, its energy in the form of heat increases and becomes hot. When heat energy of an object increases, it can result in (i) change of temperature, (ii) change in size and/or (iii) change in state of an object. Some materials like aluminium are good conductors of heat and some, like wood are bad conductors of heat. Heat from a hot object is transferred to a cold object in three different ways- conduction, convection and radiation. Previous learning included topics on temperature and its measurement in degree Celsius. Further, two other frequently used temperature scales, Fahrenheit scale and Kelvin scale have been introduced in this theme for a better understanding of concepts related to temperature.

### Learning outcomes:

Children will be able to:

- ☑ define heat as energy;
- ☑ define units of heat;
- ☑ describe temperature scales: degree Celsius, Fahrenheit and Kelvin;
- ☑ describe different effects of heat;
- ☑ explain different modes of heat transfer;
- ☑ decide about conductor and insulator of heat in different applications;
- ☑ describe construction and working of thermos flask.

<b>Heat</b>		
<b>Key Concepts</b>	<b>Suggested Transactional Processes</b>	<b>Suggested Learning resources</b>
<ul style="list-style-type: none"> <li>➤ Heat as a form of energy and its units, joule(J) and calorie (cal).</li> <li>➤ Different units of Temperature (°C, °F, K).</li> <li>➤ Effects of Heat:                             <ul style="list-style-type: none"> <li>☛ Change in Temperature.</li> <li>☛ Change in Size (Expansion and contraction).</li> <li>☛ Change in State.</li> <li>☛ Good Conductors and Bad Conductors of Heat and their examples.</li> <li>☛ Choice of conductors and insulators in day to day life (Pan handles, metal cooking utensils etc.)</li> </ul> </li> <li>➤ Methods of Heat Transfer:                             <ul style="list-style-type: none"> <li>☛ Conduction</li> <li>☛ Convection</li> <li>☛ Radiation</li> </ul> </li> <li>➤ Thermos Flask: (Application of Heat Transfer)                             <ul style="list-style-type: none"> <li>☛ Construction</li> <li>☛ Working</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Demonstration and explanation of use of Thermometers marked in F.</li> <li>➤ Engaging children in activity to measure temperature of water in F.</li> <li>➤ Demonstration of heat transfer through different modes, conduction, convection and radiation.</li> <li>➤ Children have to deduce where conduction, convection and radiation is taking place in some real world applications.</li> <li>➤ Children use thermocol and other materials to make a cooling pack (emphasizing on the process of heat transfer).</li> <li>➤ Explanation of the construction and working of a thermos flask.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Thermometer graduated in °C and °F.</li> <li>➤ Water in beaker.</li> <li>➤ A tripod with mesh screen.</li> <li>➤ A burner for heating.</li> <li>➤ A set up to show heat transfer by conduction.</li> <li>➤ A round flask.</li> <li>➤ Potassium Permanganate Crystals.</li> <li>➤ Test tube.</li> <li>➤ Test tube holder.</li> <li>➤ Thermos flask.</li> </ul>



**Integration:** Geography, Biology, Technology in daily life.

**Life Skills:** Cooperation and working together, problem-solving.

## Theme 6: Sound

Sound is produced by the vibration of objects and different types of instruments are used to produce sound. In humans, sound is produced by the voice box or larynx. Sound needs a medium to propagate hence in vacuum it is not possible to hear one another. Sound wave is a longitudinal wave. A wave is characterised by an amplitude and a frequency. Like light, sound is also reflected from a surface. Sound is also absorbed by a medium. Therefore, walls of a theatre are lined with layers of materials that absorb sound. Sound travels with different speeds in different mediums and travels fastest in solids. This theme will enable children to know and understand 'Sound', different sources of sound and how it travels.

### Learning outcomes:

Children will be able to:

- ☑ identify different sources of sound;
- ☑ describe sound as a longitudinal wave;
- ☑ define amplitude and frequency of sound;
- ☑ demonstrate that sound requires a medium to transmit;
- ☑ list examples of reflection and absorption of sound;
- ☑ analyse the relative speed of Sound in different mediums;
- ☑ design a sound-proof box.

Sound		
Key Concepts	Suggested Transactional Processes	Suggested Learning resources
<ul style="list-style-type: none"> <li>➤ Sources of sound.</li> <li>➤ Sound as a longitudinal wave.</li> <li>➤ Characteristics of a sound wave: Amplitude (Relate amplitude with loudness) and Frequency.</li> <li>➤ Sound needs a medium to propagate.</li> <li>➤ Reflection and Absorption of sound.</li> <li>➤ Relative speed of sound in different mediums.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Demonstration of production of sound using simple objects within the classroom followed by discussion</li> <li>➤ Children place their hand on their throats and when they speak they feel vibration.</li> <li>➤ Explanation of the characteristics of sound.</li> <li>➤ Demonstration that sound needs a medium to propagate.</li> <li>➤ Engaging children in design of an activity to show that sound need a medium to propagate, using two mobiles and a tumbler.</li> <li>➤ Demonstration of reflection of sound</li> <li>➤ Demonstration of absorption of sound</li> <li>➤ Explanation of relative speed of sound in solid, liquid and gas.</li> <li>➤ Design of sound proof box.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Different sources of sound.</li> <li>➤ A setup to show that sound need a medium to propagate.</li> <li>➤ Materials for reflecting sound.</li> <li>➤ Materials for absorbing sound.</li> <li>➤ Videos on sound, sources, need of a medium, characteristic, reflection, absorption.</li> </ul>

**Life Skills:** Cooperation and working together, Problem solving, Critical thinking.

**Integration:** Music, Mathematics, Technology in daily life.

## Theme 7: Electricity and Magnetism

The basic law of electromagnetism states that "Like poles of magnets repel one another and unlike poles attract". When an electric current is passed through a coil, the coil behaves like a magnet. This magnet is called an electromagnet. The strength of this magnet is increased by inserting a core of suitable material. Many objects around us, like electric bell, electric motor, loudspeaker, etc. have electromagnets in them. A cell is a source of electricity and are used in torches, watches, calculators, etc. When connected to a device like bulb, it sends current through the bulb and the bulb lights up. Flow of charges constitute current. Materials that allow current to flow through them are called conductors whereas materials that do not allow passage of current through them are called insulators. Children will learn how electric components are arranged in simple series and simple parallel arrangements.

### Learning outcomes:

Children will be able to:

- ✓ state the Law of Magnetism;
- ✓ describe test for a magnet;
- ✓ explain the phenomenon of electromagnetism;
- ✓ describe an electromagnet and its uses;
- ✓ explain construction and working of an electric bell;
- ✓ relate current to flow of charge;
- ✓ recognize electric cell as a source of electricity;
- ✓ define resistors as the component that opposes the flow of current;
- ✓ represent different components like cell, battery, key, bulb, connecting wire, resistor by standard symbols;
- ✓ make simple series circuits and simple parallel circuits;
- ✓ recognize battery as series combination of cells;
- ✓ define conductors and insulators of electricity.

### Electricity and Magnetism

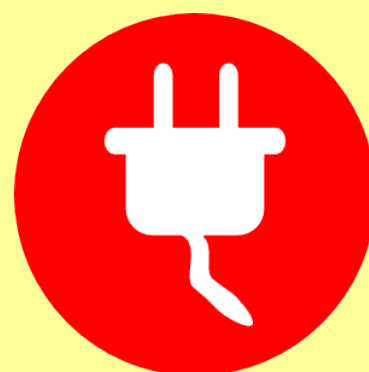
Key Concepts	Suggested Transactional Processes	Suggested Learning resources
<ul style="list-style-type: none"> <li>➤ Law of Magnetism</li> <li>➤ Test for a magnet (by repulsion)</li> <li>➤ Electromagnetism, Electromagnets and their applications- Electric bell</li> <li>➤ Electric current as a flow of charges</li> <li>➤ Electric cell as source of electricity</li> <li>➤ Resistors as components that oppose the flow of current.</li> <li>➤ Symbolic representation of electrical components (key,</li> </ul>	<ul style="list-style-type: none"> <li>➤ Revisiting previous concepts.</li> <li>➤ Building on children's previous learning.</li> <li>➤ Demonstrating and explaining the law of electromagnetism.</li> <li>➤ Demonstrating simple electromagnets.</li> <li>➤ Engaging children to demonstrate electromagnets.</li> <li>➤ Description of use of electromagnets.</li> <li>➤ Demonstrating the construction and working of electric bells.</li> <li>➤ Demonstrating electric cell and explanation of its working.</li> <li>➤ Familiarizing children with symbols for electric components.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Two bar magnets</li> <li>➤ Laboratory stand</li> <li>➤ Thread and hook for magnet</li> <li>➤ An iron nail</li> <li>➤ A cell</li> <li>➤ A coil of wires</li> <li>➤ A compass</li> <li>➤ Core for electromagnet</li> <li>➤ Dry cell</li> <li>➤ Key</li> <li>➤ Connecting wires</li> <li>➤ Three bulb</li> <li>➤ Banana clips</li> </ul>

## Electricity and Magnetism

Key Concepts	Suggested Transactional Processes	Suggested Learning resources
battery, bulb, conducting wire, resistor) ➤ Simple electric circuit- Series and Parallel ➤ Battery as a collection of cells connected in series. ➤ Good and Bad conductors of electricity	➤ Explaining the role of key in electric circuits. ➤ Explaining the precautions to be taken before an electric circuit is switched-on. ➤ Engaging children in making simple electric circuits. ➤ Engaging children in practical tasks involving Series and Parallel combinations. ➤ Engaging children in design of activity to test whether a given object is good or bad conductor of electricity. ➤ Showing video on earth's magnetic declination from the true north.	➤ Video showing electromagnets and electric bells ➤ Video showing series and parallel circuits ➤ Video on earth's magnetic declination

**Integration:** Chemistry, Geography, Technology in daily life.

**Life Skills:** Problem-solving, Critical thinking, Cooperation and working together.



## Theme 1: Matter

Building on previous learning in Classes VI and VII, in this class the theme aims at introducing children to the Kinetic Theory which will help them in understanding the difference in the three states of Matter. The theory states that all matter is made of tiny particles which in an object are always in motion that may move slow or fast. In solids, the particles have less energy hence do not move around freely. In liquids, they have relatively more energy and move about freely within the container. The particles of gases have much more energy and move freely at high speeds. The increase or decrease in the movement of energy is the result of heating or cooling of an object. Heating an object increases the energy of particles whereas cooling decreases the energy of particles of an object.

### Learning outcomes:

Children will be able to:

- ☑ distinguish the three states of matter in terms of movement of particles;
- ☑ relate the three states of matter with energy of movement of particles in them;
- ☑ describe the change of state using Kinetic theory:
  - ☛ Boiling
  - ☛ Vaporization
  - ☛ Melting
  - ☛ Fusion
  - ☛ Evaporation
  - ☛ Condensation
  - ☛ Sublimation
  - ☛ Deposition
  - ☛ Freezing
- ☑ identify appropriate observable parameters in experiments;
- ☑ collect data and make careful observation;
- ☑ present the results in the form of tables;
- ☑ consider results using scientific knowledge and communicate these.

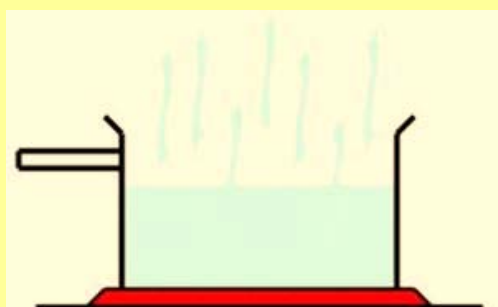
Matter		
Key Concepts	Suggested Transactional Processes	Suggested Learning resources
Kinetic Theory of Matter. ▷ Three states of matter in terms of movement of particles. ▷ Energy content in the three states of matter. ▷ Change of state in matter using the Kinetic theory: <ul style="list-style-type: none"> <li>☛ Boiling</li> <li>☛ Vaporization</li> <li>☛ Melting</li> <li>☛ Fusion</li> <li>☛ Evaporation</li> </ul>	▷ Revising previous concepts learnt by children. ▷ Building on children's previous learning. ▷ Demonstrating matter in three states. ▷ Demonstrating change of state, solid to liquid, liquid to gas, etc. ▷ Demonstrating the phenomenon of melting and boiling. ▷ Engaging children in undertaking activities related to melting and boiling, condensation and freezing and	▷ Samples of three states of matter ▷ A beaker ▷ Tripod stand with mesh ▷ Burner ▷ Thermometer ▷ Laboratory stand ▷ Naphthalene balls ▷ Videos on states of matter and change of state

## Matter

Key Concepts	Suggested Transactional Processes	Suggested Learning resources
<ul style="list-style-type: none"> <li>☛ Condensation</li> <li>☛ Sublimation</li> <li>☛ Deposition</li> <li>☛ Freezing</li> <li>➤ Change of state diagrams (using the terms mentioned above).</li> </ul>	<p>making observations followed by discussion.</p> <ul style="list-style-type: none"> <li>➤ Engaging children (individually /in groups) to observe change of state; solid to liquid, liquid to gas and record what is observed.</li> <li>➤ Explaining different terms, such as, boiling, melting, freezing, condensation, sublimation, etc. with examples from daily life.</li> <li>➤ Observation of above mentioned phenomena in possible classroom situations (using different samples)</li> <li>➤ Children observing solids and liquid (Compare and contrast the physical characteristics).</li> <li>➤ Encouraging children to prepare a comparison table of different states based on (shape, texture and volume).</li> <li>➤ Asking children to describe the interconversion of states using examples like water, naphthalene balls etc. and additional examples of all types of change of state.</li> <li>➤ Engaging children in pairs or in small groups in investigation of the related change of state due to addition of energy (heating) or cooling due to a substance.</li> <li>➤ Engaging children (individually/ in groups/in pairs) in the design of activities to show that melting or boiling occurs at a fixed temperature for a substance.</li> </ul>	

**Integration:** Chemistry, Geography, Technology in daily life.

**Life Skills:** Cooperation and working together, Problem-solving.





## Theme 2: Physical Quantities and Measurement

Previous learning demonstrated the measurement of the density of regular solids. In this class children will develop the ability to measure the, density of an irregular solid and also of a given liquid. They will also understand that due to the difference in the value of densities of a solid and liquid, a piece of solid can float or sink in a liquid.

### Learning outcomes:

Children will be able to:

- ✓ measure density of an irregular solids;
- ✓ measure density of a liquid;
- ✓ discuss the concept of floatation based on relative densities of solid and liquid;
- ✓ express result of measurement in proper unit with proper symbol;
- ✓ solve simple numerical problems based on formula of density;
- ✓ compare densities of matter in three states, solid, liquid and gas;
- ✓ make careful observations including measurements;
- ✓ gather data using formal units;
- ✓ make conclusions from collected data;
- ✓ make predictions using scientific knowledge and effectively communicating the same.

### Physical Quantities and Measurement

Key Concepts	Suggested Transactional Processes	Suggested Learning resources
<ul style="list-style-type: none"> <li>➤ Measurement of Density of irregular solids using:                             <ul style="list-style-type: none"> <li>➤ Eureka Can</li> <li>➤ Measuring Cylinder</li> </ul> </li> <li>➤ Measurement of Density of Fluids:                             <ul style="list-style-type: none"> <li>➤ Basic Concept</li> <li>➤ Concept of Floatation and sinking of a substance (relate to density)</li> <li>➤ Comparison of densities in the three states of matter.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Revising previous concepts learnt by children.</li> <li>➤ Building on children's previous learning.</li> <li>➤ Demonstrating the process of measurement of density of an irregular solid.</li> <li>➤ Demonstrating the process of measurement of density of a liquid</li> <li>➤ Engaging children in practical tasks involving measurement of density of an irregular solid and a liquid</li> <li>➤ Engaging children (in groups/pairs/individually) in an investigation to find out which object floats in which liquid, given solids of different densities and liquids of different densities. This is to be followed by discussion.</li> <li>➤ Guiding children to predict the result of the previous investigation and comparing predictions with the outcomes.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Graduated cylinder</li> <li>➤ Eureka can</li> <li>➤ Graduated beaker</li> <li>➤ Water</li> <li>➤ Objects of different densities</li> <li>➤ Liquids of different densities</li> <li>➤ Balance to measure mass</li> <li>➤ Objects of irregular shapes</li> <li>➤ Video on volume measuring devices</li> <li>➤ Video on determination of density of solid and liquid</li> </ul>

**Life Skills:** Cooperation and working together, Problem-solving.

**Integration:** Chemistry, Technology in daily life.

## Theme 3: Force and Pressure

A force is a push or pull upon an object resulting from the object's interaction with another object. Turning effect of a force is more if the distance between the point of application of force and the pivot is more. It is given a special name, Moment of force. Pressure is defined as force per unit area. Solids, liquids and gases, all exert pressure. Atmosphere also exerts pressure.

### Learning outcomes:

Children will be able to:

- ☑ explain the turning effect of a force, with examples from daily life;
- ☑ define moment of force;
- ☑ express moment of force in proper units;
- ☑ solve simple numerical problems based on moment of force;
- ☑ define pressure;
- ☑ express pressure in proper units;
- ☑ solve simple numerical problems based on formula for pressure;
- ☑ describe pressure exerted by a liquid;
- ☑ demonstrate that liquids exert pressure;
- ☑ describe pressure exerted by a gas;
- ☑ describe atmospheric pressure;
- ☑ express thoughts that reveal originality, speculation, imagination, a personal perspective, flexibility in thinking, invention or creativity;
- ☑ present ideas clearly and in logical order.

### Force and Pressure

Key Concepts	Suggested Transactional Processes	Suggested Learning resources
<ul style="list-style-type: none"> <li>➤ Turning effect of force (moment of force): concept, definition and calculation</li> <li>➤ Pressure:                             <ul style="list-style-type: none"> <li>☛ Definition</li> <li>☛ Unit</li> <li>☛ Calculation of pressure in simple cases</li> <li>☛ Pressure exerted by liquids (Qualitative only).</li> <li>☛ Pressure exerted by gases- Atmospheric pressure (Qualitative only).</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Revising previous concepts learnt by children.</li> <li>➤ Building on children's previous learning.</li> <li>➤ Demonstration of turning effect of force.</li> <li>➤ Explanation of turning effect and factors on which it depends.</li> <li>➤ Engaging children in task for calculation of turning effect.</li> <li>➤ Demonstration of pressure exerted by a force on an object.</li> <li>➤ Explanation: pressure depend on the area of surface on which the force acts.</li> <li>➤ Demonstration of pressure exerted by a liquid.</li> <li>➤ Demonstration of pressure exerted by a gas.</li> <li>➤ Explanation of pressure exerted by atmosphere.</li> </ul>	<ul style="list-style-type: none"> <li>➤ A nut fixed in an object</li> <li>➤ Spanner</li> <li>➤ Doors of classroom</li> <li>➤ Nails</li> <li>➤ Hammer</li> <li>➤ Transparent glass tube or plastic pipe</li> <li>➤ Rubber balloon</li> <li>➤ Strong thread</li> <li>➤ Water</li> <li>➤ A plastic bottle with a hole bear the bottom</li> <li>➤ Rubber sucker</li> </ul>

## Force and Pressure

Key Concepts	Suggested Transactional Processes	Suggested Learning resources
	<ul style="list-style-type: none"><li>➤ Engaging children in tasks to show that:<ul style="list-style-type: none"><li>(i) pressure depends on area</li><li>(ii) liquids exert pressure</li><li>(iii) gases exert pressure.</li></ul></li><li>➤ Observation/Experimentation/Analysis</li><li>➤ Student led experiments (reasoning to be given by children individually) Investigate the effect on pressure when walking on flat shoes and pointed heels on our body support system. For e.g. Children reasoning as to- Why is it easier to hammer a sharp pin respective to a blunt pin?</li></ul>	

**Integration:** Geography, Technology in daily life.

**Life Skills:** Cooperation and working together, Problem-solving.

## Theme 4: Energy

Building on previous learning on Energy, the emphasis in this class is on the introduction of gravitational potential energy to children. Look at a swinging bob of a pendulum. When it is at its extreme position (the highest point of its motion), it has gravitational potential energy. When it reaches its mean position (lowest point), it has maximum speed and it has high kinetic energy. In this case, one form of energy changes into other, according to the law of conservation of energy. Energy is the ability to do work. Work is said to be done when a force acting on an object changes the position of the object. For the special case when the object changes its position along the direction of the force, work is given by the product of the force and distance moved by the object. But different persons may take different time to do the same work. Rate of doing work is called power. So energy and power are two different physical quantities, having different units. In many situations, the focus is on the power and not energy. For e.g. the power of a motor which works is paid for the electricity consumed, is actually paid for the energy consumed.

### Learning outcomes:

Children will be able to:

- ✓ define work;
- ✓ express work in proper unit;
- ✓ calculate work done in simple cases;
- ✓ define kinetic energy;
- ✓ express kinetic energy in proper units;
- ✓ solve simple problems based on kinetic energy;
- ✓ define potential energy;
- ✓ define gravitational potential energy;
- ✓ solve simple problems based on gravitational potential energy;
- ✓ describe energy transformation in daily life situation;
- ✓ distinguish between energy and power;
- ✓ can plan an experimental investigation or demonstration using Scientific processes;
- ✓ can identify /select on the basis of attributes.

<b>Energy</b>		
<b>Key Concepts</b>	<b>Suggested Transactional Processes</b>	<b>Suggested Learning resources</b>
<ul style="list-style-type: none"> <li>➤ Concept of Work</li> <li>➤ Unit of Work (Joule)</li> <li>➤ Calculation of Work done in simple cases</li> <li>➤ Kinetic Energy                             <ul style="list-style-type: none"> <li>➤ Basic Concept</li> </ul> </li> <li>➤ Potential Energy                             <ul style="list-style-type: none"> <li>➤ Basic Concept</li> <li>➤ Gravitational Potential Energy</li> </ul> </li> <li>➤ Calculation of kinetic and potential energies from a set of given data (Simple problems and assuming <math>g=10 \text{ m/s}^2</math>)</li> <li>➤ Energy transformation in common daily life situations</li> </ul>	<ul style="list-style-type: none"> <li>➤ Revising previous concepts learnt by children.</li> <li>➤ Building on children's previous learning.</li> <li>➤ Explaining concept of work done with examples from daily life.</li> <li>➤ Calculating work done in simple cases and expressing result in proper unit.</li> <li>➤ Explaining of kinetic energy and potential energy</li> <li>➤ Explaining of gravitational potential energy</li> <li>➤ Solving of problems on kinetic and potential energy</li> </ul>	<ul style="list-style-type: none"> <li>➤ Video on work done in simple cases from daily life.</li> <li>➤ A simple pendulum.</li> <li>➤ Video on Kinetic and potential energy.</li> <li>➤ Video on transformation of energy.</li> </ul>

<b>Energy</b>		
<b>Key Concepts</b>	<b>Suggested Transactional Processes</b>	<b>Suggested Learning resources</b>
<ul style="list-style-type: none"> <li>➤ Difference between Energy and power</li> </ul>	<ul style="list-style-type: none"> <li>➤ Demonstrating kinetic and potential energy using a simple pendulum</li> <li>➤ Engaging children in problem solving tasks on KE and PE</li> <li>➤ Explaining and discussing with children energy transformation in daily life situations / activities.</li> <li>➤ Explaining the difference between energy and power.</li> <li>➤ Citing examples of different applications of conservation of energy (roller coaster, production of hydroelectricity etc.) with children making energy conversion diagrams and deducing that energy is conserved.</li> </ul>	

**Integration:** Technology in daily life

**Life Skills:** Cooperation and working together, Problem solving

## Theme 5: Light Energy

An object lying at the bottom of a vessel filled with water usually appear to be at different depth than it actually is. This is due to bending of light rays when it travels from water to air. This phenomenon is called refraction. Light bends when it passes obliquely from one medium to the other. Due to refraction, a mirage is observed on a hot sandy desert. Atmosphere also refract the rays coming from the sun. This causes advanced sunrise and delayed sunset. Previous learning emphasized on reflection of light by a plane mirror. how images are formed by a curved (concave) mirror is now dwelt upon along with rules used to construct ray diagrams.

### Learning outcomes:

Children will be able to:

- ✓ define refraction;
- ✓ discuss examples of refraction;
- ✓ describe a spherical mirror;
- ✓ describe a concave and a convex mirror;
- ✓ define the terms, principal axis, centre and radius of curvature, focus and focal length for a spherical mirror;
- ✓ describe rules for making ray diagrams for spherical mirror;
- ✓ distinguish between real and virtual images;
- ✓ use a ray diagram to show formation of a real image by a spherical mirror;
- ✓ describe the characteristics of a real image formed by a spherical mirror;
- ✓ describe dispersion of white light by a prism into constituent colours;
- ✓ display a scientific attitude while making models;
- ✓ show a creative mind set while studying real world optical phenomena;
- ✓ communicate logical reasoning and explanations effectively using scientific terms.

<b>Light Energy</b>		
<b>Key Concepts</b>	<b>Suggested Transactional Processes</b>	<b>Suggested Learning resources</b>
<ul style="list-style-type: none"> <li>➤ Refraction:                             <ul style="list-style-type: none"> <li>➤ Definition</li> <li>➤ Examples of Refraction.</li> </ul> </li> <li>➤ Curved Mirrors:                             <ul style="list-style-type: none"> <li>➤ Convex</li> <li>➤ Concave</li> <li>➤ Reflecting surface (Convex and Concave)</li> <li>➤ Uses of Curved mirrors</li> <li>➤ Terms related to Curved mirrors –Focus, Principal Axis, centre of curvature, radius of curvature</li> <li>➤ Rules for making ray diagrams of Spherical mirrors.</li> <li>➤ Real and Virtual Images</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Revising and revisiting previous concepts learnt by children.</li> <li>➤ Building on children’s previous learning.</li> <li>➤ Demonstrating the phenomenon of refraction</li> <li>➤ Engaging children in pairs, individually or small groups in activities related to refraction.</li> <li>➤ Explaining refraction with suitable examples.</li> <li>➤ Demonstrating how concave and convex mirrors work.</li> <li>➤ Representing of concave and convex mirrors through diagrams</li> <li>➤ Explaining the terms i.e. Focus, principal axis, centre of curvature,</li> </ul>	<ul style="list-style-type: none"> <li>➤ A glass slab</li> <li>➤ A laser pencil</li> <li>➤ White sheet of paper</li> <li>➤ Drawing board</li> <li>➤ Drawing pins</li> <li>➤ Pencil</li> <li>➤ Scale</li> <li>➤ Eraser</li> <li>➤ A glass tumbler with water</li> <li>➤ Concave mirror</li> <li>➤ Convex mirror</li> <li>➤ Candle</li> <li>➤ Mirror stand</li> <li>➤ Candle stand</li> <li>➤ Match box</li> <li>➤ Screen with stand</li> <li>➤ A sharp pin with stand</li> <li>➤ A prism</li> </ul>

## Light Energy

Key Concepts	Suggested Transactional Processes	Suggested Learning resources
<ul style="list-style-type: none"><li>✦ Ray diagrams with curved mirrors where real images are formed.</li><li>➤ Dispersion of white light into constituent colours.</li></ul>	<p>radius of curvature with the help of diagrams to children.</p> <ul style="list-style-type: none"><li>➤ Engaging children in activities related to image formation by a concave mirror using ray diagram.</li><li>➤ Explaining real and virtual images.</li><li>➤ Demonstrating the dispersion of white light into component colours.</li></ul>	

**Integration:** Geography, Technology in daily life.

**Life Skills:** Cooperation and working together, Problem-solving.

## Theme 6: Heat Transfer

In both boiling and evaporation, matter changes from liquid to gas. But the two processes are quite different. When temperature of a matter increases, the particles of the matter gain energy and move with greater speed. In evaporation, the particles at the surface escape and form gas. Other particles, inside the liquid, do not have enough energy. So the process of evaporation occurs at the surface. It happens at all temperatures. In boiling, all particles of the liquid are at the same temperature and are involved in the process. It happens in the whole volume of the liquid and it happens at a fixed temperature, particular to a liquid. But before change of states takes place due to supply of heat, there is another effect which is commonly observed. That is the expansion of matter. Matters in all form, except some exceptions, expand on heating. In solids, the effect is less, in liquids more, and in gases maximum. Classification of expansion into three types- linear, superficial and volume are explained with examples from daily life.

### Learning outcomes:

Children will be able to:

- ☑ compare and contrast Boiling and Evaporation;
- ☑ describe thermal expansion of matter;
- ☑ describe, linear, area(superficial) and volume expansion;
- ☑ compare expansivity in Solids, Liquids and Gases;
- ☑ construct models based on scientific process;
- ☑ observe and cite multiple physical phenomena from one experiment.

<b>Heat Transfer</b>		
<b>Key Concepts</b>	<b>Suggested Transactional Processes</b>	<b>Suggested Learning resources</b>
<ul style="list-style-type: none"> <li>➤ Difference between Boiling and Evaporation.</li> <li>➤ Thermal Expansion:                             <ul style="list-style-type: none"> <li>➤ Linear Expansion</li> <li>➤ Volume Expansion</li> <li>➤ Superficial Expansion</li> <li>➤ Compare expansivity in Solids, Liquids and Gases.</li> <li>➤ Examples and real-world applications.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Revising and revisiting previous concepts learnt by children.</li> <li>➤ Building on children's previous learning.</li> <li>➤ Demonstrating points of boiling and evaporation.</li> <li>➤ Engaging children in tasks related to boiling and evaporation.</li> <li>➤ Explaining the difference in boiling and evaporation.</li> <li>➤ Demonstrating linear expansion, area expansion and volume expansion through simple experiments for children.</li> <li>➤ Explaining expansion with the help of examples from daily life activities.</li> </ul>	<ul style="list-style-type: none"> <li>➤ A flask</li> <li>➤ Tripod stand with mesh</li> <li>➤ Burner</li> <li>➤ Water</li> <li>➤ Experimental set up to show linear and area thermal expansions</li> <li>➤ Videos on thermal expansion</li> </ul>

**Integration:** Chemistry, Technology in daily life.

**Life Skills:** Problem-solving, Critical thinking.



## Theme 7: Sound

In the previous classes children were made aware of and enabled to understand that a sound wave is characterised by its frequency and amplitude. Parameters that focus on loudness and pitch and are commonly used to characterise sound produced by different sources were also highlighted. The loudness depends on the amplitude, hence when the amplitude of sound is large, sound is loud. Pitch is related to the frequency so when the frequency is high, the pitch is high or the sound is shrill. In this class the theme focusses on showing how sound produced by different musical instruments have different pitch and loudness.

### Learning outcomes:

Children will be able to:

- relate pitch and frequency;
- understand pitch and frequency in relation to working of musical instruments. (wind, membrane and string);
- explain mono tone;
- relate loudness and amplitude;
- state the unit of loudness in decibels.

Sound		
Key Concepts	Suggested Transactional Processes	Suggested Learning resources
<ul style="list-style-type: none"> <li>➤ Pitch and Frequency</li> <li>➤ Pitch and frequency in relation to working of musical instruments. (Wind, membrane and String)</li> <li>➤ Monotone</li> <li>➤ Loudness and amplitude</li> <li>➤ unit of loudness in decibels</li> </ul>	<ul style="list-style-type: none"> <li>➤ Revising and revisiting previous concepts learnt by children.</li> <li>➤ Building on children's previous learning</li> <li>➤ Explaining terms related to pitch and frequency.</li> <li>➤ Demonstrating the relation between pitch and frequency</li> <li>➤ Demonstrating of pitch and frequency of some common musical instruments</li> <li>➤ Demonstrating monotone sound</li> <li>➤ Demonstrating the relation between loudness and amplitude</li> <li>➤ Explaining units of loudness i.e. decibel.</li> <li>➤ Engaging children in tasks/ activities related to pitch, loudness, frequency and amplitude.</li> <li>➤ Engaging children in the design of musical toys.</li> </ul>	<ul style="list-style-type: none"> <li>➤ A rubber band</li> <li>➤ A metal tumbler filled with water</li> <li>➤ A pencil</li> <li>➤ Musical instruments</li> <li>➤ Video on Pitch and loudness of sound</li> <li>➤ Video on musical instruments</li> <li>➤ Tuning a guitar using a programme available on the internet</li> </ul>

**Integration:** Music, Technology in daily life.

**Life Skills:** Cooperation and working together, Problem solving

## Theme 8: Electricity

In this theme the aim is to develop the ability to estimate consumption of electricity by knowing the power rating of appliances used. Children will also be able to appreciate and understand the need and importance of taking certain precautions and use of safety devices to protect themselves and others against electrical hazards. Previous learning stressed on electricity due to charges in motion, i.e. current electricity. However, objects can be charged, where charges are static not in motion. This is known as static electricity. This leads to many phenomena in nature, like lightning and thunder during rainy season. How an object that is charged may be detected using a simple device known as an electroscope.

### Learning outcomes:

Children will be able to:

- ✓ describe household consumption of electricity;
- ✓ identify live wire, neutral wire and earth wire in terms of their energy and path they travel;
- ✓ describe safety components (fuses, circuit breakers);
- ✓ describe phenomenon of static electricity;
- ✓ explain conservation of charges;
- ✓ describe conduction and induction of charges;
- ✓ describe construction and working of an electroscope;
- ✓ describe a lightning conductor;
- ✓ identify dangers of electricity;
- ✓ conduct scientific experiments keeping in mind all the parameters;
- ✓ study the impact of energy consumption and draw conclusions from the same and suggest alternate approaches;
- ✓ learn the use of safety precautions while dealing with electrical appliances.

<b>Electricity</b>		
<b>Key Concepts</b>	<b>Suggested Transactional Processes</b>	<b>Suggested Learning resources</b>
<ul style="list-style-type: none"> <li>➤ Household consumption of electric energy (kilowatt hour)</li> <li>➤ Identify live wire, neutral wire and earth wire in terms of their energy and path they travel</li> <li>➤ Safety components (fuses/circuit breakers (Qualitative approach only)/ grounding)</li> <li>➤ Static Electricity                             <ul style="list-style-type: none"> <li>➤ Conservation of charges</li> <li>➤ Conduction</li> <li>➤ Induction</li> <li>➤ Electroscope (Gold Leaf Electroscope)</li> <li>➤ Lightning Conductor</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Revising and revisiting previous concepts learnt by children.</li> <li>➤ Building on children's previous learning</li> <li>➤ Calculating energy consumption using household electricity bills by children.</li> <li>➤ Helping children identify live, neutral and earth wires</li> <li>➤ Demonstrating safety components and their uses</li> <li>➤ Demonstrating static electricity</li> <li>➤ Demonstrating induction and conduction</li> <li>➤ Engaging children in activities related to static electricity</li> <li>➤ Demonstrating the construction and working of an electroscope</li> </ul>	<ul style="list-style-type: none"> <li>➤ Household appliances with rated power</li> <li>➤ Household electricity bill</li> <li>➤ Fuses and circuit breakers</li> <li>➤ Balloons</li> <li>➤ Threads, Laboratory stands</li> <li>➤ Video on electricity and safety measures</li> <li>➤ Interactive Video on static electricity</li> <li>➤ Interactive video on lighting conductor</li> </ul>

## Electricity

Key Concepts	Suggested Transactional Processes	Suggested Learning resources
<ul style="list-style-type: none"><li>▶ Battery as a collection of cells connected in series.</li><li>▶ Dangers of electricity</li></ul>	<ul style="list-style-type: none"><li>▶ Engaging children in design of a simple electroscope</li><li>▶ Demonstrating the functioning of a battery</li><li>▶ Explaining a lightning conductor and its use</li><li>▶ Explaining the dangers of electricity and the safety precautions required</li></ul>	

**Integration:** Geography, Technology in daily life.

**Life Skills:** Problem solving, Critical thinking.



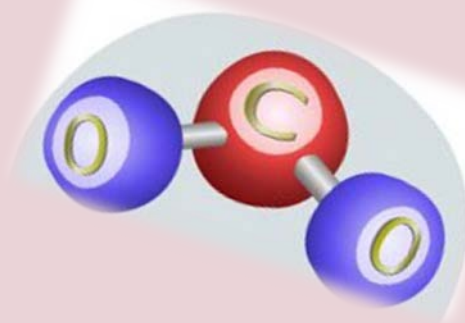
# Chemistry



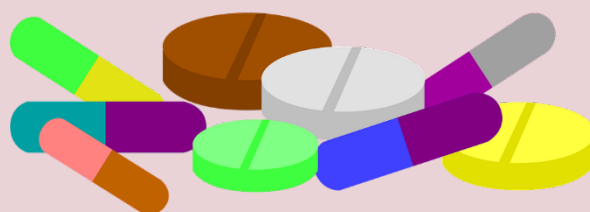
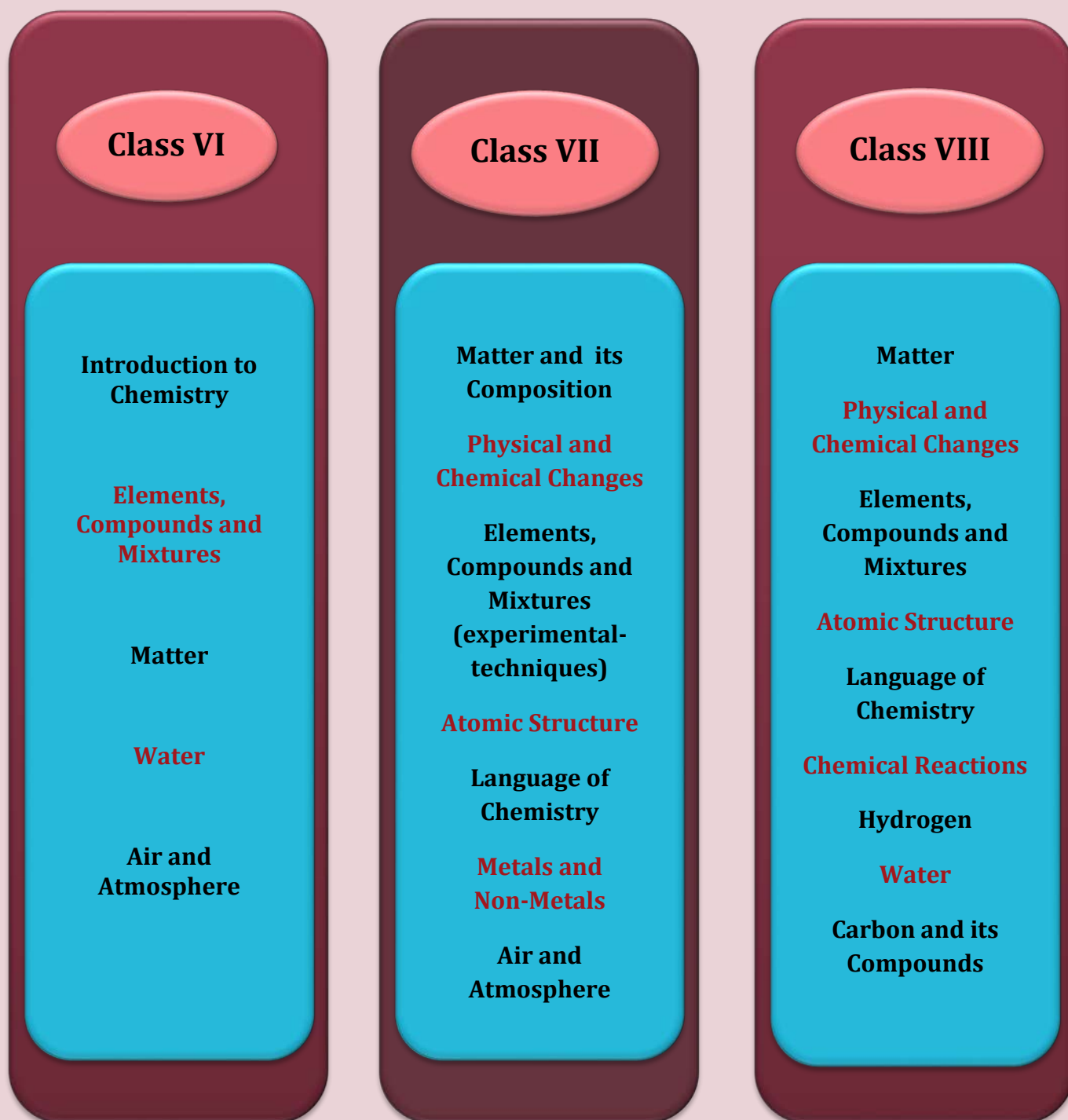
Chemistry is an important branch of Science which is related to the study of composition, structure, properties, reactions, synthesis and uses of different materials. Chemistry forms an integral part of general science at the primary level. However, due to a vast number of terms, facts, concepts, laws, theories, principles, processes and applications, it has been taken up as an independent subject from the upper primary level. Children at the primary level can recognise and recall tangible objects. However, at the upper primary level they start to establish cause-effect relationships, which forms an essential component of the study of the subject.

While teaching the subject at the upper primary level, the historical perspective of the development of Chemistry and the scope of career options should be highlighted to generate interest amongst children. Important applications of Chemistry in the area of health and hygiene, food, building materials and environment should be discussed to help children understand how Chemistry applies to various aspects of day to day life. Some activities to show different chemical changes or phenomena could be performed by children so that they can develop scientific skills such as, observation, measurement, analysis, interpretation, drawing conclusions, etc.

In the present scenario of the world, where technology has boosted our performance and our understanding of the world affairs, many are focussing their thoughts to the environmental issues. Chemists all around the world are looking into solutions for proper waste disposal, biodegradable products, fuel efficiency. Children too must be sensitised towards environmental concerns. Use of chemicals in the form of pesticides, insecticides, fertilisers and their effect on the environment must be highlighted in class.



**The Core concepts of Chemistry for Classes VI – VIII are as follows:**



## Theme 1: Introduction to Chemistry

Chemistry finds applications in day-to-day life as well as in industries. Chemicals from simple to complex, are used in food, medicines, cosmetics, textile industry, agriculture, cleansing agents, etc. This theme will help children understand applications of Chemistry in their lives.

### Learning Outcomes:

Children will be able to:

- ☑ discuss the importance of Chemistry in daily life and its role in different industries and life processes;
- ☑ list important applications of Chemistry in day to day life;
- ☑ list some industrial applications of Chemistry;
- ☑ discuss the bio-sketches of some great scientists and their works;
- ☑ appreciate the patience, perseverance, sacrifices and ethical conduct of scientists.

### Introduction to Chemistry

Key Concepts / Concerns	Pedagogy/ transactional strategies*	Suggested Learning Resources
<ul style="list-style-type: none"> <li>▶ Chemistry – meaning and importance.</li> <li>▶ Development of Chemistry- A historical perspective.</li> <li>▶ Notable chemists/</li> </ul>	<ul style="list-style-type: none"> <li>▶ Discussing with children and explaining the meaning and importance of Chemistry in day to day life.</li> <li>▶ Asking children to make a list of products used daily– pencil, rubber, paper, ink, shampoo, deodorants, perfumes, toothpaste, cosmetics. Discussing how Chemistry plays a role.</li> <li>▶ Discussing the development of Chemistry from the historical perspective with facts -when alchemists attempted to convert cheap metals to gold using philosopher stone, find a chemical that would enable people live longer etc. However, they could not succeed in their efforts to find such miraculous techniques. But they were successful to some extent in developing processes to extract metals and prepare alloys which proved of great use. Refer to the iron pillar near Qutab Minar.</li> <li>▶ Asking children to get photographs</li> </ul>	<ul style="list-style-type: none"> <li>▶ Children's own experiences.</li> <li>▶ Products used in daily life since the morning.</li> <li>▶ Visit to Qutab Minar</li> <li>▶ Visit to a Chemical plant/ industry under supervision.</li> <li>▶ Photographs of scientists.</li> <li>▶ Videos/PPTs.</li> </ul>

## Introduction to Chemistry

Key Concepts / Concerns	Pedagogy/ transactional strategies*	Suggested Learning Resources
<p>scientists and their contributions to Chemistry (at least 3 scientists).</p> <p>▶ Food and Chemistry.</p> <p>▶ Cosmetics and Chemistry.</p> <p>▶ Clothing and Chemistry.</p> <p>▶ Chemicals as Medicines.</p> <p>▶ Chemicals in Industries.</p>	<p>of great chemists such as Mendeleev, Lavoisier, Dalton and discussing their works in class.</p> <p>▶ Providing common examples of food preservatives, food processing. Common food products like salt, sugar, tea, milk, jams etc.</p> <p>▶ Discussing some common examples like the constituents of talcum powder (names only).</p> <p>▶ Discussing the journey from cotton to synthetic fabric such as terylene.</p> <p>▶ Giving examples of simple chemicals such as aspirin, paracetamol in medicines.</p> <p>▶ Giving examples of: cleansing agents (soaps and detergents), stain removals, etc.</p> <p>▶ Organizing a visit to chemical industry (dye, plastic, fertilizer, detergents and drugs.).</p> <p>▶ Advising children to note the number of starting materials used to create products and the final products that are formed.</p>	

**Integration:** Languages, Biology, Geography,





## Theme 2: Elements, Compounds and Mixtures

All materials / objects found around us are either in solid, liquid or gaseous form and occupy space and have mass. In science, the term matter is used for all these materials. Chemically, matter can be classified as element, compound and mixture. In nature, matter occurs mostly in the form of mixture. Importantly, substances are required in their pure form that is done by the separation of the components of a mixture by different techniques. The use of any particular separation technique depends upon the properties of the components of the mixture.

### Learning Outcomes:

Children will be able to:

- ☑ define elements as made up of identical atoms;
- ☑ classify elements as metals and non-metals on the basis of their properties;
- ☑ define compound and mixture and discuss the points of difference between the two;
- ☑ use symbols of elements and molecular formulae of the compounds to represent their names as short hand notations;
- ☑ separate different components of samples of some mixtures;
- ☑ discuss the reasons for opting for a particular technique for separation of components of the mixture.

### Elements, Compounds and Mixtures

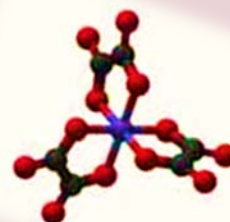
Key Concepts / Concerns	Pedagogy/ Transactional Strategies*	Suggested Learning Resources
<ul style="list-style-type: none"> <li>▶ Element (a substance made up of identical atoms).</li> <li>▶ Use of symbols as short hand notations of writing names of elements.</li> <li>▶ Origin of symbols of elements.</li> <li>▶ Names and symbols of first 20 elements.</li> <li>▶ Molecules of elements contain atoms of the same element (<math>O_2</math>, <math>N_2</math>, <math>H_2</math>).</li> <li>▶ Compound (two or more than two elements combine in fixed definite proportions to form a compound. Original properties of the constituent elements are</li> </ul>	<ul style="list-style-type: none"> <li>▶ Showing samples of iron powder, sulphur powder and zinc granules.</li> <li>▶ Taking examples of certain elements e.g. iron and discussing with children that it is made up of only one type of atoms i.e. iron atoms. Likewise, discussing other examples of elements also.</li> <li>▶ Introducing symbols and emphasising that every element has a symbol. Showing the periodic table and drawing children's attention towards the symbols of elements.</li> <li>▶ Explaining the basis on which symbols of the elements have been given and qualitative meaning of symbols which represent the name, with examples.</li> <li>▶ Using the molecular model kit to show the models of some atoms and molecules (<math>O_2</math>, <math>N_2</math>, <math>H_2</math>).</li> <li>▶ Discussing that the molecules of compounds are made up of atoms of different elements in a fixed proportion. Examples of <math>H_2O</math>, <math>CO_2</math>, <math>NO_2</math>, <math>CaO</math>, <math>ZnCl_2</math>, etc.</li> </ul>	<ul style="list-style-type: none"> <li>▶ Different samples of some metal and non-metals.</li> <li>▶ Literature related to language of Chemistry.</li> <li>▶ Periodic table of elements with names and symbols of elements.</li> <li>▶ Molecular model kit If molecular kit is not available, balls and sticks models can be used. Models of some compounds using the kit.</li> </ul>

## Elements, Compounds and Mixtures

Key Concepts / Concerns	Pedagogy/ Transactional Strategies*	Suggested Learning Resources
<p>lost and a substance with new properties is formed).</p> <ul style="list-style-type: none"> <li>☛ Molecules of compounds contain atoms of different elements. (H<sub>2</sub>O, CO<sub>2</sub>, NO<sub>2</sub>, CaO, ZnCl<sub>2</sub>).</li> </ul> <p>▶ Mixture (components of more than one substance combine in any proportion, original properties of the components are retained).</p> <p>▶ Difference between mixtures and compounds (on the basis of proportion of combination of components and their properties).</p> <p>▶ Separation techniques of mixtures into their components:</p> <ul style="list-style-type: none"> <li>☛ Sieving</li> <li>☛ Sedimentation</li> <li>☛ Decantation</li> <li>☛ Filtration</li> <li>☛ Evaporation</li> <li>☛ Magnetic Separation</li> <li>☛ Sublimation</li> </ul>	<p>▶ Taking examples of some mixtures such as solution of sugar, honey, milk and pointing out that the concentration of the components of the mixture can be different.</p> <p>▶ Differentiating between mixtures and compounds by taking examples to emphasise that in compounds, elements are combined in fixed proportion and properties of the compounds are quite different from those of the elements formed. Example of <math>C+O_2 \rightarrow CO_2</math></p> <p>▶ Discussing details of the activity of the formation of FeS by heating Fe and S.</p> <p>▶ Providing opportunities to children to perform simple activities:</p> <ul style="list-style-type: none"> <li>☛ Filtration – (sand and water)</li> <li>☛ Sedimentation (link to purification of water)</li> <li>☛ Decantation (Tea brewing)</li> <li>☛ Sublimation (Iodine crystals/ ammonium chloride, Naphthalene balls, Camphor).</li> <li>☛ Evaporation (Salt water)</li> <li>☛ Sieving (Rice powder/stones)</li> <li>☛ Magnetic separation (Iron and sulphur)</li> </ul> <p>▶ Discussing reasons for preferring a particular technique over another.</p>	<p>▶ Some samples of mixtures and compounds.</p> <p>▶ Iron powder, sulphur and iron sulphide to show different properties of iron sulphide. Iron gets attracted towards magnet, sulphur is yellow in colour and floats over water. But iron sulphide has altogether different properties.</p> <p>▶ Separation: filter paper, sieve, bar magnet, iodine, ammonium chloride, salt, tea leaves.</p>

**Integration:** Geography

**Skills:** Critical thinking, observation, systematic procedural development.



## Theme 3: Matter

This theme focuses on enabling children to understand that matter around exists in different physical forms. i.e. solids, liquids and gases. One form can be converted into another. Matter expands on heating and on cooling, it contracts. Besides the physical changes, matter can also undergo chemical changes on heating.

### Learning Outcomes:

Children will be able to:

- ☑ discuss the properties of solids, liquids and gases;
- ☑ classify the matter into solid, liquid and gas;
- ☑ discuss the inter-conversion of one state of matter into another;
- ☑ explain the effect of heat on matter showing change of state, expansion and chemical change.

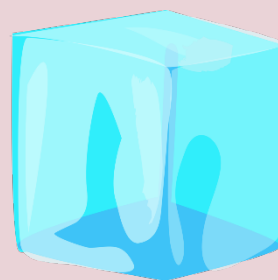
<b>Matter</b>		
<b>Key Concepts / Concerns</b>	<b>Pedagogy/ Transactional Strategies*</b>	<b>Suggested Learning Resources</b>
<p><b>States of Matter</b></p> <ul style="list-style-type: none"> <li>▶ Classification of matter into solid, liquid and gas on the basis of properties (shape, volume). Factors responsible for the existence of matter in different states.</li> <li>▶ Arrangement of atoms/ molecules in solids, liquids and gases: - intermolecular space, cohesive forces).</li> <li>▶ There is space between the particles of matter.</li> </ul>	<ul style="list-style-type: none"> <li>▶ Collecting samples of some solids, liquids and gases and asking children to group them on the basis of their properties. Listing the properties on the basis of which children have done classification. From children's responses, concluding that volume and shape of the samples are the basic properties for their classification.</li> <li>▶ Discussing these properties with reference to solids, liquids and gases in detail. (Egg in a bottle – Egg can be kicked out by blowing air inside the bottle)</li> <li>▶ Demonstrating and then carrying out activities with children of inter conversion of solid (ice), liquid (water) and gas (vapour): children should arrive at the conclusion that solids have definite volume and shape, liquids have definite volume but no definite shape while gases have neither definite volume nor definite shape; use of a knife to cut a solid and a liquid (Apple, Milk).</li> <li>▶ Discussing and explaining reasons for the difference in properties of the three states of matter is intermolecular forces, cohesive forces and Brownian movement among particles constituting matter.</li> <li>▶ Smaller particles occupy spaces</li> </ul>	<ul style="list-style-type: none"> <li>▶ Different samples of solid, liquid, gases.</li> <li>▶ Solid – wood, common salt, pen, pencil.</li> <li>▶ Liquid – water, milk.</li> <li>▶ Gas – balloons.</li> <li>▶ Water and burner.</li> <li>▶ Sugar, pebbles, beaker, burner.</li> <li>▶ Ball and ring apparatus.</li> <li>▶ Test tube, cork, capillary tube, burner.</li> <li>▶ Apple, milk in a container.</li> </ul>

## Matter

Key Concepts / Concerns	Pedagogy/ Transactional Strategies*	Suggested Learning Resources
<ul style="list-style-type: none"> <li>▶ Effect of heat on matter (expansion, change of state and chemical change)</li> </ul>	<p>between the bigger particles.</p> <ul style="list-style-type: none"> <li>▶ Carrying out activities such as: -                             <ul style="list-style-type: none"> <li>▶ Adding sugar to pebbles taken in a plastic beaker.</li> <li>▶ Adding sand to glass balls. Sugar and sand go into the space between the pebbles and glass balls respectively. (Intermolecular spaces are occupied).</li> </ul> </li> <li>▶ Carrying out activities relating to: expansion of matter on heating, evaporation and condensation, freezing and sublimation.</li> <li>▶ For solid- activity using ball and ring apparatus.</li> <li>▶ For liquid- heating water filled in a test tube up to its brim. Mouth of the test tube is fitted with a cork with a capillary at the centre of the cork. On heating, water rises into the capillary.</li> <li>▶ For gas- The mouth of an empty test tube is fitted with a cork having a capillary at its centre. Pouring some coloured water into the capillary. On heating the tube, water rises in the capillary.</li> <li>▶ Change of state- changing of ice to water to steam and reverse can be shown/ recalled.</li> <li>▶ Chemical change – Burning of candle.</li> </ul>	

**Integration:** Physics, Languages

**Life skills:** Cooperation and working together, creative thinking, decision making, conclusion drawing.



## Theme 4: Water

The theme focuses on enabling children to understand that water is essential for sustenance of life. It is considered as a universal solvent due to its capacity to dissolve a large number of compounds in it. They will also appreciate that water is becoming scarce day by day and therefore it is important to use it judiciously, conserve it and keep our water resources clean.

### Learning Outcomes:

Children will be able to:

- ☑ define 'solute', 'solvent' and 'solution';
- ☑ infer that solution is a homogeneous mixture of solute and solvent;
- ☑ discuss different examples of solutions;
- ☑ state reasons for pollution of water resources and suggest ways to conserve water.

### Water

Key Concepts / Concerns	Pedagogy/ Transactional Strategies*	Suggested Learning Resources
<ul style="list-style-type: none"> <li>▶ Importance of water in everyday life (household purpose, industry, watering plants, etc.).</li> <li>▶ Water resources (well, river, hand pump, lakes, pond, etc.).</li> <li>▶ Capacity to dissolve many salts in it.</li> <li>▶ Definition of Solute, Solvent and Solution.</li> <li>▶ Importance of water for sustenance of life on earth.</li> <li>▶ Reasons for water pollution; its prevention; conservation of water.</li> </ul>	<ul style="list-style-type: none"> <li>▶ Asking children to list out their activities since morning in which water has been used.</li> <li>▶ Giving group work/activity to children to conduct a survey of the water resources in their neighbourhood/ town/ city.</li> <li>▶ Conducting an activity in front of the whole class/in groups to show the dissolution of salts like sodium chloride, sodium carbonate, sodium sulphate etc. e.g. sea water has many salts dissolved in it.</li> <li>▶ Encouraging children to derive definitions from the following activities:                             <ul style="list-style-type: none"> <li>☛ Preparing a solution of copper sulphate in which copper sulphate is solute and water is solvent.</li> <li>☛ Taking common examples from daily life to identify solute, solvent and solution. Explaining that the component present in larger quantity in the solution is the solvent.</li> </ul> </li> <li>▶ Initiating a class discussion/debate on the importance of water for sustenance of life, its scarcity, pollution, etc.</li> <li>▶ Assigning every child Project work on conducting a water audit at their homes</li> </ul>	<ul style="list-style-type: none"> <li>▶ Sodium chloride, sodium carbonate, sodium sulphate etc.</li> <li>▶ Copper sulphate, water, beaker, glass rod.</li> <li>▶ Survey.</li> <li>▶ Audio-videos/Films.</li> <li>▶ Projects.</li> <li>▶ Visit to Eco park</li> </ul>

# Water

Key Concepts / Concerns	Pedagogy/ Transactional Strategies*	Suggested Learning Resources
	<p>by: Preparing a table of the amount of water used (approximate) for different purpose at home; drinking, bathing, washing, toilets, cleaning floors, car washing, etc. per day. After the audit is complete discussing in class and identifying ways to reduce water consumption at home.</p> <p>➤ Showing films/audio-videos on aspects related to water pollution and initiating brainstorming to create awareness amongst children towards conservation of water, rain water harvesting, prevention of water pollution.</p>	

**Integration:** Geography, Languages

**Life skills:** cooperation and working together, concern for others, environmental awareness, problem solving



## Theme 5: Air and Atmosphere

This theme will enable children to know about the atmosphere around us and what air consists of and its importance. Air which is a mixture of different gases such as nitrogen, oxygen, helium, carbon dioxide, argon, moisture. Air is essential for sustenance of life on earth. They will also appreciate the need to keep air clean and that they should take the responsibility of making it free of pollutants.

### Learning Outcomes:

Children will be able to:

- ☑ describe different components of air and their composition;
- ☑ state the importance of air for sustenance of life and for other physical and chemical processes;
- ☑ describe the uses of oxygen and nitrogen;
- ☑ discuss the causes of increase of carbon dioxide into the atmosphere.

### Air and Atmosphere

Key Concepts / Concerns	Pedagogy/ Transactional Strategies*	Suggested Learning Resources
<ul style="list-style-type: none"> <li>▶ Air is present everywhere around us.</li> <li>▶ Air - a mixture of gases namely, nitrogen, oxygen, carbon dioxide, water vapour; dust and smoke as pollutants.</li> <li>▶ Percentage composition of air.</li> <li>▶ Uses of the components present (importance of nitrogen to plants to be mentioned).</li> <li>▶ Definition of atmosphere as layer of air around the earth.</li> </ul>	<ul style="list-style-type: none"> <li>▶ Performing an activity in front of all the children: - Turn an empty glass bottle upside down in water and tilt it. Air bubbles come out of bottle and water goes inside it.</li> <li>▶ Demonstrating an experiment to the children to show the presence of oxygen – lighting a candle in a shallow container. Filling some water in it. Putting an inverted glass over the lighted candle. The candle burns for some time and then extinguishes. When O<sub>2</sub> gets consumed, the candle extinguishes. Followed by a discussion on the experiment.</li> <li>▶ Nitrogen- a major part of air is still present above the water level which does not support combustion. N<sub>2</sub> does not support burning of candle. Discussing that nitrogen is an essential element for the plants where it is found in form of Protein, enzymes etc.</li> <li>▶ CO<sub>2</sub>- turning of lime water milky by bubbling air in it shows the presence of CO<sub>2</sub> in air. It is produced due to our day-to-day activities like burning of fuel. Smoke contains many harmful gases.</li> <li>▶ Discussing how air is essential for life and other physical and chemical processes.</li> </ul>	<ul style="list-style-type: none"> <li>▶ Bottle, a tub containing water.</li> <li>▶ Literature related to composition of air and description of uses of the components of air.</li> <li>▶ All equipment for doing simple experiments.</li> </ul>

**Integration:** Biology, Geography

**Life skills:** Sensitivity towards environment

## Theme 1: Matter and its Composition

This theme focuses on informing and making children aware of the different types of matter/objects found in their surroundings such as stones, water, soil, oil, sugar, air. Some of them have common characteristics in terms of states, some are solids, liquids and some are gases. These states vary in their shape, volume and texture. All these are made up of some materials which have mass and occupy space. Children will also realize that the study of their composition is of great importance in their daily lives.

### Learning Outcomes:

Children will be able to:

- ☑ describe matter;
- ☑ discuss the constituents (atoms/molecules) of matter;
- ☑ explain the forces which keep atoms/molecules in matter together.

### Matter and its Composition

Key Concepts / Concerns	Pedagogy/ Transactional Strategies*	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Definition of matter.</li> <li>➤ Matter has mass and occupies space - Explanation.</li> <li>➤ Composition of matter – brief introduction</li> </ul>	<ul style="list-style-type: none"> <li>➤ Demonstrating that air in a balloon occupies space. It can be shown that any matter like a solid or liquid has mass.</li> <li>➤ Discussing that matter is made up of tiny particles. They are tightly packed in solids, loosely packed in liquids and have random motion in gases. The intermolecular attraction between the particles keeps them together (reference: solids, liquids and gases).</li> <li>➤ Asking children to prepare charts showing above.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Samples of solids, liquids and examples of gases.</li> <li>➤ Charts.</li> <li>➤ Experiments.</li> </ul>

**Integration:** Physics

**Life skills:** Cooperation and working together, drawing conclusion.





## Theme 2: Physical and Chemical Changes

The theme focuses on informing children and making them aware about the different types of changes physical and chemical that are regularly observed occurring in the environment. Some occur on their own and some are caused due to human activities to meet their requirements. Keeping in view the unending role of these changes, it becomes worthwhile that children learn about them.

### Learning Outcomes:

Children will be able to:

- differentiate between physical and chemical changes;
- perform activities related to physical and chemical changes;
- classify changes such as respiration, preparation of solution of sugar, burning of paper ripening of fruit, spoiling of food materials as physical and chemical changes;
- discuss that in a chemical change, a new substance with different properties is formed.

### Physical and Chemical Changes

Key Concepts / Concerns	Pedagogy/ Transactional Strategies*	Suggested Learning Resources
<ul style="list-style-type: none"> <li>▶ Physical and chemical changes.</li> <li>▶ Chemical change - formation of a new product with new properties.</li> <li>▶ Differentiating between physical and chemical change.</li> <li>▶ Classification as physical &amp; chemical change.</li> <li>▶ Types of change involved when there is a change of state of matter.</li> <li>▶ Types of change involved when there is a change of energy.</li> </ul>	<ul style="list-style-type: none"> <li>▶ Asking children to classify the following changes as: (i) Desirable and Undesirable (ii) Physical and Chemical change: drying of clothes; melting of ice; evaporation of water as physical changes; rusting of iron; burning of fuels &amp; fireworks; curd from milk; reaction of iron powder with sulphur powder as chemical changes. Discussing about the formation of a new compound in a chemical change.</li> <li>▶ Conducting demonstrations/ experiments and discussing with children to classify changes: respiration, burning, dissolution of sugar, boiling an egg, other daily life examples into physical and chemical changes.</li> <li>▶ Conducting simple experiments with children and asking them to observe and study the interchange of state of water, sublimation of ammonium chloride or iodine.</li> <li>▶ Demonstrating and discussing the processes of: melting, boiling, reversible, irreversible, dissolution of quick lime in water, ammonium chloride in water, burning of match stick, etc.</li> </ul>	<ul style="list-style-type: none"> <li>▶ Experiments to show that changes in state, colour, size, shape, evolution of heat, light, gases and change in taste indicate physical and chemical changes.</li> <li>▶ Assembly of apparatus. (<i>to show sublimation of ammonium chloride.</i>)</li> <li>▶ Paper, common salt, chalk, iron, sulphur, ice, copper.</li> </ul>

**Integration:** Physics, Geography, Biology

**Life skills:** Problem solving, critical thinking

## Theme 3: Elements, Compounds and Mixtures (experimental techniques)

This theme will enable children to understand that the earth mainly consists of mixtures containing elements and compounds. These are of different types and many a times the separation of components of mixtures is required for practical utility. They will also know about and discuss the different techniques for separation of the components of a mixture to get the pure components.

### Learning Outcomes:

Children will be able to:

- ☑ identify elements and compounds on the basis of their properties and the type of atoms present in them;
- ☑ differentiate between mixtures and compounds on the basis of their properties and composition of constituents;
- ☑ provide examples of elements, compounds and mixtures from daily life;
- ☑ discuss different techniques for separation of components of mixtures;
- ☑ justify the reason for the use of a particular technique in separation of a mixture;
- ☑ explain chromatography and its importance.

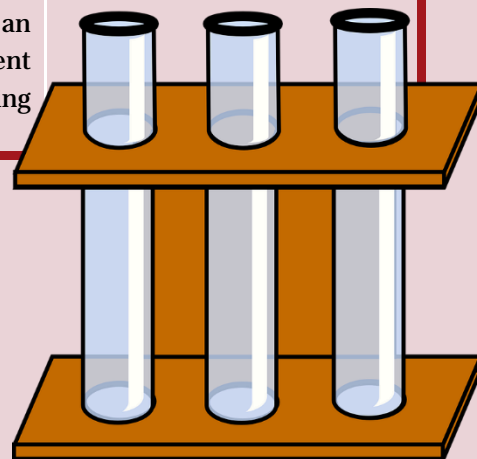
### Elements, Compounds and Mixtures (experimental techniques)

Key Concepts / Concerns	Pedagogy/ Transactional Strategies*	Suggested Learning Resources
<ul style="list-style-type: none"> <li>▶ Identification of elements, and compounds from representation of their symbols and formulae.</li> <li>▶ Mixtures and compounds: difference between mixtures and compounds on the basis of the chemical composition of constituents.</li> <li>▶ Recall that a mixture is formed when two or more substances are mixed in any proportion such that their particles are in intimate contact with one another without</li> </ul>	<ul style="list-style-type: none"> <li>▶ Revisiting previous concepts Building on children's previous learning.</li> <li>▶ Preparing a list of elements and compounds with their symbols &amp; formulae by the teacher and then asking children to classify them as elements and compounds. On the basis of their knowledge of class VI, they should be able to do this classification. Discussing the basis of classification to strengthen the concept. Classification using the names may also be attempted.</li> <li>▶ Illustrating the meaning of the terms mixtures and compounds based on the proportions of their components using common examples from daily life such as honey, water, milk, rust, etc.</li> <li>▶ Demonstrating through the activity of mixing of iron and sulphur. It is a mixture when mixed in any proportion. Next take iron and sulphur in</li> </ul>	<ul style="list-style-type: none"> <li>▶ List of the symbols and formulae of elements and compounds.</li> <li>▶ List- elements: iron, aluminium, copper and compounds: water, plaster of paris, sodium chloride, calcium oxide, sodium sulphate, sodium hydrogen carbonate.</li> <li>▶ Different Mixtures e.g.: mixture of (i) salt and sugar, (ii) sand and salt, honey, milk, butter, cough syrup, etc.</li> <li>▶ Iron powder, sulphur, burner, tongs.</li> <li>▶ Some homogeneous mixtures- alloys, sugar solution and acetic acid in water, milk.</li> <li>▶ Heterogeneous mixtures: - sand &amp; salt, sand &amp; water, kerosene &amp; water, chalk powder &amp; water etc.</li> </ul>

## Elements, Compounds and Mixtures (experimental techniques)

Key Concepts / Concerns	Pedagogy/ Transactional Strategies*	Suggested Learning Resources
<p>undergoing a chemical change.</p> <p>▶ Types of mixtures: -</p> <ul style="list-style-type: none"> <li>☛ Homogeneous &amp; Heterogeneous mixtures</li> <li>☛ On the basis of State: Solid –solid; Solid-liquid; Liquid-liquid.</li> </ul> <p>▶ Separation techniques:</p> <ul style="list-style-type: none"> <li>☛ evaporation,</li> <li>☛ distillation,</li> <li>☛ use of separating funnel,</li> <li>☛ sublimation,</li> <li>☛ fractional distillation.</li> </ul> <p>▶ Examine the principle behind each separation technique.</p> <p>▶ Chromatography as a separation technique; Paper chromatography.</p>	<p>stoichiometric quantities and heat. The compound iron sulphide is formed.</p> <p>▶ Differentiating some mixtures as homogeneous and heterogeneous and explaining the differences between them.</p> <p>▶ Collecting samples of solid-solid, solid-liquid, liquid-liquid types of mixtures from daily life.</p> <p>▶ Demonstrating some separation techniques:</p> <ul style="list-style-type: none"> <li>☛ Evaporation - separate salt from water.</li> <li>☛ Distillation - obtain pure liquid (water) from impure liquid (impure water).</li> <li>☛ Separating funnel - two immiscible liquids (kerosene/oil &amp; water).</li> <li>☛ Sublimation- ammonium chloride.</li> <li>☛ Fractional distillation - two miscible liquids (alcohol &amp; water)</li> </ul> <p>▶ Organising a discussion of the preference and order of use of separation techniques in the separation of two or three component mixtures and explaining the reason for preferring that particular order of technique.</p> <p>▶ Discussing the principle of Paper Chromatography, and characteristics of stationary phase, mobile phase; – demonstration: Performing an experiment for separation of different colours of a marker pen. Discussing the solvent system used.</p>	<p>▶ Apparatus: beaker, china dish, glass rod, tripod stand, wire gauze, R.B. flask, cork, bent glass tube, boiling tube funnel, distillation apparatus, Separating funnel.</p> <p>▶ Chemicals: alcohol, ammonium chloride, kerosene, common salt.</p> <p>▶ A small jar/ petri dish, pigment/ ink, suitable solvent/ water. Whatman no. 1 paper.</p>

**Integration:** Geography



## Theme 4: Atomic Structure

This theme will enable children to understand that every matter is made up of tiny particles known as atoms and molecules. Molecules are also made up of atoms. Hence atoms are the building blocks of matter. The physical and chemical properties of matter are governed by atoms. Therefore, the knowledge of the concepts of atoms of elements, molecules of elements and compounds and radicals of compounds is necessary to understand different processes and principles of Chemistry.

### Learning Outcomes:

Children will be able to:

- ☑ define atom, molecule and radical;
- ☑ discuss the significance of valency of elements and radicals;
- ☑ define valency in terms of number of hydrogen atoms combined or replaced by one atom of the element;
- ☑ apply the definition based on hydrogen atom to find out the valency of other elements and radicals;
- ☑ correlate the valency of the elements with group number of periodic table.

<b>Atomic Structure</b>		
<b>Key Concepts / Concerns</b>	<b>Pedagogy/ Transactional Strategies*</b>	<b>Suggested Learning Resources</b>
<p><b>Atoms, Molecules and Radicals</b></p> <ul style="list-style-type: none"> <li>▶ An atom is the smallest particle of an element.</li> <li>▶ It is not capable of independent existence.</li> <li>▶ The properties of an element depend upon the atoms constituting it.</li> <li>▶ A molecule is the smallest particle of an element or compound, capable of independent existence. It consists of one or more than one atom of the same or different elements.</li> <li>▶ A radical is a single atom of an element or a group of atoms of different elements behaving as single charged unit.</li> <li>▶ Atomicity (no. of atoms in an entity) of elements and compounds – mono atomic, di atomic, tri atomic, polyatomic.</li> <li>▶ Associate the first 20 elements in the periodic table with their names and symbols</li> <li>▶ Valency is the combining capacity of an element or the number of hydrogen atoms with which it combines or replaces.</li> </ul>	<ul style="list-style-type: none"> <li>▶ Discussing about atoms, molecules and radicals and explain the difference between them.</li> <li>▶ Discussing different examples of elements having mono, di, tri and poly atomicity.</li> <li>▶ Preparing a list of some elements and radicals which have valency of 1, 2, 3 and 4.</li> <li>▶ Explaining the meaning of valency and correlating the valency with the group number of the periodic table.</li> <li>▶ Discussing that development of the periodic table is a classification of the element and is based on their physical and chemical properties.</li> </ul>	<ul style="list-style-type: none"> <li>▶ Periodic table.</li> <li>▶ Valency cards made by writing name, symbol and valency of an element. Children can play a game of identifying the card of a specific element and score a point.</li> </ul>

**Integration:** Physics

## Theme 5: Language of Chemistry

Chemistry involves the study of a large number of elements and compounds that also have been learnt earlier with their representation by their short hand notations i.e. symbols and formulae. This theme will enable children to understand that it is not convenient to write the full names of the elements and compounds, and the use of symbols has made the job of the chemists much easier. In addition, they will further realize that Chemistry also involves the occurrence of a large number of chemical reactions that are written in the form of equations known as chemical equations. The writing of chemical equations involves writing of reactants and products as their symbols and formulae. Thus symbols and formulae have also made writing of chemical equations in Chemistry very convenient.

### Learning Outcomes:

Children will be able to:

- identify the names of reactants and products of different chemical reactions;
- write a chemical reaction in the form of a chemical word equation;
- recognize the usefulness of a word equation.

### Language of Chemistry

Key Concepts / Concerns	Pedagogy/ Transactional Strategies*	Suggested Learning Resources
<p>Chemical reactions</p> <ul style="list-style-type: none"> <li>▶ A chemical reaction may take place when two or more reactants come in contact with one another and transfer of energy takes place.</li> <li>▶ Characteristics of occurrence of a chemical reaction: Change of:                             <ul style="list-style-type: none"> <li>☛ Colour</li> <li>☛ State</li> <li>☛ Smell</li> <li>☛ Evolution of gas</li> <li>☛ Precipitate formed</li> <li>☛ Heat evolved / released</li> </ul> </li> <li>▶ Chemical Equations:                             <ul style="list-style-type: none"> <li>☛ Writing word equations for chemical reactions and emphasize on the observational skills and the names of products formed</li> <li>☛ Some examples of word equations for practice.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▶ Demonstration by teacher: Adding dilute HCl to solid sodium carbonate taken in a test tube. A reaction takes place with the evolution of gas.</li> <li>▶ Demonstration by teacher of these changes through activities:                             <ul style="list-style-type: none"> <li>☛ Colour: KI + Lead acetate reaction. Yellow colour formed. Precipitate is also formed.</li> <li>☛ Heat NH<sub>4</sub>Cl. NH<sub>3</sub> gas is evolved.</li> <li>☛ HCl+ NaOH; heat is evolved.</li> </ul> </li> <li>▶ Guiding children to identify the reactants and products of the reaction, put an arrow in between the reactants and products with the arrow pointing towards the products side.</li> <li>▶ Involving each child to write word equations of some simple reactions.</li> </ul>	<ul style="list-style-type: none"> <li>▶ HCl, solid Na<sub>2</sub>CO<sub>3</sub>,</li> <li>▶ KI, Lead acetate, NH<sub>4</sub>Cl, NaOH, Dilute HCl.</li> <li>▶ Test tube, burner.</li> </ul>

**Integration:** Physics

## Theme 6: Metals and Non-Metals

In day-to-day life many elements are commonly found such as iron, aluminium, zinc, lead, chlorine, carbon, sulphur etc. and their compounds. The elements have been classified in two classes, namely metals and non-metals. In this theme children will learn the classification of elements as metals and non-metals on the basis of their properties.

### Learning Outcomes:

Children will be able to:

- differentiate between metals and non-metals on the basis of their physical properties such as lustre, conduction of electricity and heat, malleability, ductility, sonority, melting point, boiling point, density, strength;
- describe common uses of some of the metals and non-metals;
- describe the cause of corrosion of iron and other metals;
- list different ways of preventing corrosion of metallic articles used in daily life;
- list some properties and uses of metalloids.

### Metals and Non-Metals

Key Concepts / Concerns	Pedagogy/ Transactional Strategies*	Suggested Learning Resources
<p style="margin: 0;"><b>Metals, non-metals</b></p> <ul style="list-style-type: none"> <li>▶ Properties</li> <li>▶ Distinguish between metals and non-metals with the general properties (lustre, conduction of electricity, heat, malleability, ductility, sonority, melting point, boiling point, density, strength.)</li> <li>▶ Classification of elements as metals &amp; non-metals.</li> <li>▶ Corrosion of iron (rusting); ways to prevent rusting (oiling, painting, chrome plating, galvanization, tinning) (avoiding contact with air and water vapour).</li> <li>▶ Uses of certain metals (iron, gold, copper, aluminium, zinc, lead, magnesium).</li> <li>▶ Metalloids: elements that show the properties of both metals and non-metals – e.g. silicon, germanium,</li> </ul>	<ul style="list-style-type: none"> <li>▶ Asking children to name some metals that they know of/have seen being used in daily life.</li> <li>▶ Examining the properties of metals and non-metals through activity:                             <ul style="list-style-type: none"> <li>☛ Taking a small iron nail, a coal piece, aluminium wire, and pencil lead. Beating each separately with a hammer and recording the observations. (malleability).</li> <li>☛ Making separate electric circuits using a metal and a non-metal (Al wire, coal piece) - (conductivity).</li> <li>☛ Dropping the above samples one by one. Noting the sound produced –(sonority).</li> </ul> </li> <li>▶ Classifying elements on the basis of their properties.</li> <li>▶ Demonstrating that moisture and oxygen in air are responsible for the corrosion; reaction of corrosion in words:  <b>Activity:</b> Take three test tubes. Iron nails are placed in them. In 1<sup>st</sup> iron nails are dipped in water, in 2<sup>nd</sup>, put a piece of quick lime so as to make the tube moisture free, in 3<sup>rd</sup> tube, add water and a few drops of dilute acid. Keep the test tubes aside for a few days and ask</li> </ul>	<ul style="list-style-type: none"> <li>▶ Collection of some metals such as copper, iron nail, a coal piece, aluminium wire, and pencil lead.</li> <li>▶ Collection of rusted articles made of iron.</li> <li>▶ Article made of copper.</li> <li>▶ Water pipes used in houses to show that they are galvanized to prevent rusting.</li> <li>▶ Iron pieces, grease, paint.</li> </ul>

## Metals and Non-Metals

Key Concepts / Concerns	Pedagogy/ Transactional Strategies*	Suggested Learning Resources
tungsten, antimony); uses.	<p>children to observe and then draw conclusions.</p> <p>The basic nature of rust can be tested using litmus paper.</p> <ul style="list-style-type: none"> <li>➤ In case of copper, green deposit on the surface of articles made of copper can be observed.</li> <li>➤ Discussing examples such as the iron pillar at Qutab Minar which has not rusted for the last 1600 years. It highlights the achievements of ancient India in technology.</li> <li>➤ Discussing that rusting of iron can be prevented if the metal does not come in direct contact with air and water. This can be shown experimentally by applying grease/ coating of paint on the surface of an iron object.</li> <li>➤ Iron pipes used in homes to carry water are galvanized to prevent rusting. Refer to cooler in homes.</li> <li>➤ Asking children to identify some metals used in daily life.</li> <li>➤ Discussing some properties of silicon, germanium, tungsten and antimony to justify them as metalloids.</li> </ul>	

**Integration:** Physics, Geography



## Theme 7: Air and Atmosphere

Air is a mixture of some gaseous components which have wide use in daily life. For example, nitrogen is an important constituent of fertilizers and oxygen is essential for our body for sustenance of life. These gases have important physical and chemical properties and uses.

### Learning Outcomes:

Children will be able to:

- ☑ review that air is a mixture of gases;
- ☑ recall the components of air;
- ☑ discuss the use of oxygen and nitrogen in different life processes;
- ☑ explain from an activity that mass change takes place on combustion;
- ☑ express the reaction in the form of word equation;
- ☑ describe the preparation of oxygen in the laboratory using potassium chlorate/ hydrogen peroxide and manganese dioxide as a catalyst;
- ☑ understand the concept of catalyst.

### Air and Atmosphere

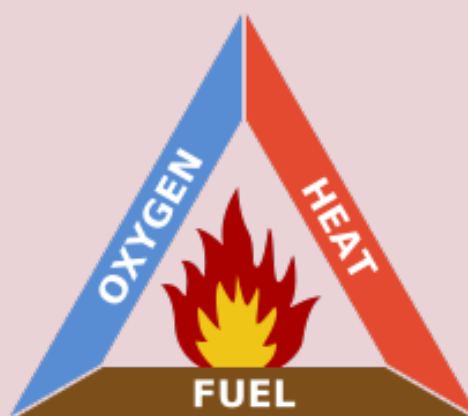
Key Concepts / Concerns	Pedagogy/ Transactional Strategies*	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Air a mixture of gases.</li> <li>➤ Composition of air and uses of its components.</li> <li>➤ Oxygen is needed for combustion.</li> <li>➤ Mass change during burning (burning of magnesium and candle).</li> <li>➤ Word equations for reactions of metals and non-metals (S, C, P, Na, K, Ca, Mg) with O.</li> <li>➤ Products formed in acid rain; effects of acid rain.</li> <li>➤ Air quality.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Revisiting earlier concepts.</li> <li>➤ Building on children's previous learning.</li> <li>➤ Discussing that concentration of components of air is not fixed at all places. Hence it is a mixture.</li> <li>➤ Making a Pie chart presentation to show the composition of air and discussing the same with children.</li> <li>➤ Preparing a list of the uses of oxygen, nitrogen and carbon dioxide.</li> <li>➤ Activity: placing a candle in a plate of water. Candle goes off when oxygen is used up. (Recall demonstration in class VI).</li> <li>➤ Demonstration: Weighed quantity of magnesium is burnt in air and magnesium dioxide so formed is weighed. There is an increase in mass due to gain of oxygen from the atmosphere in the formation of MgO.</li> <li>➤ Guiding the children to write word equations of the reactions.</li> <li>➤ Identifying that in acid rain, the acidic oxides, namely SO<sub>2</sub>, CO<sub>2</sub>, nitrogen oxides dissolve in rain water. The acids so formed damage the heritage</li> </ul>	<ul style="list-style-type: none"> <li>➤ Pie chart.</li> <li>➤ Candle in plate of water.</li> <li>➤ Magnesium ribbon.</li> <li>➤ Burner, tongs, weighing scale.</li> <li>➤ Apparatus to prepare O<sub>2</sub> gas.</li> <li>➤ Potassium chlorate, manganese dioxide and hydrogen peroxide.</li> <li>➤ Project.</li> </ul>



## Air and Atmosphere

Key Concepts / Concerns	Pedagogy/ Transactional Strategies*	Suggested Learning Resources
<ul style="list-style-type: none"> <li>▶ Study the properties of oxygen: (physical properties to include colour, odour).</li> <li>▶ Distinguish between:                             <ul style="list-style-type: none"> <li>▶ Respiration and combustion,</li> <li>▶ Combustion and rusting.</li> </ul> </li> </ul>	<p>buildings like the Taj Mahal. The stone of Taj Mahal is <math>\text{CaCO}_3</math> which reacts with acids present in rain.</p> <ul style="list-style-type: none"> <li>▶ Preparing a report in groups on the effects of acid rain on Taj Mahal and the efforts of the Government. Waste gases from factories, emission from vehicles contributing to the change in the composition of air and damaging environment.</li> <li>▶ Organising children's activity – assigning in groups on a Project on the consequences of acid rain on bridges, cars, machines, coral reef, aquatic organisms, agriculture and presenting the findings in class.</li> <li>▶ Demonstrating reactions of combustion of wood and rusting of spade.</li> </ul>	

**Integration:** Physics, Geography, Biology, Languages



## Theme 1: Matter

In earlier classes, Matter was introduced and discussed as composed of atoms/molecules and that it is found in the forms of solids, liquids and gases. In this class the aim of the theme is to enable children to understand that these states are compared on the basis of inter particle state and inter particle collision. The Kinetic theory of matter will be introduced to explain the change of state. They will understand that in a physical and chemical change, the total mass before and after the change remains the same which is known as the law of conservation of mass. Explanation of this theory and law would help them in understanding other behaviour of matter.

### Learning Outcomes:

Children will be able to:

- ☑ describe the main postulates of the kinetic theory of matter;
- ☑ explain the reason of change of one state of the matter to another and vice-versa on the basis of inter particle space and inter particle attraction and collision;
- ☑ define and explain the law of conservation of mass using an example.

<b>Matter</b>		
<b>Key Concepts / Concerns</b>	<b>Pedagogy/ Transactional Strategies*</b>	<b>Suggested Learning Resources</b>
<ul style="list-style-type: none"> <li>▶ Main postulates of kinetic molecular theory of matter.</li> <li>▶ Explanation of change of state of the matter on the basis of inter particle space and inter particle attraction and collision.</li> <li>▶ Law of conservation of mass. (statement and explanation with examples).</li> </ul>	<ul style="list-style-type: none"> <li>▶ Describing and discussing the main postulates of kinetic theory of matter.</li> <li>▶ Discussing inter particle space and inter particle attraction and collision. (Inter particle space and inter particle attraction varies from one state of matter to another. Hence the conditions of change of state of a matter are different from the other.)</li> <li>▶ Stating the law of conservation of mass. Activity to show that there is no change in total mass when a physical and chemical change takes place. (If the reaction involves combustion in presence of air, the mass of O<sub>2</sub>/N<sub>2</sub> is also to be considered) Total mass of reactants including the mass of atmospheric gases if any, will be equal to the mass of the products formed.</li> <li>☛ Taking the example of reaction of barium chloride with sodium sulphate.</li> </ul>	<ul style="list-style-type: none"> <li>▶ Film on the collision of particles and the exchange of energy.</li> <li>▶ Chemicals and glass wares, barium chloride, sodium sulphate, weighing balance, test tubes, distilled water, filter paper, funnel and beaker.</li> </ul>

**Integration:** Physics

## Theme 2: Physical and Chemical Changes

This theme will enable children to understand that there are different types of changes in our surroundings which are slow/fast, reversible/irreversible, periodic/non-periodic and physical/chemical. In physical changes, no new substance is formed while in chemical change, a new substance with properties different from the element forming that substance is formed. Learning of these changes will also help in developing different scientific skills amongst them.

### Learning Outcomes:

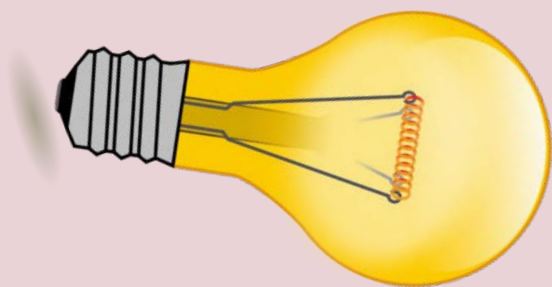
Children will be able to:

- ☑ illustrate different changes occurring in nature with examples learned in previous classes;
- ☑ perform some activities to show some well-known changes;
- ☑ differentiate between physical and chemical changes and classify the changes.

### Physical and Chemical Changes

Key Concepts / Concerns	Pedagogy/ Transactional Strategies*	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Revise and review the topic on Physical and Chemical Changes taught in earlier classes.</li> <li>➤ Physical and Chemical changes – Classification with examples.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Providing opportunities to children to recapitulate their previous knowledge during group discussion. Bridging any gaps in their understanding.</li> <li>➤ Building on children's previous learning.</li> <li>➤ Providing a list of changes like- inflated balloon will burst when brought near a lighted bulb.</li> </ul>	<ul style="list-style-type: none"> <li>➤ List of physical and chemical changes:                             <ul style="list-style-type: none"> <li>☛ Formation of curd from milk</li> <li>☛ Curdling of milk</li> <li>☛ Rotting of eggs</li> <li>☛ Rusting of iron</li> <li>☛ Melting of ice</li> <li>☛ Formation of vapours</li> <li>☛ Sublimation of camphor</li> </ul> </li> </ul>

**Integration:** Geography, Biology, Languages



## Theme 3: Elements, Compounds and Mixtures

In previous classes, children were informed about the classification of matter into - elements, compounds and mixtures. Mixture is an important class of matter as most of the matter in nature is found in the form of mixture. In this class children will be enabled to understand that there are various techniques by which components of mixture can be separated.

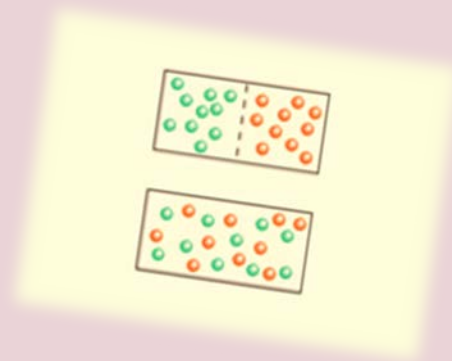
### Learning Outcomes:

Children will be able to:

- ☑ recall previous knowledge related to elements, compounds and mixtures;
- ☑ classify substances into elements, compounds and mixtures on the basis of their properties;
- ☑ perform activities to separate components of a mixture;
- ☑ explain the principle involved in using a particular technique in separating a mixture.

### Elements, Compounds and Mixtures

Key Concepts / Concerns	Pedagogy/ Transactional Strategies*	Suggested Learning Resources
<ul style="list-style-type: none"> <li>▶ Revision of Elements, Compounds and Mixtures taught in earlier classes.</li> <li>▶ Elements, compounds and mixture – a brief explanation.</li> <li>▶ Separation of the components of a mixture.</li> <li>▶ Emphasis on the principle of separation.</li> </ul>	<ul style="list-style-type: none"> <li>▶ Revisiting earlier concepts.</li> <li>▶ Building on children's previous learning.</li> <li>▶ Organising the discussion of the topic concerned by question- answer method.</li> <li>▶ Give feedback to the children about the gaps found in their learning.</li> <li>▶ Activities performed by children to separate the components of 2-3 mixtures involving different techniques. E.g.-               <ul style="list-style-type: none"> <li>☛ <math>\text{CaCO}_3</math> and <math>\text{NaCl}</math></li> <li>☛ kerosene and water</li> </ul> </li> <li>▶ Discussing the principle of the techniques involved in separation of different mixtures.</li> </ul>	<ul style="list-style-type: none"> <li>▶ Collection of samples of some elements, compounds and mixtures.</li> </ul>



## Theme 4: Atomic Structure

This theme focuses on developing children's understanding about the atom as the building block of all types of matter. Therefore, in science, it becomes important to know about the atom and its structure.

In fact, everything on this earth is made up of atoms. It is the atom of an element that takes part in chemical reactions.

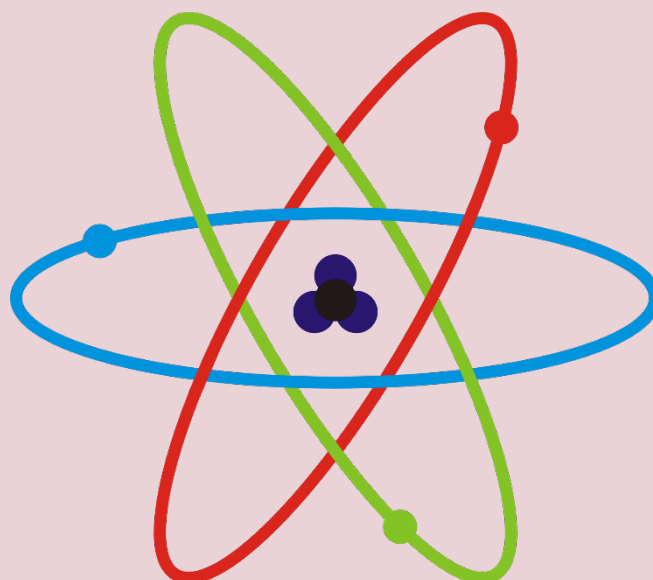
### Learning Outcomes:

Children will be able to:

- ✓ describe that an atom consists of electrons, protons and neutrons;
- ✓ define atomic number and mass number;
- ✓ discuss valency of elements and radicals with respect to the number of hydrogen atoms combining with one atom of the element.

Atomic Structure		
Key Concepts / Concerns	Pedagogy/ Transactional Strategies*	Suggested Learning Resources
<ul style="list-style-type: none"><li>▶ Fundamental subatomic particles present in an atom: electrons, protons, neutrons.</li><li>▶ Nucleus and extra nuclear parts.</li><li>▶ Atomic number and mass number.</li></ul>	<ul style="list-style-type: none"><li>▶ Discussing historical perspective of discovery of electrons, protons and neutrons.</li><li>▶ Identifying that a nucleus consists of protons and neutrons. Electrons are present in its extra nuclear part.</li><li>▶ Describing that atomic number (Z) is the number of protons in an atom. It is also equal to the number of electrons in an atom.</li><li>▶ Mass number: it is the sum of the number of protons and neutrons in an atom.</li></ul>	<ul style="list-style-type: none"><li>▶ Books of science /Chemistry</li><li>▶ Charts/Models showing the structure of atom</li></ul>

**Integration:** Physics.



## Theme 5: Language of Chemistry

In previous classes, discussions about the symbols of elements and the formulae of compounds help in expressing their long names as short-hand notations which forms the language of Chemistry. In this class children will develop the ability to derive the Formulae of compounds if symbols of elements/radicals forming the compound and their valencies are known. They will also be able to write chemical equations if the reactants and products and their symbols/ formulae are known to them.

### Learning Outcomes:

Children will be able to:

- ☑ recall the symbols of different elements;
- ☑ derive the formulae of compounds on the basis of valencies of elements and radicals;
- ☑ write chemical equation of a reaction;
- ☑ balance chemical equations by applying the law of conservation of mass.

Language of Chemistry		
Key Concepts / Concerns	Pedagogy/ Transactional Strategies*	Suggested Learning Resources
<ul style="list-style-type: none"> <li>▶ Symbols of elements.</li> <li>▶ Formulae of compounds.</li> <li>▶ Chemical equations (from word equations).</li> <li>▶ Law of conservation of mass.</li> <li>▶ Balancing simple equations</li> <li>▶ Relate the law to the balancing of simple equations.</li> <li>▶ Information gathered from a chemical equation.</li> <li>▶ Limitations of a chemical equation: Catalyst, conditions for the reaction, state of the reactants and products, nature of the chemical reaction are not gathered from the equation.</li> </ul>	<ul style="list-style-type: none"> <li>▶ Revisiting earlier concepts.</li> <li>▶ Building on children's previous learning.</li> <li>▶ Organising competitions to recapitulate the symbols of elements in the class by using valency cards. (symbols and valency of first twenty elements).</li> <li>▶ Encouraging children to derive Formulae of compounds from valency and symbols/ formulae of elements/ radicals under the guidance of teacher.</li> <li>▶ Writing word equations followed by writing the chemical equation.</li> <li>▶ Explaining the law of conservation of mass and its importance in balancing a chemical equation.</li> <li>▶ Giving practice in balancing simple equations.</li> <li>▶ Specifying the state of the reactants and products as (s), (l) and (g) for solid, liquid and gas respectively by writing them after their symbols/ formulae.</li> <li>▶ Using an equation to discuss with children the information provided and the limitations by/of a chemical equation.</li> </ul>	<ul style="list-style-type: none"> <li>▶ Valency cards.</li> <li>▶ Charts depicting the important and simple chemical equations in which the state of reactants and products is also shown.</li> </ul>

**Integration:** Mathematics, Physics

## Theme 6: Chemical Reactions

This theme will enable children to understand that several oxides, carbonates and hydrates on heating are converted to other compounds. Oxides of metals and non-metals have basic and acidic character respectively. They will also realize and appreciate that there are different types of reactions such as combinations, decomposition, displacement, double displacement, exothermic and endothermic reactions.

### Learning Outcomes:

Children will be able to:

- ☑ describe different types of chemical reactions with examples;
- ☑ identify the type of chemical reaction;
- ☑ identify different oxides as basic, acidic, amphoteric and neutral;
- ☑ explain the effect of heat on oxides of some metals.

### Chemical Reactions

Key Concepts / Concerns	Pedagogy/ Transactional Strategies*	Suggested Learning Resources
<ul style="list-style-type: none"> <li>▶ Types of reactions:                             <ul style="list-style-type: none"> <li>☛ Combination</li> <li>☛ Decomposition</li> <li>☛ Displacement</li> <li>☛ Double displacement.</li> </ul> </li> <li>▶ Reactivity series:                             <ul style="list-style-type: none"> <li>☛ In reactivity series metals are arranged in order of their reactivity.</li> <li>☛ The metal that displaces the metal ion from the solution is more reactive.</li> </ul> </li> <li>▶ Predict the reactivity of metals.</li> </ul>	<ul style="list-style-type: none"> <li>▶ Explaining that chemical reactions involve breaking of existing bonds and formation of new bonds with absorption or release of energy normally in the form of heat or light. Explaining with examples using chemical equations.</li> <li>▶ Giving examples of reactions from daily life - burning of fuel.</li> <li>▶ Showing burning of a magnesium ribbon.</li> <li>▶ Explaining the different types of reactions with examples and activities:                             <ul style="list-style-type: none"> <li>☛ <b>Synthesis</b></li> <li><math>\text{CaO} + \text{H}_2\text{O} \rightarrow \text{Ca(OH)}_2</math></li> <li><math>\text{Ca(OH)}_2 + \text{CO}_2 \rightarrow \text{CaCO}_3 + \text{H}_2\text{O}</math></li> <li><math>\text{C} + \text{O}_2 \rightarrow \text{CO}_2</math></li> <li>☛ <b>Decomposition</b></li> <li>Decomposition of <math>\text{CaCO}_3</math>, <math>\text{PbO}</math>.</li> <li>☛ <b>Displacement</b></li> <li>Displacement of Cu from <math>\text{CuSO}_4</math> by Zn.</li> <li>☛ <b>Double displacement</b></li> <li>Both the ions are displaced - <math>\text{NaCl} + \text{AgNO}_3</math></li> </ul> </li> <li>▶ Asking children to arrange metals - Cu, Ag, Al, Mg, Fe in decreasing order of their reactivity by consulting the table of reactivity series.</li> <li>▶ Conducting experiments for different metals with metal salt solution.</li> <li>▶ Demonstrating through activity:</li> </ul>	<ul style="list-style-type: none"> <li>▶ Magnesium wire, match box.</li> <li>▶ Limestone, tongs, test tube, burner.</li> <li>▶ <math>\text{CuO}</math>, <math>\text{ZnO}</math>, <math>\text{Al}_2\text{O}_3</math>, litmus paper.</li> </ul>

## Chemical Reactions

Key Concepts / Concerns	Pedagogy/ Transactional Strategies*	Suggested Learning Resources
<ul style="list-style-type: none"> <li>▶ Endothermic and exothermic processes/ reactions.</li> <li>▶ Neutralization reaction.</li> <li>▶ Decomposition reactions to form Oxides.</li> <li>▶ Classification of oxides:                             <ul style="list-style-type: none"> <li>▶ Acidic</li> <li>▶ Basic</li> <li>▶ Amphoteric</li> <li>▶ Neutral.</li> </ul> </li> </ul> <p>Metal oxides are basic; non-metal oxides are acidic in nature.</p> <p>Acidic oxides react with base and basic oxides react with acids. some oxides such as ZnO, PbO react both with acids and bases. These are amphoteric oxides.</p>	<ul style="list-style-type: none"> <li>▶ neutralization of an acid with a base as an exothermic reaction.</li> <li>▶ dissolution of <math>\text{NH}_4\text{Cl}</math> in water is an endothermic process.</li> <li>▶ Heating metal carbonates, nitrates, sulphates yield oxides and carbon dioxides.</li> </ul> <p>Oxides are also formed by heating element in presence of air.</p> <ul style="list-style-type: none"> <li>▶ Activity-1 Heating limestone strongly over the flame - CaO is formed</li> <li>▶ Activity-2: Heating Lead carbonate strongly - PbO is formed.</li> </ul> <li>▶ Dissolving the oxide in water and testing the acidic, basic and neutral oxide with litmus paper.</li>	

**Life skills:** Critical thinking, observation, interpretation, analysis





## Theme 7: Hydrogen

This theme focuses on enabling children to know about one gas- Hydrogen and that it is an important constituent of several compounds. It is found in acids and organic compounds. It acts as a fuel which makes its study useful.

### Learning Outcomes:

Children will be able to:

- ☑ describe the preparation of hydrogen from electrolysis of water;
- ☑ prepare hydrogen in the lab. using zinc and acid;
- ☑ describe properties and uses of hydrogen;
- ☑ correlate concepts of oxidation and reduction with addition and removal of oxygen or removal and addition of hydrogen.

<b>Hydrogen</b>		
<b>Key Concepts / Concerns</b>	<b>Pedagogy/ Transactional Strategies*</b>	<b>Suggested Learning Resources</b>
<ul style="list-style-type: none"> <li>➤ Preparation of hydrogen, from water – electrolysis (Introduction to terms electrode, electrolyte, electrolysis - detailed process not required).</li> <li>➤ Preparation of hydrogen in the laboratory.</li> <li>➤ Preference of zinc as the metal to be used (with reasons).</li> <li>➤ Choice of dilute acids (other than dil. nitric acid).</li> <li>➤ Bosch's process.</li> <li>➤ Properties and uses of hydrogen.</li> <li>➤ Oxidation and Reduction.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Preparing hydrogen by the electrolysis of acidified water.</li>   <li>➤ Demonstrating activity to prepare hydrogen by the reaction of Zinc with acid. (It is collected by the downward displacement of water as it is lighter than air)</li>   <li>➤ Discussing properties and uses of hydrogen.</li> <li>➤ Correlating the concept of oxidation and reduction with addition and removal of oxygen or removal and addition of hydrogen.</li> <li>➤ Explaining the concept by using the example of one student gaining oxygen and the other losing oxygen, thereby getting oxidised and reduced respectively.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Experimental assembly set up in the lab.</li> <li>➤ Charts on preparation of Hydrogen.</li> </ul>

**Integration:** Physics

## Theme 8: Water

Water is the one of the most important resources and is a universal solvent. Children will know and understand that water is important for all living beings (animals, human beings, plants and trees), comes from different sources and has many uses. There are different sources of water such as sea, well, river, lake, pond, rain. We use it daily for washing, bathing, drinking and in industries. Water helps in controlling the temperature of the atmosphere.

### Learning Outcomes:

Children will be able to:

- ✓ describe that water dissolves many substances and it is a universal solvent;
- ✓ identify a solution, suspension and colloid on the basis of properties;
- ✓ state the differences between saturated, unsaturated and supersaturated solutions;
- ✓ describe water of crystallization;
- ✓ write equations of metals with cold water and steam;
- ✓ describe hard and soft water;
- ✓ discuss the different methods of softening of water.

### Water

Key Concepts / Concerns	Pedagogy/ Transactional Strategies*	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Dissolution of salts in water – meaning and explanation.</li> <li>➤ Universal solvent – meaning.</li> <li>➤ Solutions, suspensions, colloids.</li> <li>➤ Differentiate unsaturated/saturated and supersaturated solutions.</li> <li>➤ Suspensions and colloids.</li> <li>➤ Water of crystallisation.</li> <li>➤ Hydrated and Anhydrous substances, hygroscopic.</li> <li>➤ Reactivity of metals with cold water, hot water and steam (with products formed).</li> <li>➤ Hard and soft water and methods of softening of hard water.</li> <li>➤ Disadvantage of using hard water.</li> <li>➤ Removing hardness of water by boiling or by treating with washing soda.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Revisiting earlier concepts.</li> <li>➤ Building on children's previous learning.</li> <li>➤ Recognising dissolving capacity of water by conducting experiments on dissolving a number of salts in water.</li> <li>➤ Differentiating between suspension and colloid on the basis of the size of solute particles.</li> <li>➤ Asking children to collect samples of colloids and suspensions under guidance and supervision.</li> <li>➤ Differentiating between saturated, unsaturated and supersaturated solutions on the basis of the quantity of the solute dissolved.</li> <li>➤ Showing children that by heating blue crystals of hydrated copper sulphate, when it turns white due to the loss of water of crystallisation.</li> <li>➤ Showing reaction of metals (e.g. iron, calcium) with cold water and steam.</li> <li>➤ Taking example of CaCl<sub>2</sub> for absorbing water from salts.</li> <li>➤ Discussing the presence of silica gel in bottles to absorb moisture.</li> <li>➤ Determining the reactivity of Na, Mg, MgO, CaO etc. with water to show different chemical reactivity.</li> <li>➤ Differentiating between the ability to form lather by hard and soft water to be shown by an activity.</li> </ul>	<ul style="list-style-type: none"> <li>➤ NaCl, KCl, Na<sub>2</sub>CO<sub>3</sub> etc.</li> <li>Sugar, water, broken glass rod, burner.</li> <li>➤ Collection of samples of solutions, suspensions, colloids.</li> <li>➤ Copper sulphate crystals.</li> <li>➤ Soap solution, clay in water</li> <li>➤ CaCl<sub>2</sub>.</li> <li>➤ Silica gel pouch in water bottles.</li> <li>➤ Sodium metal, magnesium ribbon, MgO, CaO.</li> <li>➤ Washing soda.</li> </ul>

## Theme 9: Carbon and its Compounds

In this theme children will learn the importance of carbon and some of its compounds. It is a constituent of all plants and animals. In fact, a large number of compounds are made up of carbon. It is a very versatile element.

Products such as paper, wooden furniture, soaps, food items are made up of carbon as one of their elements and used extensively in daily life activities. The fuel that is used in cars and trucks is also made of carbon.

### Learning Outcomes:

Children will be able to:

- ☑ explain the term allotropy;
- ☑ describe different Allotropes of Carbon;
- ☑ state the properties of Graphite and Diamond;
- ☑ prepare carbon dioxide in a laboratory;
- ☑ describe the uses of carbon dioxide;
- ☑ demonstrate different reactions of carbon dioxide with lime water and litmus solutions.

### Carbon and its Compounds

Key Concepts / Concerns	Pedagogy/ Transactional Strategies*	Suggested Learning Resources
<ul style="list-style-type: none"> <li>▶ Allotropes of Carbon - definition and explanation.</li> <li>▶ Crystalline and amorphous nature of allotropes of carbon.</li> <li>▶ Uses of diamond, graphite, coke, coal, soot.</li> <li>▶ Laboratory preparation, properties and uses of carbon dioxide</li> <li>▶ Physical properties of Carbon dioxide.</li> <li>▶ Chemical properties of</li> </ul>	<ul style="list-style-type: none"> <li>▶ Defining allotropes and explaining it with different examples, -diamond, graphite, coal, etc.</li> <li>▶ Emphasising on different physical properties but same chemical properties of allotropes.</li> <li>▶ Explaining that the properties such as electric and thermal conductivity of the two allotropes are different.</li> <li>▶ Emphasising that the difference in physical properties is due to their different structures. Showing the models of structures and discussing the differences.</li> <li>▶ Making models using clay dough / other molecular models.</li> <li>▶ Discussing the classification of crystalline and amorphous nature of carbon.</li> <li>▶ Defining Allotropes on the basis of their Crystalline and amorphous nature.</li> <li>▶ Making a list of the uses of diamond, graphite, coke, coal, soot from the literature and internet.</li> <li>▶ Demonstrating the preparation of CO<sub>2</sub> from marble/ Na<sub>2</sub>CO<sub>3</sub> and dil. HCl and showing its collection by upward</li> </ul>	<ul style="list-style-type: none"> <li>▶ Models of structures of Diamond and Graphite.</li> <li>▶ Sample of Graphite as an electrode.</li> <li>▶ Woulff bottle/ R.B. flask, delivery tube, thistle funnel, jar. Dil. HCl, marble pieces/ Na<sub>2</sub>CO<sub>3</sub></li> </ul>

## Carbon and its Compounds

Key Concepts / Concerns	Pedagogy/ Transactional Strategies*	Suggested Learning Resources
<p>Carbon Dioxide.</p> <ul style="list-style-type: none"> <li>➤ Acidic nature.</li> <li>➤ Reaction with lime water.</li> <li>➤ Properties and uses of Carbon monoxide.</li> <li>➤ Emphasis on use as reducing agent in the extraction of iron.</li> <li>➤ Emphasize the harmful properties of Carbon monoxide when inhaled - Asphyxia.</li> </ul>	<p>displacement of air.</p> <ul style="list-style-type: none"> <li>➤ Showing physical properties of CO<sub>2</sub> with its sample along with its fire extinguishing properties.</li> <li>➤ CO<sub>2</sub> shows many important chemical reactions such as:                             <ul style="list-style-type: none"> <li>➤ It reacting with basic oxides such as Na<sub>2</sub>O, MgO to form metal carbonates.</li> <li>➤ Action on lime water: - showing that it turns lime water milky and on passing excess CO<sub>2</sub>, the milkiness disappears.</li> </ul> </li> <li>➤ Explaining Fuel, if not burnt in a good supply of oxygen may lead to the formation of CO. <i>(traditional cooking methods in villages using cow dung or wood).</i></li> <li>➤ Using it in industries as a reducing agent- in metallurgy of iron.</li> <li>➤ Explaining why we should not stand behind a running engine of a vehicle.</li> <li>➤ Discussing Government's efforts to spread the use of LPG even to remote areas of the country.</li> </ul>	

**Integration:** Geography, Biology



# Biology

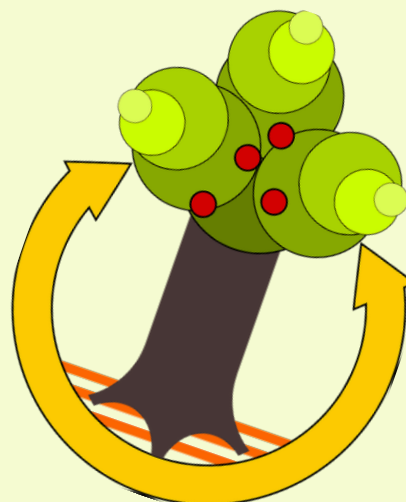


**B**iology is perhaps the most fascinating of all the sciences, as it is the science of life, and is aptly called life science. More than anything else, Biology is a quest, an ongoing inquiry about the nature of life.

Scientists all over the world are engaged in solving biological puzzles that once seemed unsolvable. We are moving closer to our understanding of many things such as how a single microscopic cell develops into a complex plant or animal; how plants convert solar energy into the chemical energy of food; how the human mind works; how various forms of life network in biological communities such as forests and coral reefs; how the great diversity of life on Earth evolved from the first microbes, etc.

The discovery of the double-helical structure of the DNA, deciphering of the genetic code, and three-dimensional structure of many macromolecules led to the phenomenal growth in the field of Molecular Biology. Recent breakthroughs in genetics and molecular cell biology are transforming medicine and agriculture. New models in ecology are helping scientists to evaluate environmental issues such as increasing atmospheric levels of carbon dioxide leading to global warming and the destruction of the ozone layer.

Biology also plays a valuable part in general education and its day to day relevance in the lives of children, in terms of nutrition, health and hygiene, medicines and a host of other useful products needs to be highlighted. At the same time, the curiosity of children towards environmental issues needs to be aroused and knowledge be imparted through the study of nature and the consequences of upsetting nature be addressed.



**The core concepts of Biology for Classes VI – VIII are as follows:**

**Class VI**

**Plant Life**  
**The Cell**  
**Human Body**  
**Health and Hygiene**  
**Adaptation**

**Class VII**

**Tissue**  
**Kingdom Classification**  
**Plant Life**  
**Human Body**  
**Health and Hygiene**

**Class VIII**

**Transport of Food and Minerals in Plants**  
**Reproduction in Plant and Animals**  
**Ecosystems**  
**Human Body-Endocrine, Circulatory and Nervous Systems**  
**Health and Hygiene**  
**Food Production**



## Theme 1: Plant Life

Plants play an important role in our lives. As learnt in the previous classes, there exists a great variety of plant life on the planet Earth. Plants vary in size from minute microscopic forms to complex tall trees. Most of the tall trees belong to higher plants. Herbs and shrubs also constitute a large proportion of higher plants. In previous classes, children have already been familiarised with parts of a plant body (root, stem, leaf, flower, fruit and seed) and their functions. This topic aims at enabling children to know and learn more about the leaf, flower and fruit, including the arrangement, characteristics and functions of the parts of a leaf and flower. Modifications of leaves for performing special functions will also be covered in this topic.

### Learning Outcomes:

Children will be able to:

- ✓ distinguish between leaves (reticulate vs parallel venation /simple vs compound leaves);
- ✓ recognize, identify and draw figures of leaf modifications for support, protection, reduction in water loss and vegetative propagation in leaf;
- ✓ recognize that flowers are of various shapes, sizes and colours and are an important part of the plant;
- ✓ collect and preserve various types of flowers;
- ✓ explain the structure and function of each whorl of flower (complete flower);
- ✓ list the agents of cross pollination;
- ✓ learn the process of seed germination and list the conditions required for germination;
- ✓ list common names of locally available plants;
- ✓ list the various types of modifications for special functions such as vegetative propagation and storage.

## Plant Life

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<p><b>THE LEAF</b></p> <ul style="list-style-type: none"> <li>➤ External structure (parts of a leaf in detail).</li> <li>➤ Kinds of leaves (simple &amp; compound).</li> <li>➤ Types of venation (reticulate and parallel).</li> <li>➤ Functions of leaf (main functions).</li> <li>➤ Modifications (tendrils, spines, scale leaves).</li> <li>➤ Insectivorous plants. Need for modification with an example.</li> <li>➤ Vegetative propagation in leaf (example bryophyllum).</li> </ul>	<ul style="list-style-type: none"> <li>➤ Revisiting previous concepts and building on past learning.</li> <li>➤ Promoting children's observation of plants in their surroundings, and drawing pictures with the common names of the plants written below the pictures.</li> <li>➤ Providing opportunities for children to observe plants, leaves and flowers through organizing a visit to a nearby garden or forest area.</li> <li>➤ Asking children to draw different types of leaves, their structure and kinds and types of venation and modifications.</li> <li>➤ Observing a pea plant, noting the tendril which is a modified leaf.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Visit to school or nearby garden or park/ forest with teachers/ parents.</li> <li>➤ Specimens of different types of leaves, school garden /herbarium.</li> <li>➤ Charts /specimens of leaf modifications.</li> <li>➤ Demonstration</li> </ul>

## Plant Life

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<p style="text-align: center;"><b>THE FLOWER</b></p> <ul style="list-style-type: none"> <li>➤ Parts (4 whorls), structure and function of each whorl.</li> <li>➤ Pollination (self and cross): An idea about agents of cross pollination (wind, water and insects – their examples).</li> <li>➤ Fertilization: process in simple terms.</li> <li>➤ Formation of fruit – fate of each part (whorl) of flower after fertilization.</li> <li>➤ Parts of fruits: dry and fleshy, examples of dry and fleshy parts; parts of the pericarp of fleshy fruits (epicarp, mesocarp, endocarp) and function of each part.</li> <li>➤ Seed- parts (cotyledon, embryo: Radicle, plumule) and types (monocot, dicot)</li> <li>➤ Germination – conditions required for germination (moisture, warmth), seed germination of different seeds.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Discussing the function of a tendril.</li> <li>➤ Conducting activities to demonstrate photosynthesis and transpiration in leaves.</li> <li>➤ Observing spines in the Cactus plant and stating their function.</li> <li>➤ Drawing a diagram of the Cactus plant and labelling it.</li> <li>➤ Organising activities to observe vegetative propagation in leaf and discussing.</li> <li>➤ Asking children to observe a flower (such as petunia, china rose or mustard) and studying its different parts and whorls.</li> <li>➤ Encouraging children to draw pictures of different flowers and labelling the parts observed (only complete flowers showing all 4 whorls).</li> <li>➤ Discussing the process of fertilization in plants using models/ charts, etc.</li> <li>➤ Studying and drawing pictures of different fruits (like pea, bean, mango, tomato, coconut); and seeds of maize, wheat/paddy (rice).</li> <li>➤ Asking children to soak seeds in a petri dish containing a wet blotting paper to observe germination phenomenon.</li> <li>➤ Asking learners to classify fruits as dry and fleshy.</li> <li>➤ Developing a herbarium of flowers / leaves.</li> <li>➤ Conducting simple activities to identify: cotyledon, monocot seeds, dicot seeds.</li> <li>➤ Setting up experiments for seed germination in different seeds.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Flowers – petunia, China rose and/or mustard;</li> <li>➤ Charts /specimens of inflorescence, flowers, fruits, dicot and monocot embryo, vs mango or any other fruit.</li> <li>➤ Fruits such as, pea, bean, mango, tomato, coconut.</li> <li>➤ Germinating seeds.</li> </ul>

**Integration:** Geography, Languages

**Life Skill:** Sensitivity towards environment





## Theme 2: The Cell

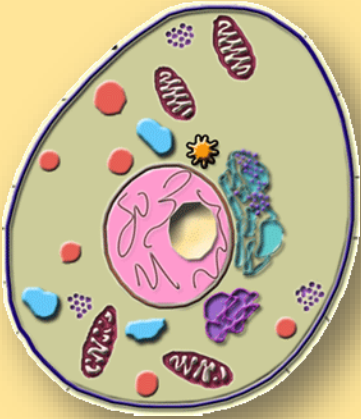
In this theme children will be introduced to the Cell. All living things consist of cells. A few organisms are single-celled (unicellular), while majority of the organisms are many-celled (multicellular). In structure, cells in plants and animals are quite similar, except for a few differences. Cells contain organelles which perform important functions for the sustenance of life. Plant cells are characterized by presence of a cell wall, plastids and a large vacuole whereas animal cells do not possess cell wall and plastids.

### Learning Outcomes:

Children will be able to:

- ✔ identify difference in unicellular and multicellular organisms and cite examples;
- ✔ observe cell (plant and animal) under microscope and discuss in class;
- ✔ identify the different cell organelles (cell wall, cell membrane, nucleus, chloroplast, vacuole) and learn about their primary functions;
- ✔ distinguish and draw diagrams of a plant cell and an animal cell.

### The Cell

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Plant cell: Cell organelles and their functions.</li> <li>➤ Animal cell: Cell organelles and their functions.</li> <li>➤ Diagrams of plant and animal cell.</li> <li>➤ Only the following to be included: Cell wall, Cell membrane, Plastids, Nucleus, Vacuole, Cytoplasm – their structure and functions</li> <li>➤ Differences between plant and animal cells.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Organising visits to the laboratory to show children slides on the theme.</li> <li>➤ Asking children to observe and draw the structures seen in the permanent slides of:                             <ul style="list-style-type: none"> <li>☛ <i>cells from onion peel</i></li> <li>☛ <i>human cheek cells</i></li> <li>☛ <i>blood Cells</i></li> <li>☛ <i>Amoeba</i></li> <li>☛ <i>Chlamydomonas</i></li> </ul> </li> <li>➤ Asking children to differentiate between plant and animal cells based on their observations of slides.</li> <li>➤ Showing videos and PPTs on structure of the Cell.</li> <li>➤ Assigning projects and preparation of models (individually or in groups) on plant and animal cell;</li> <li>➤ Discussing the structure and functions of cell organelles;</li> <li>➤ Appreciating the discovery and use of the microscope in human life.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Permanent slides of onion peel, human cheek cells, blood cells, <i>Amoeba</i>, <i>Chlamydomonas</i> using a microscope.</li> <li>➤ Microscope.</li> <li>➤ Models and charts of the above-listed materials</li> <li>➤ Videos, E.M. photographs and PPTs of plant and animal cell, listed cell organelles.</li> </ul> <div style="text-align: right; margin-top: 20px;">  </div>

## Theme 3: Human Body

The human body consists of a number of organ systems. Some of the major organ systems are the digestive, respiratory, circulatory, excretory, nervous and skeletal system. Each of these systems consists of organs, which help them perform specific functions. The expectation of this theme is to develop an understanding in children of the functioning of the digestive, respiratory and circulatory systems in the human body.

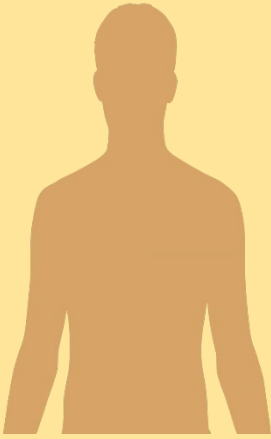
### Learning Outcomes:

Children will be able to:

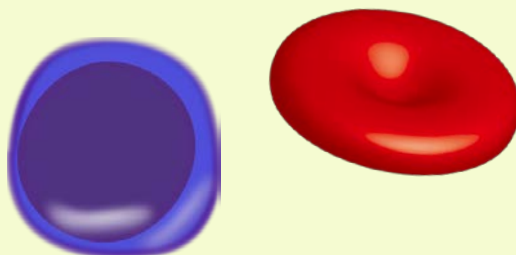
- ✔ list the main parts and functions of each part of the respiratory system;
- ✔ distinguish between respiration and breathing;
- ✔ outline the mechanism of breathing and the role of diaphragm in inhalation and exhalation;
- ✔ name some common respiratory diseases;
- ✔ explain the main parts of the circulatory system;
- ✔ list the components of blood and types of blood vessels;
- ✔ take their own/ others' pulse;
- ✔ demonstrate the significance of exercise and good food habits in keeping the heart healthy.

<b>Human Body</b>		
<b>Key Concepts</b>	<b>Suggested Transactional Processes</b>	<b>Suggested Learning Resources</b>
<div style="background-color: #800000; color: white; padding: 2px; text-align: left;"><b>Digestive System</b></div> <ul style="list-style-type: none"> <li>➤ Revisit previous learning.</li> <li>➤ Organs of the digestive system; function of each organ.</li> <li>➤ Process of digestion particularly of Carbohydrates Proteins and Fats.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Discussing with children about their own experiences.</li> <li>➤ Providing opportunities to:                             <ul style="list-style-type: none"> <li>☛ <i>draw diagram of digestive system and label its parts.</i></li> <li>☛ <i>describe functions of each organ.</i></li> <li>☛ <i>make model / functional model of digestive system.</i></li> </ul> </li> <li>➤ Discussing the process of digestion in terms of:                             <ul style="list-style-type: none"> <li>☛ <i>site of components of food;</i></li> <li>☛ <i>role of enzymes in digestion and products of the digestive process.</i></li> </ul> </li> <li>➤ Discussing and finding out:                             <ul style="list-style-type: none"> <li>☛ <i>causes of indigestion.</i></li> <li>☛ <i>healthy and unhealthy food habits.</i></li> <li>☛ <i>ways to keep on oneself healthy.</i></li> </ul> </li> <li>➤ Assigning Projects either in groups or individually to - interview three people and find out about their food habits. Sharing the same in class.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Picture of Digestive system</li> <li>➤ Working Model of the Digestive system.</li> <li>➤ Children's drawings.</li> <li>➤ Interview.</li> <li>➤ Report on project work.</li> <li>➤ Models and charts.</li> <li>➤ PPTs and videos.</li> <li>➤ Family doctor/Other Doctors.</li> </ul>
<div style="background-color: #800000; color: white; padding: 2px; text-align: left;"><b>Respiratory System</b></div> <ul style="list-style-type: none"> <li>➤ Main parts (nose, pharynx, larynx, trachea, bronchi, lungs); functions of each part of the respiratory</li> </ul>	<ul style="list-style-type: none"> <li>➤ Asking children to:                             <ul style="list-style-type: none"> <li>☛ <i>observe through models and charts different parts of the human respiratory system;</i></li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Models and charts</li> <li>➤ PPTs and videos</li> </ul>

## Human Body

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<p>system.</p> <ul style="list-style-type: none"> <li>➤ Difference between respiration and breathing.</li> <li>➤ Mechanism of breathing (physical process with respect to diaphragm and ribs-inhalation and exhalation).</li> <li>➤ Mention of common respiratory diseases: asthma, bronchitis, pneumonia, tuberculosis (T.B.).</li> </ul>	<ul style="list-style-type: none"> <li>☛ <i>draw pictures of respiratory system and label its parts;</i></li> <li>☛ <i>discuss the process of respiration using working models;</i></li> <li>☛ <i>discuss the effects of increased physical activity on breathing;</i></li> <li>☛ <i>inviting a doctor to discuss health issues related to diseases.</i></li> <li>➤ Discussing various causes of diseases related to respiration;</li> <li>➤ Identifying ways to prevent diseases related to respiration.</li> </ul>	<div style="text-align: center;">  </div>
<p style="text-align: center;"><b>Circulatory System</b></p> <ul style="list-style-type: none"> <li>➤ Main parts of the circulatory system (heart, blood, blood vessels).</li> <li>➤ Process of circulation in the body.</li> <li>➤ Components of blood (plasma and blood cells - RBC, WBC, platelets with their functions only).</li> <li>➤ Types of Blood groups (A, B, AB, O): mention only.</li> <li>➤ Blood pressure (concept only); heartbeat, pulse</li> <li>➤ Keeping the heart healthy through exercise and good food habits.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Asking children to:                             <ul style="list-style-type: none"> <li>☛ <i>observe different parts of the human circulatory system through models and charts;</i></li> <li>☛ <i>draw the figure of a heart; circulatory system;</i></li> <li>☛ <i>identify the different types of blood vessels and components of blood through PPTs/ videos/ permanent slides.</i></li> </ul> </li> <li>➤ Inviting a doctor and/or visiting a doctor to know about blood pressure and observing the instrument used to measure it and how it is done;</li> <li>➤ Showing children how to measure their pulse.</li> <li>➤ Demonstrating activities related to: process of deep breathing, brisk walking/ jogging.</li> <li>➤ Discussing the need for a blood bank, blood donation.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Models and charts</li> <li>➤ PPTs and videos</li> <li>➤ Permanent slides of blood cells.</li> <li>➤ Instrument used to measure blood pressure.</li> </ul>

**Integration:** Chemistry, Health and Physical Education



## Theme 4: Health and Hygiene

Health is defined as a state of complete physical, mental and social well-being. When diseases occur, the normal functioning of the body is disturbed. Hygiene includes all factors that contribute to healthy living. Three factors that are important for maintaining good health are balanced diet, personal cleanliness and public sanitation. This theme focuses on enabling children to know and understand that diseases are broadly classified into communicable (or infectious) diseases, and non-communicable (non-infectious) diseases and also how diseases are transmitted and why it is essential to control them.

### Learning Outcomes:

Children will be able to:

- explain the meaning of terms such as 'health', 'hygiene' and 'disease';
- relate the knowledge acquired to the personal experiences of diseases suffered, if any.
- relate the types of diseases on the basis of their transmission as infectious and non-infectious.
- spread awareness regarding diseases to friends and family.

<b>Health and Hygiene</b>		
<b>Key Concepts</b>	<b>Suggested Transactional Processes</b>	<b>Suggested Learning Resources</b>
<ul style="list-style-type: none"> <li>▷ Types of diseases (communicable and non-communicable).</li> <li>▷ Communicable diseases: bacterial, viral, protozoal, diseases caused by worms (common examples of each).</li> <li>▷ Modes of transmission of diseases (air, water, food, insects).</li> <li>▷ Ways to prevent communicable diseases.</li> <li>▷ Non-communicable diseases: examples, ways to prevent them.</li> <li>▷ Hygiene – ways to keep the surroundings clean, safe disposal of garbage, healthy practices for hygiene.</li> </ul>	<ul style="list-style-type: none"> <li>▷ Building on previous learning and concepts.</li> <li>▷ Discussing with children:                             <ul style="list-style-type: none"> <li>• names of some diseases and their symptoms;</li> <li>• some non-communicable diseases: their causes and ways to prevent them;</li> <li>• prevention of diseases while sharing their experiences.</li> </ul> </li> <li>▷ Asking children to relate their experiences when they had a particular disease/ seen patient in the family.</li> <li>▷ Organizing brainstorming sessions to discuss:                             <ul style="list-style-type: none"> <li>• disposal of garbage, its segregation</li> <li>• healthy practices for hygiene</li> <li>• ways to keep the surroundings clean</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▷ Charts.</li> <li>▷ PPTs.</li> <li>▷ Videos.</li> <li>▷ Physician.</li> <li>▷ Discussion on disposal practices</li> </ul>

**Integration:** Health and Physical Education

**Life Skill:** Health awareness, concern for environmental cleanliness

## Theme 5: Adaptation

All living organisms, for their survival, need to be well-suited to the environment in which they live. To attain this, organisms develop some features which help them to survive and reproduce in their environment. Features so acquired help organisms to adapt to their particular environments. This theme enables children to understand how some plants and animals are adapted to live and survive in dry habitats, whereas others can live in water or on mountains, or fly in air.

### Learning Outcomes:

Children will be able to:

- define adaptation and habitat;
- recall the names of plants and animals, and their adaptations studied in earlier classes;
- record the adaptations shown by plants and animals living in desert/ aquatic conditions;
- prepare a list of plants and animals occurring in different habitats with their common names and adaptations.

<b>Adaptation</b>		
Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Habitat – definition.</li> <li>➤ Adaptations of plants and animals to the following habitats along with characteristics and examples:                             <ul style="list-style-type: none"> <li>☛ <i>Aquatic habitat- floating, submerged and fixed plants; adaptations in fish.</i></li> <li>☛ <i>Desert - adaptations in cactus as desert plant and camel as desert animal.</i></li> <li>☛ <i>Mountain – adaptations in trees like Pine and Fir; mountain goat</i></li> <li>☛ <i>Air - adaptation for flight in birds, aerial plants.</i></li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Discussing the concept of habitat and adaptation in plants and animals through examples.</li> <li>➤ Asking learners to study external features of:                             <ul style="list-style-type: none"> <li>☛ <i>Water lily and water hyacinth (with floating leaves)</i></li> <li>☛ <i>Hydrilla (root submerged)</i></li> <li>☛ <i>Cactus/Opuntia (desert habitat)</i></li> <li>☛ <i>Babul or Kikar (desert habitat)</i></li> <li>☛ <i>Pine/Fir (mountain region).</i></li> </ul> </li> <li>➤ Drawing pictures of above-named plants and writing down the special features</li> <li>➤ Asking children to - collect information and study the external features of fish, camel, bird (pigeon) and mountain goat.</li> <li>➤ Drawing pictures of above mentioned animals and describing their special features.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Preserved/ herbarium/ fresh specimens of plants and animals from different habitats (aquatic, desert, mountain, air).</li> <li>➤ Field visit for observations in nature</li> <li>➤ PPTs.</li> <li>➤ Videos.</li> <li>➤ Pictures and photographs.</li> </ul>

**Integration:** Geography, Languages




## Theme 1: Tissue

In the previous class, children learnt about the cell, which is the basic unit of life in plants and animals. The cells are organized into tissues, organs, organ-systems and finally into an organism. The theme in this class will focus on enabling children to know about tissues and the different types of tissues in plants and animals.

### Learning Outcomes:

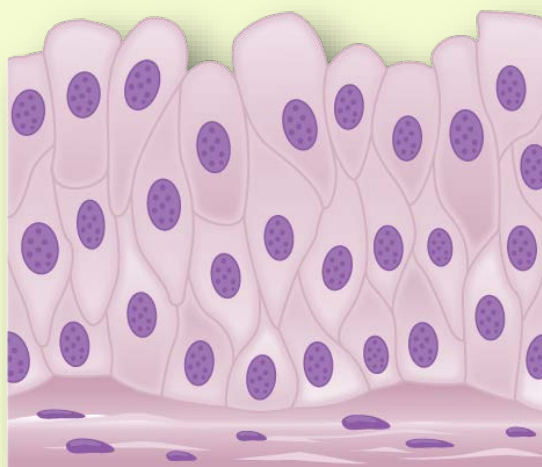
Children will be able to:

- ✓ define the term 'tissue';
- ✓ relate that plants and animals have different types of tissues;
- ✓ explain the differences between meristematic and permanent tissues with examples;
- ✓ draw the relation between structure, location and function of different tissues;
- ✓ draw diagrams of different tissues and label them;
- ✓ classify the different types of animal tissues (epithelial, connective, muscular and nerve tissues) with functions.

<b>Tissue</b>		
<b>Key Concepts</b>	<b>Suggested Transactional Processes</b>	<b>Suggested Learning Resources</b>
<p style="text-align: center;"><b>Plant Tissues</b></p> <ul style="list-style-type: none"> <li>➤ Definition of tissue.</li> <li>➤ Classification of plant tissues: Meristematic and permanent (simple and complex).</li> <li>➤ Meristematic tissues: characteristics (any two), simple structure, location, function, examples.</li> <li>➤ Simple permanent tissues: parenchyma, collenchyma, sclerenchyma (simple structure, location and functions of each), examples.</li> <li>➤ Complex permanent tissues: xylem, phloem (only nature of cells and function. Elements of xylem and phloem not to be mentioned).</li> </ul>	<ul style="list-style-type: none"> <li>➤ Showing and explaining the different plant tissues to children - their location, structure, characteristics and functions charts and models.</li> <li>➤ Encouraging children to develop charts and models.</li> <li>➤ Drawing of diagrams by children of kinds of tissues and differentiating between them.</li> <li>➤ Collecting more information on plant tissues, such as tissue culture by children in groups or individually</li> </ul> <p style="text-align: center;"><b>Experiments</b></p> <ul style="list-style-type: none"> <li>➤ Keep a twig of petunia with white flowers in a beaker containing coloured water and observe the flowers after a few hours (flowers will become coloured).</li> <li>➤ Perform an experiment and ask the children to observe and record what happens to the plant seedlings if the roots</li> </ul>	<ul style="list-style-type: none"> <li>➤ Permanent slides on kinds of tissues.</li> <li>➤ Charts and models.</li> <li>➤ PPTs and Videos on tissues.</li> <li>➤ Photographs and pictures of tissues.</li> </ul> <div style="text-align: right;">  </div>

## Tissue

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<p style="text-align: center;"><b>Animal Tissues</b></p> <ul style="list-style-type: none"> <li>➤ Epithelial tissue: simple location, and function (types of epithelial tissue not to be mentioned).</li> <li>➤ Connective tissue location and functions of areolar, adipose, bone, cartilage, blood, ligament, tendon.</li> <li>➤ Muscular tissue: location and one function of:               <ul style="list-style-type: none"> <li>☛ <i>striated (voluntary or skeletal muscle),</i></li> <li>☛ <i>unstriated (involuntary/ smooth muscle),</i></li> <li>☛ <i>cardiac (specialized muscle).</i></li> </ul> </li> <li>➤ Nerve tissue: parts of neuron (cell body, Dendron, axon).</li> </ul> <p><b>Note:</b> Only basic structure and basic functions of the above mentioned tissues to be done.</p>	<p>are removed and seedlings are kept in coloured water.</p> <p style="text-align: center;"><b>Animal Tissues</b></p> <ul style="list-style-type: none"> <li>➤ Showing diagrams of the following tissues: Epithelial, Connective, Muscular and Nervous tissue, through charts and models.</li> <li>➤ Providing opportunities to children to:               <ul style="list-style-type: none"> <li>☛ <i>draw diagrams of animal tissues.</i></li> <li>☛ <i>label them</i></li> <li>☛ <i>write functions of each kind of tissue</i></li> <li>☛ <i>collect more information on animal tissues</i></li> <li>☛ <i>model/charts of animal tissues.</i></li> </ul> </li> <li>➤ Showing children, the model of the nervous system and pictures of Dendron and axon.</li> <li>➤ Asking children to draw a diagram of nerve tissue.</li> <li>➤ Discussing functions of nervous system.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Specimens, charts and models.</li> <li>➤ Models and pictures of nervous system.</li> <li>➤ Children's drawings.</li> </ul>



## Theme 2: Kingdom Classification

This theme gives an insight into the study of the types of Kingdoms in Plants and Animals. Living organisms are divided into two kingdoms - Kingdom Plantae and Kingdom Animalia. The kingdom Plantae includes plants, while the animals are included under kingdom Animalia. This two-kingdom classification was found inadequate in the light of disputed position of organisms like bacteria and fungi. In view of the objections to the two-kingdom system of classification, a Five-Kingdom Classification was proposed in 1969. The five Kingdoms are Monera, Protista, Fungi, Plantae and Animalia.

### Learning Outcomes:

Children will be able to:

- explain the purpose and advantages of classification;
- explain the basis of 5-kingdom classification;
- differentiate between major groups of organisms;
- draw pictures of organisms representing each kingdom;
- list the useful and harmful effects of bacteria and fungi;
- infer that complex organisms have evolved from simple organisms (evolution of life).

### Kingdom Classification

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>▷ Meaning and concept of classification.</li> <li>▷ Need and advantages of Classification.</li> <li>▷ Characteristics of each kingdom with suitable examples:                             <ul style="list-style-type: none"> <li>(i) Monera: bacteria - shape; useful bacteria, harmful bacteria (applications related to daily life to be discussed);</li> <li>(ii) Protista: <i>Amoeba</i> - basic structure and life processes (nutrition, locomotion, respiration, excretion and reproduction – by binary and multiple fission);</li> <li>(iii) Fungi: basic structure of mould, nutrition and respiration in mould, useful fungi, harmful fungi (applications related to daily life to be discussed);</li> <li>(iv) Plantae: characteristics and examples (classification of plantae not to be discussed);</li> <li>(v) Animalia                                     <ul style="list-style-type: none"> <li>(a) Vertebrates.</li> <li>(b) Invertebrates: 9 major Phyla, Porifera, Cnidaria, Coelenterata, Platyhelminthes, nematoda, Annelida, Arthropoda, Mollusca, Echinodermata)</li> </ul> </li> </ul> </li> </ul> <p>(Two characteristics and two examples of each Phylum).</p>	<ul style="list-style-type: none"> <li>▷ Providing opportunities for observation through visit to a nearby garden/zoo or a nature walk.</li> <li>▷ Asking children to classify or group these plants and animals in their own way.</li> <li>▷ Learning about different organisms belonging to each kingdom and asking them to write about examples of each kingdom.</li> <li>▷ Drawing pictures of organisms belonging to each kingdom.</li> <li>▷ Encouraging children to collect more information on each phylum.</li> <li>▷ Assigning projects to make picture cards and writing their features on the other side.</li> </ul>	<ul style="list-style-type: none"> <li>▷ Plants and animals in their natural habitats.</li> <li>▷ Zoo to see the diversity of life.</li> <li>▷ Specimen from the laboratory.</li> <li>▷ Charts, Models and photographs.</li> <li>▷ PPTs and Videos.</li> <li>▷ Picture cards.</li> </ul>

**Life Skill:** appreciate diversity of life



## Theme 3: Plant Life

The theme Plant Life aims at promoting children's understanding that all living organisms despite their great diversity in shapes and sizes, show similarity in their activities. They all need food, energy, grow, remove waste materials from their bodies, reproduce and respond to their environment. Growth, excretion, reproduction and response to stimuli are some of the basic life processes. This theme will particularly focus on enabling children to understand the two important processes in plants of Photosynthesis and Respiration, differences between the two and factors affecting them.

### Learning Outcomes:

Children will be able to:

- discuss and demonstrate that leaves perform the function of photosynthesis;
- enlist the factors affecting photosynthesis;
- draw picture of stomata and chloroplast;
- identify the difference between respiration and photosynthesis and relate that respiration and photosynthesis help maintain the balance of CO<sub>2</sub> and O<sub>2</sub> in the atmosphere;
- reason out that the energy produced in respiration is used up by the body to perform life-sustaining activities;
- differentiate between the aerobic and anaerobic respiration;
- discuss the need for growing more and more plants.

<b>Plant Life</b>		
Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<p><b>Photosynthesis</b></p> <ul style="list-style-type: none"> <li>▷ Definition, basic process, factors affecting photosynthesis: (light, carbon dioxide, water, chlorophyll), significance of photosynthesis, setup.</li> <li>▷ Experiment to demonstrate photosynthesis process.</li> </ul> <p><b>Respiration</b></p> <ul style="list-style-type: none"> <li>▷ Basic process, word equation; respiration as a process which releases energy; respiration in plants: two types (aerobic and anaerobic: basic concept, word equations for both, examples).</li> <li>▷ Respiration and photosynthesis in plants, difference in both processes.</li> </ul>	<ul style="list-style-type: none"> <li>▷ Revisiting previous concepts.</li> <li>▷ Building on children's previous learning.</li> <li>▷ Asking children to observe the colour of leaves and also name plants that have yellow or red coloured leaves, discussing the reasons for such colours.</li> <li>▷ Providing opportunities for observation of stomata and chloroplasts present in the leaves using a microscope.</li> <li>▷ Drawing picture of stomata and chloroplast and labelling their parts.</li> <li>▷ Summarizing the process of photosynthesis with the help of a word equation (No symbols)</li> <li>▷ Demonstrating experiments in setup on photosynthesis and respiration with the support of elders.</li> <li>▷ Demonstrating to children the hydrilla experiment to show evolution of oxygen during</li> </ul>	<ul style="list-style-type: none"> <li>▷ Charts.</li> <li>▷ Plants like hydrilla (water plant), mushroom, money plant, yeast, leaves of croton, <i>Rhoeo</i> (to see colour of leaves and performing experiments).</li> <li>▷ Permanent slides/fresh preparations of epidermal peels of leaves (to observe stomata) and Hydrilla leaf to study stomata and plastids.</li> <li>▷ PPTs, videos.</li> </ul>

## Plant Life

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
	<p>photosynthesis.</p> <ul style="list-style-type: none"><li>➤ Discussing the difference between aerobic and anaerobic respiration and citing examples of both.</li><li>➤ Discussing differences between the respiration and photosynthesis process in plants and asking children to explain both the processes in their own words.</li></ul>	

## Theme 4: Human Body

In the previous classes, children were exposed to basic information regarding some of the organ systems in the human body (digestive, respiratory and circulatory systems). In this theme, children will study the excretory and nervous systems in the human body.

### Learning Outcomes:

Children will be able to:

- ✔ define the term 'excretion' and its need/significance;
- ✔ draw the outline figure of the human body and mark the location of kidneys, skin, sweat glands and lungs;
- ✔ infer that the kidneys are very important as they filter the blood;
- ✔ identify various parts of nervous system i.e. brain, spinal cord and nerves.
- ✔ discuss the need of spinal cord, brain, nerves for the body;
- ✔ relate that all parts of the body are connected to the brain through the nerves;
- ✔ list some of the activities that are under the control of the nervous system.

<b>Human Body</b>		
<b>Key Concepts</b>	<b>Suggested Transactional Processes</b>	<b>Suggested Learning Resources</b>
<div style="background-color: red; color: white; text-align: center; padding: 2px; margin-bottom: 5px;"><b>Excretory System</b></div> <p><b>Excretion: Definition.</b></p> <ul style="list-style-type: none"> <li>➤ Organs and their excretory products (kidneys, sweat glands, lungs);</li> <li>➤ Renal Excretory System - kidneys, ureter, urinary bladder, urethra (location and functions to be explained along with diagram);</li> <li>➤ Role of kidneys infiltration of blood through millions of nephrons (details not required, structure of nephron not to be discussed); common disorders of the urinary system: Urinary Tract Infection, kidney stone.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Building on children's previous learning.</li> <li>➤ Explaining the various parts of excretory and nervous system with the help of charts, models, PPTs and videos.</li> <li>➤ Explaining the difference between excretory and waste products.</li> <li>➤ Asking children to draw labelled diagrams of the following:                             <ul style="list-style-type: none"> <li>☛ <i>The excretory system showing the various parts along with labelling.</i></li> <li>☛ <i>The nervous system – the brain, spinal cord, and nerves.</i></li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Charts and models.</li> <li>➤ PPTs and videos.</li> <li>➤ Model of the brain and human excretory system.</li> <li>➤ Children's drawings.</li> </ul> <div style="text-align: center; margin-top: 20px;"> </div>
<div style="background-color: red; color: white; text-align: center; padding: 2px; margin-bottom: 5px;"><b>Nervous System</b></div> <ul style="list-style-type: none"> <li>➤ Main parts: brain, spinal cord, nerves.</li> <li>➤ Brain: cerebrum, cerebellum, medulla oblongata (location and function).</li> <li>➤ Spinal cord: location and function.</li> <li>➤ Nerves: what are nerves; their general function.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Discussing common disorders of the urinary system.</li> <li>➤ Assigning group projects on making models and charts on both systems.</li> <li>➤ Providing children opportunities to share their personal experiences.</li> </ul>	

## Theme 5: Health and Hygiene

In the earlier classes children have learnt that diseases develop due to infections by micro-organisms, imbalances in diet and malfunctioning of vital body organs, and that hygiene is important to prevent spread of diseases. In this theme, children will know and understand the allergic reactions of the body due to certain substances in the environment and how they can be prevented.

### Learning Outcomes:

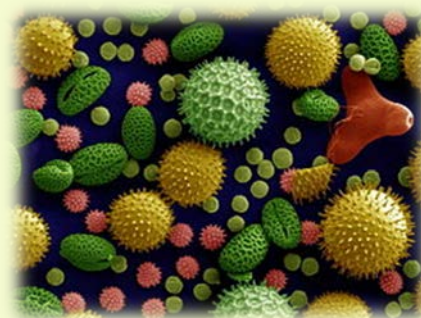
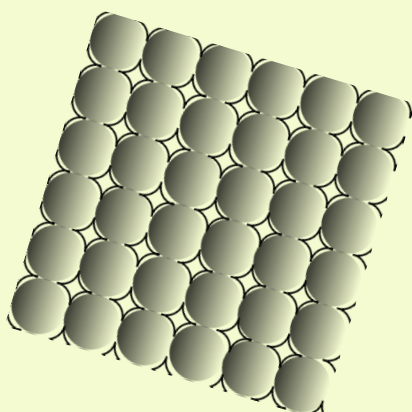
Children will be able to:

- ✔ define the terms allergy and allergens and differentiate between them;
- ✔ identify the symptoms produced by allergens;
- ✔ infer that allergy can be seasonal or perennial;
- ✔ know the precautions to be taken if they suffer from any particular type of allergy.

<b>Health and Hygiene</b>		
Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<div style="background-color: red; color: white; text-align: center; padding: 2px; font-weight: bold;">Allergy</div> <ul style="list-style-type: none"> <li>➤ Concept of allergy.</li> <li>➤ Allergens: Common allergens like dust, pollen grain, mites, strong sunlight, particular food items.</li> <li>➤ Entry routes of allergens: mouth, nose, skin.</li> <li>➤ Symptoms of allergic reaction.</li> <li>➤ Types of allergies: seasonal and perennial with examples.</li> <li>➤ Precautions and care to be taken by a person who is prone to allergies.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Enlisting causes of allergy.</li> <li>➤ Discussing with children the concept of allergy, explaining the various aspects of entry route of allergens, symptoms produced, precaution to be taken to control allergic reactions.</li> <li>➤ Providing opportunities for discussion with the school physician.</li> <li>➤ Organising group discussion on prevention and care of allergy.</li> <li>➤ Discussing various ways to keep oneself healthy and safe.</li> </ul>	<ul style="list-style-type: none"> <li>➤ PPTs, Videos, photographs</li> <li>➤ Permanent/temporary slide of <i>Aspergillus</i> conidiophores</li> <li>➤ Photographs/ slide showing mites, pollen, etc. in house dust.</li> <li>➤ Physician.</li> </ul>

**Integration:** Health and Physical Education

**Life Skill:** Health awareness



## Theme 1: Transport of Food and Minerals in Plants

This theme deals with the movement of water containing minerals and food with plants. The exchange of water, gases, minerals and other substances into and out of the cells and also between neighbouring cells, takes place through a system called transportation system. In unicellular organisms (*Chlamydomonas*) and simple multicellular organisms like *Spirogyra*, diffusion is a major method of transportation. Diffusion of water across a semipermeable membrane is called osmosis. In complex higher plants because of enormity of size and complex organization, there is an elaborate transportation system and transport occurs through a vascular system of independent channels or conducting tubes (xylem and phloem). In addition to transport, xylem tissue also provides mechanical strength to the plant body. Essential mineral nutrients are also needed for the healthy growth of plant. In the absence or non-availability of the essential element the plant shows specific deficiency symptoms.

### Learning Outcomes:

Children will be able to:

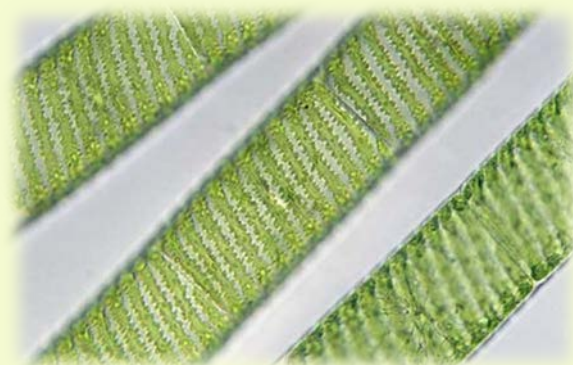
- ✓ learn about the existence of a transport system inside the plant body of complex multicellular higher plants;
- ✓ explain that transport in unicellular and simple multicellular plants takes place by diffusion;
- ✓ define and discuss diffusion, osmosis, transpiration, root pressure;
- ✓ perform experiments and demonstrate the process of osmosis;
- ✓ realize that the minerals required are either micronutrients or macronutrients depending upon the quantity required by the plants;
- ✓ relate that the deficiency or lack of essential nutrients leads to specific symptoms and diseases.
- ✓ define transpiration, interpret its role in xylem transport and know about the factors affecting rate of transpiration.
- ✓ demonstrate transpiration through simple experiments.

### Transport of Food and Minerals in Plants

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<p><b>Transport in Plants</b></p> <ul style="list-style-type: none"> <li>▷ Diffusion – definition;</li> <li>▷ Osmosis – definition, example, semipermeable membrane, root pressure; active transport.</li> <li>▷ Transpiration - definition, importance and factors affecting transpiration.</li> <li>▷ Structure and function of Xylem and Phloem in detail;</li> <li>▷ Importance of minerals: macro and micro-</li> </ul>	<ul style="list-style-type: none"> <li>▷ Asking children to find out the presence/absence of conducting tissues in simple plants like <i>Chlamydomonas</i>, <i>Spirogyra</i> and higher plants like <i>Petunia</i>, <i>Vinca</i>, mustard, balsam, mango tree and neem tree;</li> <li>▷ <b>Experiments</b> <ul style="list-style-type: none"> <li>• Putting a twig of (with white flowers) of petunia, balsam or <i>Vinca</i> in coloured water and noting the flower and portion of stem that becomes coloured (in a</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▷ Charts, models</li> <li>▷ PPTs, Videos</li> <li>▷ Laboratory experiments</li> <li>▷ Discussion</li> <li>▷ Drawings</li> </ul>

## Transport of Food and Minerals in Plants

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<p>nutrients; three deficiency diseases caused by lack of these essential nutrients.</p>	<p>transverse/ vertical section of the twig).</p> <ul style="list-style-type: none"> <li>☛ Demonstrating experiments on osmosis (potato osmoscope), diffusion, root pressure and transpiration (covering the aerial part with a bell jar/transparent colourless bag).</li> <li>☛ Performing simple experiments to study the process of diffusion, osmosis, active transport and transpiration.</li> <li>➤ Transverse section of wood of neem/mango or any other locally available specimen.</li> <li>➤ Providing opportunities for observation of the conducting tissues through permanent/ freshly prepared slides, charts, models and PPTs;</li> <li>➤ Asking children to draw the outline of transverse and vertical sections of stem of some of the above mentioned plants and locate the presence of xylem and phloem under the microscope;</li> <li>➤ Drawing and labelling diagrams of experiments on osmosis, diffusion.</li> </ul>	



## Theme 2: Reproduction in Plants and Animals

Reproduction is one of the most important functions of living organisms. It is essential for perpetuation of species. There are two ways by which living organisms give rise to new organisms - Asexual (vegetative propagation) and sexual reproduction. While asexual reproduction involves a single individual parent, sexual reproduction involves two different individuals of different sexes, one male and another female. In this theme children will learn more about various methods of vegetative/asexual reproduction in plants and animals, a brief account of fertilization and post fertilization changes in flower and main organs of reproductive system of human male and female.

### Learning Outcomes:

Children will be able to:

- ☑ record during a visit to garden the common names of plants and how they are multiplied;
- ☑ observe and correlate butterflies and honeybees moving around flowers to the process of pollination;
- ☑ ask the gardener how he raises or multiplies plants like jasmine, rose, Bryophyllum, Chrysanthemum, Dahlia, potato and money plant;
- ☑ observe in a nursery how cuttings and budding methods of vegetative propagation are used for growing larger number of roses;
- ☑ observe how grass plants which are planted at some distance from each other cover the entire soil after some days due to vegetative propagation;
- ☑ recognize that sexual reproduction involves the fertilization of an egg cell by a sperm cell to produce offspring that may closely resemble the parents.

### Reproduction in Plants and Animals

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<p style="text-align: center; color: white; margin: 0;"><b>PLANTS</b></p> <p>➤ <b>Types of Asexual reproduction:</b> Binary fission, budding, fragmentation, spore formation, vegetative propagation, artificial propagation by tissue culture (basic process along with a suitable example of each)</p> <p>➤ <b>Sexual reproduction in Plants:</b></p> <ul style="list-style-type: none"> <li>☛ Review of parts of a typical flower (4 whorls and their structure and function)</li> <li>☛ Pollination: self and cross;</li> <li>☛ Agents of pollination: three characteristics of plants pollinated by insects, water and wind (with examples).</li> </ul>	<ul style="list-style-type: none"> <li>➤ Asking children their experiences about multiplication and reproduction in plants and animals seen by them in their surroundings.</li> <li>➤ Analysing the advantages and disadvantages of vegetative propagation in group work.</li> <li>➤ Learning the economic importance of artificial propagation.</li> <li>➤ Providing opportunities for observations through various ways –                             <ul style="list-style-type: none"> <li>☛ <i>Observations of actual specimens in the field, dissecting a bisexual flower (mustard, china rose, vinca) to study the</i></li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Actual specimens of flowers</li> <li>➤ Biology laboratory with a dissecting and a compound microscope.</li> <li>➤ Dissection of typical bisexual flower to study the different whorls.</li> <li>➤ PPTs and Videos.</li> <li>➤ Permanent/temporary slide preparations of budding in yeast and Hydra, dividing bacterium, fragmentation (fungal hypha/any filamentous algae, conidiophores or any other vegetative spores of any fungus.</li> <li>➤ Bagging technique (emasculation and artificial pollination)</li> <li>➤ Tissue culture photographs</li> </ul>

## Reproduction in Plants and Animals

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<p>Characteristics of flowers of each kind.</p> <ul style="list-style-type: none"> <li>☛ Fertilization process in brief by flow chart.</li> <li>☛ Mention of artificial pollination.</li> </ul>	<p><i>different whorls;</i></p> <ul style="list-style-type: none"> <li>☛ <i>Observing permanent slides in the laboratory;</i></li> <li>☛ <i>Observing the pollinators (butterflies/ bees) and their movement from one flower to another of same plant, or from a flower of one plant to flower of another plant, observing a flower changing into a fruit in a kitchen garden (tomato/chilli/lady's finger etc.) and discussing pollination process in them.</i></li> </ul>	
<p style="text-align: center;"><b>ANIMALS</b></p> <ul style="list-style-type: none"> <li>➤ Sexual reproduction in humans:</li> <li>➤ Main organs of male and female reproductive system</li> </ul>	<ul style="list-style-type: none"> <li>➤ Observing the flower of wheat, rice and maize plants;</li> <li>➤ Learning through charts, PPTs, videos, the process of fertilization and artificial pollination.</li> <li>➤ Explaining the main organs of human reproductive system (male and female) through charts and models.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Charts/models/PPTs/videos of human reproductive system (male and female)</li> </ul>



## Theme 3: Ecosystems

A community of organisms (plants and animals) in a given area, live in harmony with the environment. There is a close interaction between the living (called biotic) and non-living (called abiotic) components of the environment. The study of interaction between biotic and abiotic components is known as ecology and the ecosystem is the basic unit of study. There are many types of ecosystems, namely aquatic (fresh water/ marine), terrestrial (forest/ grassland/ desert), etc. The composition of biotic community and the abiotic components (environment) varies in different ecosystems. Organisms develop adaptations suited to live in a particular environment. Living organisms, which may be producers (plants), consumers (animals) or decomposers (micro-organisms), are linked to each other through food chains. Ecosystems exhibit two important functional attributes (a) A unidirectional flow of energy from sun to producers to consumers and finally to decomposers, and (b) Cyclic flow of nutrients.

### Learning Outcomes:

Children will be able to:

- ✓ define the terms ecosystem, producer, consumer, decomposer, food chain, food web and pyramid of numbers, with examples (technical terms);
- ✓ explain and analyze the biotic and abiotic components of an ecosystem;
- ✓ interpret the relationship between different biotic components in terms of food chain, food web and pyramid of numbers;
- ✓ evaluate the abiotic factors and their influence on biotic factors;
- ✓ describe and provide examples for inter dependence relationships between organisms (symbiosis, parasitism and predation);
- ✓ draw relationship between the flora and fauna of a particular forest ecosystem;
- ✓ make a flow chart of a food chain and food web.

<b>Ecosystems</b>		
<b>Key Concepts</b>	<b>Suggested Transactional Processes</b>	<b>Suggested Learning Resources</b>
<ul style="list-style-type: none"> <li>▷ Understanding ecosystems: definition, interaction between biotic and abiotic factors;</li> <li>▷ Biotic components consisting of producers, consumers, decomposers. Meaning of food chain. Food web, and pyramid of numbers.</li> <li>▷ Interdependence between organisms: symbiosis, parasitism and predation.</li> <li>▷ Brief account of abiotic or non-living components such as air, soil, water and climatic factors such as sunlight, temperature, humidity and wind;</li> <li>▷ Only, forest ecosystem with its flora and fauna to be taught.</li> </ul>	<ul style="list-style-type: none"> <li>▷ Asking children to observe plants and animals in their surroundings and noting down:                             <ul style="list-style-type: none"> <li>☛ <i>their names (help of the class teacher may be sought);</i></li> <li>☛ <i>names of animals which consume plants.</i></li> <li>☛ <i>names of larger animals which eat smaller ones.</i></li> <li>☛ <i>names of omnivores (if any)</i></li> </ul>                             Using the data collected to construct food chain, food web.                         </li> <li>▷ Providing opportunities for observations on the flora and fauna of a forest ecosystem, and noting down:                             <ul style="list-style-type: none"> <li>☛ <i>The different producers and consumers;</i></li> <li>☛ <i>the decomposers acting on the leaves fallen on the forest floor, and</i></li> <li>☛ <i>the abiotic factors.</i></li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▷ Visit to school/local garden, forest area</li> <li>▷ Charts, photographs, PPTs.</li> <li>▷ Specimens/pictures /charts of examples for predation, symbiosis, parasitism</li> </ul>

**Integration:** Geography, Languages

**Life Skill:** Concern for environment

## Theme 4: Human Body – Endocrine, Circulatory and Nervous Systems

This theme focuses on the nervous system. It aims at enabling children to know and understand that in human beings, there are two kinds of control and coordination (nervous and chemical). The nervous coordination is brought about by the nervous system, and the chemical coordination by the chemicals called hormones. Children will also learn about the hormonal system called endocrine system. In addition, this theme will build and expand on the respiratory, circulatory and systems, which were introduced in earlier classes.

### Learning Outcomes:

Children will be able to:

- ☑ explain that in addition to nervous control, another control/coordination mechanism called hormonal control also exists in humans;
- ☑ define the terms – endocrine system, hormones, endocrine and exocrine glands;
- ☑ draw a diagram showing the location of endocrine glands in the body and describe the functions of hormonal glands namely the thyroid, adrenal, pituitary and pancreas;
- ☑ relate the knowledge gained and explain the changes in their own bodies;
- ☑ become aware about the changes that occur during adolescence and how to manage the emotional and physical changes;
- ☑ explain the techniques used in the management of stress;
- ☑ draw diagrams of the heart, circulatory system, neuron and reflex action;
- ☑ list out the functions of the heart, nervous system, lymph, RBC and WBC.

### Human Body – Endocrine, Circulatory and Nervous Systems

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<p style="text-align: center;"><b>Endocrine System</b></p> <ul style="list-style-type: none"> <li>➤ Two types of glands- exocrine, endocrine (basic concept and difference);</li> <li>➤ Hormone (definition).</li> <li>➤ Hormonal glands - (thyroid, adrenal, pancreas, pituitary); location and function of each.</li> <li>➤ Following points to be studied in tabular form: name of gland, location in body, secretion, function.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Discussing and explaining to children, the concept of hormones and endocrine glands.</li> <li>➤ Describing the endocrine system in human beings through chart, models, PPTs and videos.</li> <li>➤ Asking children to show the location of endocrine glands in the human body by means of a labelled diagram.</li> <li>➤ Talk by the school physician emphasizing the role of endocrine glands in the life of the children; changes during adolescence and management of stress.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Charts and models.</li> <li>➤ PPTs and videos.</li> <li>➤ School Physician/Doctor.</li> <li>➤ Photographs of the structure of heart, neuron, circulatory system, nervous system.</li> <li>➤ B.P measuring instrument, ECG;</li> <li>➤ Charts and videos on reflex action.</li> </ul>
<p style="text-align: center;"><b>Adolescence and accompanying changes</b></p> <ul style="list-style-type: none"> <li>➤ Physical and emotional changes in the body during adolescence.</li> <li>➤ Importance of personal hygiene.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Discussing how hormones bring about changes in the body.</li> <li>➤ Explaining the changes taking place (physical and emotional) in the body during adolescence;</li> <li>➤ Discussing the importance of personal hygiene;</li> </ul>	

## Human Body – Endocrine, Circulatory and Nervous Systems

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<p>➤ Stress management (meaning of stress; ways to tackle stress: yoga, meditation, time management, sports, hobbies, rational thinking etc.)</p> <p style="text-align: center;"><b>Circulatory System</b></p> <p><b>Revisit learning of earlier class</b></p> <p>➤ Internal structure of heart in detail (including valves, septum; pace maker).</p> <p>➤ Schematic diagram of the heart;</p> <p>➤ Blood vessels - aorta, pulmonary trunk, coronary artery &amp; vein, vena cava.</p> <p>➤ Circulation of blood as double circulation.</p> <p>➤ Blood Groups (A, B, AB and O): universal donor and universal acceptor.</p> <p>➤ Conditions related to the functioning of the heart: palpitations, cardiac arrest and hyper tension.</p> <p>➤ Introduction of lymphatic system as a parallel circulatory system.</p> <p style="text-align: center;"><b>Nervous System</b></p> <p><b>Revisit learning of earlier class</b></p> <p>➤ Types of nerves: sensory, motor, mixed (function only). Cranial and spinal nerves (only definition and number).</p> <p>➤ Structure of a motor neuron</p> <p>➤ Central nervous system (CNS) in detail with its parts and their functions.</p> <p>➤ Reflex action: definition and basic terms used to describe reflex action stimulus, response, impulse, receptor, effector); common examples of reflex action.</p>	<p>➤ Discussing various ways to tackle stress.</p> <p>➤ Revisiting previous concepts learnt by children.</p> <p>➤ Revising what has been discussed in previous class.</p> <p>➤ Building on children's previous learning.</p> <p>➤ Explaining the internal structure of heart in detail including information on valves, septum and pace maker.</p> <p>➤ Encouraging children to draw a labelled diagram of the heart.</p> <p>➤ Discussing about the different types of blood vessels and double circulation.</p> <p>➤ Introducing the lymphatic system and its role.</p> <p>➤ Revising what has been discussed in previous class.</p> <p>➤ Learning about the structure of a neuron.</p> <p>➤ Explaining the central nervous system in detail through charts and diagrams.</p> <p>➤ Discussing with children about Reflex action and its impact in their daily lives. Citing the example of Pavlov's experiment on the dog, and its relation to our body.</p> <p>➤ Providing experiences to children by making them experience common reflex actions – when a hand is moved in front of the face – eyes close; when a knee is tapped while sitting, the foot moves forward etc.</p>	

## Theme 5: Health and Hygiene

In the previous classes, children learnt about health, personal and public hygiene, balanced diet, deficiency diseases, life style associated health problems and diseases caused by infection. In this class this theme aims at enabling children to know more about communicable diseases and understand their mode of transmission and prevention. Further, they will also understand the role of the immune system of the body in resisting diseases and the concepts of vaccination and immunization. Children will also appreciate the importance of 'First Aid' and learn to undertake some simple common first aid measures to deal with emergency situations.

### Learning Outcomes:

Children will be able to:

- ✔ identify some communicable diseases, their causative agents and symptoms;
- ✔ show concern towards maintaining personal hygiene and cleanliness of the surroundings;
- ✔ list some common vector borne diseases;
- ✔ differentiate between vaccination and immunization;
- ✔ list the harmful effects of consumption of tobacco, drinking alcohol and taking habit forming drugs;
- ✔ use some simple first aid methods in day to day emergency situations.

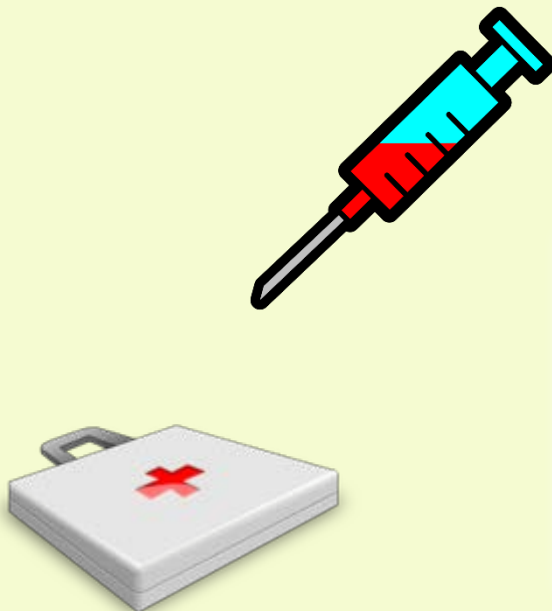
<b>Health and Hygiene</b>		
Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<div style="background-color: red; color: white; text-align: center; padding: 2px; margin-bottom: 5px;"><b>Diseases</b></div> <ul style="list-style-type: none"> <li>▷ A brief idea of communicable diseases (influenza, measles, malaria, dengue, chikungunya, HIV) – causative agents, symptoms and prevention to be dealt with in a tabular form.</li> <li>▷ The meaning of vector.</li> <li>▷ Method of preventing diseases in general; use of vaccines to be mentioned.</li> <li>▷ Vaccination and immunization: the concepts and difference between the two.</li> <li>▷ Harmful effects of consuming tobacco, drinking alcohol, taking drugs.</li> </ul>	<ul style="list-style-type: none"> <li>▷ Revising the topic on diseases, done in class VI.</li> <li>▷ Revisiting concepts learnt by children.</li> <li>▷ Building on children's previous learning.</li> <li>▷ Explaining briefly about communicable diseases, their causal organisms, symptoms produced and methods of prevention and control.</li> <li>▷ Discussing the general methods of preventing diseases.</li> <li>▷ Explaining the concept of vaccination and immunization, giving examples.</li> <li>▷ Discussing the harmful effects of consuming tobacco, drinking alcohol and taking drugs.</li> </ul>	<ul style="list-style-type: none"> <li>▷ PPTs, videos, documentaries on communicable diseases, first aid, harmful effects of liquor, drugs and tobacco.</li> <li>▷ First aid Box.</li> <li>▷ Visit to a hospital/ consulting the school physician.</li> <li>▷ Hospital.</li> <li>▷ School Physician/Doctor.</li> <li>▷ Specimens/pictures of tobacco products showing warning messages.</li> <li>▷ Charts/ PPTs/ of diseases such as malaria, chikungunya, measles, etc.</li> <li>▷ Medicine shop, school dispensary.</li> </ul>
<div style="background-color: red; color: white; text-align: center; padding: 2px; margin-bottom: 5px;"><b>First Aid</b></div> <ul style="list-style-type: none"> <li>▷ First aid- meaning.</li> <li>▷ First aid given in the following cases: (burns, bleeding, fracture,</li> </ul>	<ul style="list-style-type: none"> <li>▷ Requesting the school physician to demonstrate the methods of giving first aid.</li> </ul>	

## Health and Hygiene

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
object in the eye, unconsciousness, swallowing poison, snake bite, stings).	<ul style="list-style-type: none"><li>➤ Organising a visit to the nearby hospital asking children to observe and then conduct a discussion with them.</li><li>➤ Asking children to prepare a first aid box which they can use at home.</li></ul>	

**Integration:** Health and Physical Education, Languages

**Life Skills:** Health Awareness, taking care of oneself and others



## Theme 6: Food Production

Plants and animals provide a number of useful products to mankind. Plants are useful to us in many ways - as sources of food, fibre, timber, medicines, oils, dyes, resins and as ornamentals. Likewise, animals provide us milk, flesh, eggs, fibre, honey, silk, lac, and many more items. Micro-organisms like bacteria are also useful to us - in the production of cheese, bread, alcohol, vinegar and vaccines. There has been a great improvement in the techniques of food production and their scientific management over the years. This theme introduces children to the various methods of food production.

### Learning Outcomes:

Children will be able to:

- ☑ discuss uses of bacteria in the food industry;
- ☑ list importance of mushroom and yeast in the food industry;
- ☑ explain the meaning of agriculture, horticulture, pisciculture (fish farming), apiculture, sericulture, green revolution, white revolution and animal husbandry;
- ☑ identify and provide examples for various food crops and cash crops cultivated in India and make a list of useful cereal, fruit and vegetable plants;
- ☑ list common names of (i) useful plants and animals, (ii) ornamental plants/decorative flowers;
- ☑ list the milk-yielding (milch) animals, meat and egg-laying animals, draught animals and poultry.

<b>Food Production</b>		
<b>Key Concepts</b>	<b>Suggested Transactional Processes</b>	<b>Suggested Learning Resources</b>
<ul style="list-style-type: none"> <li>➤ Bacteria: uses of bacteria in food industry.</li> <li>➤ Fungi - Importance of mushrooms and yeast in food industry.</li> <li>➤ Agriculture: cultivated crops (food-crops and cash crops), crops grown in India.</li> <li>➤ Horticulture- vegetables, fruits, decorative plants and flowers.</li> <li>➤ Organic farming and green revolution in brief (awareness level).</li> <li>➤ Animal husbandry: milk yielding (milch) animals; white revolution; meat providing livestock; draught animals (heavy work); poultry; fish farming (pisciculture); sericulture and apiculture (awareness level).</li> </ul>	<ul style="list-style-type: none"> <li>➤ Giving opportunities to children to:                             <ul style="list-style-type: none"> <li>☛ <i>observe the use of bacteria in making curd and cheese</i></li> <li>☛ <i>observe specimens of mushroom, and note down the useful parts;</i></li> <li>☛ <i>draw pictures of the plants along with the useful parts;</i></li> </ul> </li> <li>➤ <i>Organizing visits to:</i> <ul style="list-style-type: none"> <li>☛ <i>a garden to observe the decorative plants and listing the plants observed;</i></li> <li>☛ <i>farms for studying the milk- yielding, meat-yielding and poultry animals;</i></li> <li>☛ food industries</li> <li>☛ sericulture and a pisciculture centre</li> <li>☛ Collecting photographs of above listed categories of animals.</li> </ul> </li> <li>➤ Growing plants organically within the school premises and comparing these plants with plants grown otherwise.</li> <li>➤ Showing a film on the green and white revolution in India followed by a discussion/class debate about the about the same.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Field Visits</li> <li>➤ PPTs and videos.</li> <li>➤ Visit to food industries</li> <li>➤ Visit to sericulture and a pisciculture centre</li> <li>➤ Pictures of ornamental plants.</li> <li>➤ Decorative flowers.</li> <li>➤ Film on Green revolution/ white revolution.</li> </ul>

**Integration:** Geography

*COMPUTER  
STUDIES*





# Computer Studies



## Introduction

With computers, mobiles and tablets present in most urban households, children today have far greater access to these devices than ever earlier. With their natural tendency to explore, they are often adept at learning by themselves or by observation. It is important to identify the content suitable for the children according to their age and introduce it to them at the opportune time. Keeping in mind their curiosity and knowledge, this curriculum provides children with opportunities to use modern technology to enhance their learning in all subjects. It also generates awareness among them about risks like long hours of usage to play or inappropriate access to the internet. This curriculum also ensures that children become digitally literate, i.e. able to use, and express themselves and develop their ideas through ICT at level suitable for the future workplace and as active participant in the digital world.

## Aim

This curriculum helps the learner:

- to become competent, confident, responsible and critical user of technology.
- to develop the appropriate social skills that are essential for co-operative and collaborative learning.
- to take ownership of their own learning.
- acquire knowledge and skills in using Information and Communications Technology (ICT) to accomplish tasks, communicate, and facilitate activities.
- develop awareness regarding the developments and emerging issues concerning computing and society;
- develop critical and analytical thinking skills for practical solutions.
- develop creative skills for problem solving.

**The Core Concepts of Computer Studies for Classes VI-VIII are as follows:**

**Class VI**

**Categories of Computer and Computer Languages**

**File Management – Organisation of Data**

**Word Processor – Tabular Presentation**

**Word Processor – Mail Merge**

**Presentation – Visual Effects**

**Scratch Programming – Introduction to Game Creation**

**HTML – An Introduction**

**Internet – Online Surfing**

**Class VII**

**Computer – Hardware Components**

**Number System – An Introduction**

**Computer Virus**

**Ethics and Safety Measures in Computing**

**Spreadsheets – An Introduction**

**Database and DBMS – An Introduction**

**HTML – Advanced Features**

**Class VIII**

**Operating System and Graphic User Interface – Role and Functions**

**Spreadsheet – Functions and Charts**

**Algorithms and Flowcharts**

**Program Coding**

**App Development**

**Networks**

## Topic 1: Categories of Computers and Computer Languages

This theme focuses on computers and computer languages. Computers are categorized based on the basis of (i) generation, (ii) type, (iii) purpose and (iv) size, speed, processing power and price. The aim of this theme is to enable children to communicate with the computer, by using specific languages that are broadly into three categories, i.e., machine language, assembly language and higher-level language. They will also become aware of all the different operations performed by a computer which are controlled by computer programs written in a computer programming language.

### Learning Outcomes:

Children will be able to:

- ✓ classify computers into different categories;
- ✓ differentiate between computers on the basis of RAM size, Storage capacity, CPU speed, etc.;
- ✓ describe a Computer Language.
- ✓ explain the evolution of computer languages with their features;
- ✓ differentiate between different computer languages;
- ✓ explain the importance of 4GLs;
- ✓ explain the working of translators by differentiating between an interpreter and compiler.

### Categories of Computer and Computer Languages

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Categories of computers: basic features of microcomputers, mini computers mainframes, supercomputer, mobile, game consoles, embedded computer.</li> <li>➤ Types of computer languages.</li> <li>➤ Features of Low level language (Machine language. Example: binary language)</li> <li>➤ Features of Assembly language.</li> <li>➤ Features of High level languages. Example: C, C++, Java.</li> <li>➤ Features of 4GLs.</li> <li>➤ Translator and its types (Interpreter, Compiler);</li> <li>➤ <b>Working of Translators (briefly).</b></li> </ul>	<ul style="list-style-type: none"> <li>➤ Revisiting and reviewing children's previous learning and building on their experiences.</li> <li>➤ Revising the basic features of a computer with children.</li> <li>➤ Questioning children to identify various types of computers observed in their surroundings.</li> <li>➤ Discussing with children different categories of computers (definition and basic features of microcomputers, mini computers mainframes, supercomputer, mobile, game consoles, embedded computer).</li> <li>➤ Explaining computer languages - Low level language, Assembly language and High-level languages.</li> <li>➤ Discussing and explaining the evolution of computer languages.</li> <li>➤ Demonstrating the working of a Translator and its types.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Presentations/ Videos/ Comparative charts.</li> <li>➤ Computer/ IWB with presentation software.</li> <li>➤ Hands on experience /activity</li> <li>➤ Interactive class resources</li> <li>➤ Projector, etc.</li> <li>➤ Discussion on computer languages</li> </ul>

## Topic 2: File Management – Organisation of Data

Building on children's previous learning in primary classes this Topic covers additional and advanced features on file management which will enable them to organise data better. It is important to understand file format as it makes the task of file management easier. In file management the focus of this theme is that they develop the ability to undertake common operations on stored files such as editing, viewing, copying, playing, moving and deleting files enable better management, access and retrieval/ sorting of files by type, name, size, date (created or modified). File management will also help them to transfer data from one device to another and work with multiple applications at the same time. Understanding of a file format is important as it makes the task of file management easier.

### Learning Outcomes:

Children will be able to:

- move/copy data from one drive to another drive;
- move/copy data between storage devices (pen drive, C.D. hard disc);
- use two or more applications at the same time;
- search files and folders;
- compare different file formats.

### File Management – Organisation of Data

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>▶ Transfer of data from one device/drive to another device/ drive</li> <li>▶ Work with multiple applications</li> <li>▶ Search for files using wild card characters ('?', '*')</li> <li>▶ Various file formats such as JPEG, MP3, MP4, doc. XLS</li> </ul>	<ul style="list-style-type: none"> <li>▶ Giving opportunities for hands on activities for transferring data from one drive/ device to another drive/ device/</li> <li>▶ Demonstrating with an example of listening to music while searching for information on Internet.</li> <li>▶ Explaining the difference between wild card characters by using games such as puzzles</li> <li>▶ Correlating the file</li> <li>▶ extensions with the type of file</li> </ul>	<ul style="list-style-type: none"> <li>▶ Computer/ IWB with presentation software.</li> <li>▶ Hands on activity.</li> <li>▶ Internet.</li> <li>▶ Videos.</li> <li>▶ Projector.</li> <li>▶ Group discussion / activities.</li> </ul>

**Life Skills:** organisation skills

## Topic 3: Word Processor - Tabular Presentation

One of the most common but an important formatting feature of the word processor is 'Tables'. Tables are a method of presenting data in a document, in rows and columns. Blank tables can be inserted or drawn. A table can be simple (based on a metrics) or complex (having different number of rows in columns or vice versa). Intersection of a row and column is a cell. After entering data in a table, it can be modified as per the requirement.

### Learning outcomes:

Children will be able to:

- define table;
- create a table and enter data in the table;
- edit a table;
- format the row/ column/table;
- apply borders and shading in tables.

### Word Processor – Tabular Presentation

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Define a table in terms of rows and columns.</li> <li>➤ Create and edit tables.</li> <li>➤ Insert and delete rows and columns in a table.</li> <li>➤ Enter data.</li> <li>➤ Change row height and column width.</li> <li>➤ Split and merge cells.</li> <li>➤ Apply borders and shading.</li> <li>➤ Resize tables.</li> <li>➤ Align text,</li> </ul>	<ul style="list-style-type: none"> <li>➤ Providing children opportunities to: Explain a table and work on how it can be created in a document.</li> <li>➤ Providing every child hands- on experience and involving them in creating and formatting tables based on everyday requirements such as- creating a class time-table, study schedule for the month, marks obtained in the term examination, etc.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Computers/ IWB with presentation software and Word Processor.</li> <li>➤ Hands on activity</li> <li>➤ Projector.</li> </ul>

## Topic 4: Word Processor – Mail Merge

The topic Mail merge is an important feature of the word processor. The aim is to develop the ability in children so as to enable them to create personalised letters for bulk mailing in a short period of time and address/ mailing labels by using this facility.

### Learning outcomes:

Children will be able to:

- describe Mail merge;
- apply the concept of mail merge to multiple addresses;
- handle various components of mail merge;
- use mail merge to create multiple personalised documents from a single one.

### Word Processor – Mail Merge

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"><li>▶ Mail merge and its advantages.</li><li>▶ Apply Mail merge feature of a Word processor to generate document with varying addresses.</li><li>▶ Components of mail merge (main document, data source, merged document).</li><li>▶ Steps to be followed during mail merge.</li><li>▶ Printing merged letters.</li></ul>	<ul style="list-style-type: none"><li>▶ Initiating a discussion with children on the need of mail merge by giving real life examples like birthday party invitations, etc.</li><li>▶ Providing opportunities for hands on activities to create and print mail merged letter/ documents for everyday situations.</li></ul>	<ul style="list-style-type: none"><li>▶ Computers/ IWB with Word Processor.</li><li>▶ Hands on activity</li><li>▶ Projector, etc.</li><li>▶ Use of mail for document development related to daily life activities</li></ul>

**Life Skills:** General Awareness, Collaborative learning

## Topic 5: Presentation – Visual Effects

Presentation software is an application software that aims at enabling children to access their ideas easily while making a presentation through slide shows. It also provides the audience with visual information. They will understand appreciate how presentations can be made more attractive and interactive by using animations, sound, video, etc.

### Learning outcomes:

Children will be able to:

- ☑ demonstrate different ways of viewing a presentation;
- ☑ present a Topic in an attractive manner by using different objects;
- ☑ enhance the presentation by applying transitions and custom animations;
- ☑ navigate between slides during a slide show;
- ☑ import data from other applications.

<b>Presentation – Visual Effects</b>		
<b>Key Concepts</b>	<b>Suggested Transactional Processes</b>	<b>Suggested Learning Resources</b>
<ul style="list-style-type: none"> <li>➤ Need for different views in a presentation.</li> <li>➤ Working with different views (normal, slide sorter, slide master, slide show) to view a presentation.</li> <li>➤ Apply animation effects through custom animation</li> <li>➤ Add transitions to slides.</li> <li>➤ Use of a media clip and action buttons.</li> <li>➤ Insert media clips (movie and sound)/ action buttons in the presentation.</li> <li>➤ Import data from other applications.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Demonstrating to children the advantages of using normal, slide sorter, slide master, slide show by using an existing presentation.</li> <li>➤ Involving the children in a discussion to highlight how a presentation can be enhanced by using a media clip/ transitions/ animations and action buttons.</li> <li>➤ Organising hands on activities for each child to: insert different objects; apply slide transition and custom animation; use action buttons to navigate between slides.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Computers/ IWB with presentation software.</li> <li>➤ Projector.</li> <li>➤ Animation related activities.</li> <li>➤ Presentation on media clip.</li> <li>➤ Hands-on activities / experiences</li> </ul>

**Life Skills:** Presentation skills, creativity

## Topic 6: Scratch Programming – Introduction to Game Creation

In previous learning of the Topic on 'Scratch' children learnt how to handle basic motion block. This Topic aims at enabling children to handle and work with looks, control pen, and sound blocks of Scratch programming.

### Learning outcomes:

Children will be able to:

- handle commands of different blocks;
- create a working multi-player game.

### Scratch Programming – Introduction to Game Creation

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>▷ Revision from previous class.</li> <li>▷ Changing sprites, images, shapes.</li> <li>▷ Working with Multiple sprites</li> <li>▷ Use of different blocks like Looks, Motion, Control, Pen and Sound.</li> <li>▷ Use of Forever, Forever- IF.</li> </ul>	<ul style="list-style-type: none"> <li>▷ Explaining the working of Blocks like Looks, Motion, Control, Pen and Sound.</li> <li>▷ Providing opportunities to children to use the commands in their own way in order to create games/ quizzes/ interactive cards.</li> <li>▷ Demonstrating the use of blocks and working with multiple sprites to children in class.</li> </ul>	<ul style="list-style-type: none"> <li>▷ Computers/ IWB with Scratch software.</li> <li>▷ Projector.</li> <li>▷ Games, quizzes, interactive cards.</li> </ul>

**Integration:** Mathematics, Physics

**Life Skills:** Collaborative learning



## Topic 7: HTML - An Introduction

HTML an acronym for Hyper Text MarkUp Language, is the language used to describe structured documents as well as to create web pages in Internet. Hyper Text refers to links that connect web pages/ web sites and MarkUp means a set of markup tags. This aim of this topic is to enable children to understand the different features of HTML and develop the ability to design a simple web page using HTML editors.

### Learning outcomes:

Children will be able to:

- ☑ define HTML;
- ☑ differentiate between web page, web site and web browser;
- ☑ list various features of HTML;
- ☑ use various HTML tags;
- ☑ design a web page.

HTML – An Introduction		
Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Definition of webpage and website, web browser.</li> <li>➤ Introduction to HTML programming and its features.</li> <li>➤ Create a web page using HTML Editors (e.g. Notepad).</li> <li>➤ Basic Structure of a HTML document.</li> <li>➤ Basic HTML Tags (&lt;HTML&gt;, &lt;HEAD&gt;, &lt;TITLE&gt;, &lt;BODY&gt;, &lt;BR&gt;, &lt;P&gt;, heading tags from &lt;H1&gt; to &lt;H6&gt;, &lt;B&gt;, &lt;I&gt;, &lt;U&gt;, &lt;SUP&gt;, &lt;SUB&gt;, &lt;CENTER&gt;, &lt;BGCOLOR&gt;, &lt;FONT COLOR&gt;, &lt;FONT SIZE&gt;, &lt;FONT FACE&gt;, &lt;TEXT&gt;).</li> <li>➤ Web Browsers for HTML (e.g. IE, Google Chrome, Netscape Navigator etc.).</li> <li>➤ View HTML codes in a Browser.</li> <li>➤ Create and save a web page through HTML editor.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Explaining and discussing with children HTML, as a web designing tool, and its features.</li> <li>➤ Demonstrating various tags in classroom activities.</li> <li>➤ Demonstrating the process to view the code in a browser.</li> <li>➤ Providing opportunities to each child to participate in project work to create webpage/ website.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Computers/ IWB with HTML editor.</li> <li>➤ Internet facility.</li> <li>➤ Projector.</li> <li>➤ .</li> <li>➤ Project work</li> </ul>

**Life Skills:** creative thinking, logical thinking and critical thinking.

## Topic 8: Internet – Online Surfing

Internet is the largest wide area network. It provides us many facilities and services. In this chapter we will discuss internet services such as E-mail, E-commerce, Blogging, Podcasting and Google drive (to store and share data). The focus of this topic is to develop children's interest, understanding of and ability to use the Internet in simple ways.

### Learning outcomes:

Children will be able to:

- ✓ communicate through e-mail;
- ✓ store and share data using google drive;
- ✓ explain online services of e-commerce;
- ✓ create a blog;
- ✓ express views/ opinions through blogs;
- ✓ differentiate between a website and a blog;
- ✓ create a podcast.

<b>Internet – Online Surfing</b>		
<b>Key Concepts</b>	<b>Suggested Transactional Processes</b>	<b>Suggested Learning Resources</b>
<ul style="list-style-type: none"> <li>➤ Features to be kept in mind while using the internet services – following netiquette; being aware of potential threats in the cyber world.</li> <li>➤ E-mail: introduction; features; advantages; composing and sending e-mail, attachments, cc, bcc, inbox, outbox, trash, spam, logging in and out.</li> <li>➤ Google Drive: introduction; using the drive: upload, organise and share.</li> <li>➤ E-commerce: an understanding of E-commerce as online buying and selling of goods and services.</li> <li>➤ Online modes of payment: credit card, debit card, e-money.</li> <li>➤ Blogging and Podcasting: meaning purpose and uses.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Having an open discussion with children on their experiences while surfing the internet, what they liked and did not and issues they faced if any.</li> <li>➤ Discussing and debating with children on:                             <ul style="list-style-type: none"> <li>• potential threats while using the internet</li> <li>• importance of netiquettes.</li> <li>• evolution of communication by comparing earlier modes with the modern modes and advantages and disadvantages of each.</li> </ul> </li> <li>➤ Demonstrating how to:                             <ul style="list-style-type: none"> <li>• send an e-mail, with bcc, cc, attachments.</li> <li>• use the Google Drive and explaining the process of uploading and sharing data through it</li> </ul> </li> <li>➤ Introducing E -commerce by discussing the different modes online buying and selling</li> <li>➤ Discussing with children the following:                             <ul style="list-style-type: none"> <li>• advantages and disadvantages of online shopping</li> <li>• online modes of payment</li> <li>• the difference between a website and a blog</li> </ul> </li> <li>➤ Introducing the concept of podcast by giving real life examples of use of podcast in news</li> <li>➤ Providing opportunities for hands-on activity through projects and individually on the internet, google, website and blog.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Computers/ IWB with presentation software</li> <li>➤ Use of internet in conducting activities</li> <li>➤ Hands on experiences working on various functions of internet.</li> <li>➤ Use of google drive</li> <li>➤ Use of website and blog</li> </ul>

**Life Skills:** Organisation skills

## Topic 1: Computer - Hardware Components

Computers comprise of two major components: hardware and software that are integral to each other's functioning. Hardware are either external, like, monitor, keyboard, mouse, printer, etc., or internal, like, CPU, motherboard, drive, sound card and video card. This theme aims at enabling children to know and understand the two major components of the computer.

### Learning Outcomes:

Children will be able to:

- ☑ recognize different components of a computer like SMPS, ports, MODEM and disc drives.
- ☑ explain the usage of different components.
- ☑ differentiate between external and internal hardware.
- ☑ cite examples of external and internal hardware.

### Computer – Hardware Components

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Computer Hardware: external and internal hardware;</li> <li>➤ Brief explanation with examples of hardware and some of its parts (CPU, Disk drives, Power supply (SMPS), Motherboard, Ports, Modem, peripheral devices (keyboard, mouse, pen drive, scanner, printer etc.).</li> </ul>	<ul style="list-style-type: none"> <li>➤ Showing the components of an old CPU box and their placement on the mother board.</li> <li>➤ Differentiating through demonstrations to children between internal and external hardware.</li> <li>➤ Explaining different components like Power supply (SMPS), Motherboard, Ports, Modem through presentations/ videos.</li> <li>➤ Engaging children to participate in quizzes and worksheet activities related to hardware</li> </ul>	<ul style="list-style-type: none"> <li>➤ Old CPU components.</li> <li>➤ Computers/ IWB with presentation software.</li> <li>➤ External hardware.</li> <li>➤ Internal hardware,</li> <li>➤ Quizzes and worksheets</li> </ul>

## Topic 2: Number System – An Introduction

Number System is a set of values used to represent different quantities. In day-to-day life we use the decimal number system, which has a base of 10 as it uses 10 digits (0-9). The digital computer represents all kind of data and information (text, numbers, graphics, video, etc.) in binary numbers which have a base of 2 as the computer uses 2 digits (0 and 1). Other number systems used in computer are octal and hexadecimal. Values from one number system can be converted to other number system. This theme aims at enabling children to know and understand the different number systems and their uses in general and in particular, that of the digital computer.

### Learning outcomes:

Children will be able to:

- ☑ explain the need for Number Systems;
- ☑ list the uses of various Number Systems in computer learning;
- ☑ convert a value from decimal number system to binary and vice versa;
- ☑ citing examples of binary, decimal conversion and demonstrating them.

### Number System – An Introduction

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Introduction to Number system: need for number systems and examples of various number systems.</li> <li>➤ Digits and bases of different number systems.</li> <li>➤ Represent value in different number systems (Decimal, binary, octal and hexadecimal number system).</li> <li>➤ Conversions from decimal to binary and vice versa.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Illustrating to children the various number systems (Decimal, binary, octal and hexadecimal) through videos/ presentation.</li> <li>➤ Providing opportunities, through examples to children to undertake hand-on-activity for practicing the technique of conversion binary to decimal and vice versa.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Computers/ IWB with presentation software.</li> <li>➤ Hands-on-activity</li> <li>➤ Interactive class</li> <li>➤ Videos on number systems.</li> <li>➤ Projector, etc.</li> </ul>

**Life Skills:** Such as logical thinking may be developed through this content.

## Topic 3: Computer Virus

A computer virus is a 'piece of code' that copies itself and corrupts the system to destroy existing data on a computer. Computer viruses are manmade. There are many types of viruses which infect systems in different ways causing damage to the system. To counter-effect the virus, antivirus programs are developed. This Topic aims at developing children's ability to understand and discuss about what a computer virus is the different types, symptoms and causes along with remedies and protection tips.

### Learning outcomes:

Children will be able to:

- ☑ define a virus.
- ☑ list different types of viruses.
- ☑ follow standard measures to prevent virus attack.
- ☑ identify symptoms of virus attack on a computer.
- ☑ use a suitable antivirus software.

Computer Virus		
Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Definition and example of computer virus.</li> <li>➤ Types of Virus (boot sector and program file virus - definition and examples).</li> <li>➤ Virus symptoms and harm caused by virus</li> <li>➤ Antivirus – definition and examples.</li> <li>➤ Ways to prevent a virus (e.g. scanning pen drive, and CDs, downloading only from secured sites, updating of antivirus regularly etc.).</li> <li>➤ Definition and example of forms of virus attack (malware, worm, spyware, Trojan horse, sweeper).</li> </ul>	<ul style="list-style-type: none"> <li>➤ Illustrating different types of viruses (boot sector and program file virus with examples).</li> <li>➤ Discussing the different forms/types of viruses.</li> <li>➤ Showing children through videos/ presentations the symptoms and harm caused by viruses and conducting a discussion with them after that.</li> <li>➤ Demonstrating different ways to prevent virus attacks and asking children to replicate the same.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Computers/ IWB with presentation software.</li> <li>➤ Videos.</li> <li>➤ Discussion on harmful effects of virus</li> <li>➤ Scanning process of pen drive, CD</li> </ul>

**Life Skills:** Awareness and Management skills

## Topic 4: Ethics and Safety Measures in Computing

Ethics in computing or computer ethics is a set of moral principles which regulate the use of computers. This theme aims at making children aware of the ethics in computing while using the Internet. Further, in order to safeguard the computer and prevent attacks of viruses and hacking, etc. they will know about certain safety features which need to be applied.

### Learning outcomes:

Children will be able to:

- ☑ follow ethics in computing;
- ☑ identify online threats;
- ☑ identify positive and negative uses of social media;
- ☑ show responsible behaviour when using computer and internet;
- ☑ become responsible digital citizens;
- ☑ take care about the digital footprint being created by their online behaviour;
- ☑ use information ethically when developing presentations/ projects/ etc.

### Ethics and Safety Measures in Computing

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Advantages and disadvantages of using internet.</li> <li>➤ A brief introduction to ethics in computing.</li> <li>➤ Unethical practices prevalent in the society, related to internet:               <ul style="list-style-type: none"> <li>☛ <i>Plagiarism</i></li> <li>☛ <i>Cyber bullying</i></li> <li>☛ <i>Hacking</i></li> <li>☛ <i>Phishing</i></li> <li>☛ <i>Spamming</i></li> <li>☛ <i>Individual right to privacy</i></li> <li>☛ <i>Software Piracy,</i></li> <li>☛ <i>Intellectual property rights</i></li> </ul> </li> <li>➤ Meaning and a brief explanation of the different unethical practices stated above in point no. 3. along with the preventive measures.</li> <li>➤ Safety Measures to be taken while using the computer and internet. Parental assistance for minors, such as- viewing age appropriate websites, keeping strong password, not sharing passwords, frequently changing passwords, responding to emails only from known person or organisation etc. Protection using Firewall (meaning and a brief explanation).</li> <li>➤ Digital footprints (meaning and sensitising children about it.)</li> </ul>	<ul style="list-style-type: none"> <li>➤ Discussing with children various Topic/Topics related to ethical and non-ethical issues and practices on the Internet.</li> <li>➤ While working on the computers inculcating, among the children, the habit of ethical online conduct and responsible behavior while using information and technology.</li> <li>➤ Encouraging children to follow safety measures while using the computer and internet.</li> <li>➤ Citing examples from real life to sensitise children on the implications of the digital footprint created by their posts, comments, pictures, social groups, etc.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Computers/ IWB with Presentation Software.</li> <li>➤ Videos.</li> <li>➤ Discussion on ethical and unethical practices related to internet use</li> </ul>

**Life Skills:** Net Safety, Social intelligence, work ethics and interpersonal skills.

## Topic 5: Spreadsheets - An Introduction

A Spreadsheet is an interactive computer application for storing data, in a tabular form (in rows and columns of a grid), that can be manipulated and used for calculations. Spreadsheets are one of the most popular uses of computer. This Topic aims at developing children's understanding about the basic components and operations of the Spreadsheet, namely: creating/ saving/ modifying a workbook.

### Learning outcomes:

Children will be able to:

- ✓ define a spreadsheet;
- ✓ list the features and components of a spreadsheet;
- ✓ create a worksheet;
- ✓ identify the components of spreadsheet window;
- ✓ differentiate between a workbook and a worksheet;
- ✓ edit/format a worksheet.

### Spreadsheets – An Introduction

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Features of spreadsheet and its advantages.</li> <li>➤ Components of Spreadsheet window: workbook and worksheet, sheet tab, cell, cell address, active cell, formula bar, row, column, name box.</li> <li>➤ Entering data in a spreadsheet</li> <li>➤ Types of data (number, string and formula).</li> <li>➤ Perform calculations.</li> <li>➤ Enter simple formulae.</li> <li>➤ Select cells.</li> <li>➤ Change cell contents.</li> <li>➤ Use Undo and Redo features.</li> <li>➤ Insert and deleting columns and rows.</li> <li>➤ Copy and move data.</li> <li>➤ Use autofill feature.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Demonstrating to children the different components of a spread sheet along with discussion.</li> <li>➤ Demonstrating the use of Spreadsheets using real life examples: children can be individually/in groups asked to collect data of a group of people on two- three criteria (e.g. age, height, weight, etc.), enter the data on a spread sheet and perform the various functions on them.</li> <li>➤ Using formatting features by children created on the spread sheets.</li> <li>➤ Discussion on advantages of spreadsheet and workbook.</li> <li>➤ Providing each child the opportunity to work on computers and undertake the following tasks:               <ul style="list-style-type: none"> <li>• Entering data in a spreadsheet</li> <li>• Perform calculations.</li> <li>• Enter simple formulae.</li> <li>• Select cells.</li> <li>• Change cell contents.</li> <li>• Use Undo and Redo features.</li> <li>• Insert and deleting columns and rows.</li> <li>• Copy and move data.</li> <li>• Use autofill feature.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Computers/ IWB with spreadsheet software.</li> <li>➤ Questionnaires/survey s/ polls</li> <li>➤ Discussion on advantages of spreadsheet and workbook</li> </ul>

**Life Skills:** creative thinking, analytical and deductive skills

**Integration:** Mathematics

## Topic 6: Database and DBMS – An Introduction

Database is an organised collection of data. DBMS, an acronym for Data Base Management System, is an application software for creating and managing databases. It provides facility to create, update, retrieve and manage data.

In this topic children will know and understand about the basics of creating a database and will develop the ability to design simple query statements.

### Learning outcomes:

Children will be able to:

- ☑ define database and DBMS;
- ☑ list real life examples of databases;
- ☑ design a database;
- ☑ describe different data types;
- ☑ define a primary Key;
- ☑ create a table, insert data, save and edit a table;
- ☑ build query statements.

### Database and DBMS – An Introduction

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Meaning of Database and DBMS.</li> <li>➤ Uses of database with examples.</li> <li>➤ Create and Save a database.</li> <li>➤ Primary Key.</li> <li>➤ Querying a Database.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Organising a discussion with children to cite examples from real life, like, telephone directory, student registration records, etc., highlighting the need to store data in an organised manner.</li> <li>➤ Explaining the concept of database and illustrating steps to create, save and edit a database and querying a database.</li> <li>➤ Explaining the importance of Primary Key and different data types with respect to database Query.</li> <li>➤ Provide opportunities for hands on experience to prepare a database through some examples and generating queries on the data.</li> </ul>	<ul style="list-style-type: none"> <li>➤ IWB with database software.</li> <li>➤ Telephone directory.</li> <li>➤ Student registration record.</li> </ul>



## Topic 7: HTML – Advanced Features

This topic will develop children's ability to create a web page by not only using basic HTML tags, but upgrading their skills to use advanced tags like lists, images, links, tables and forms. This will make the creation of a web page more attractive and useful to children.

### Learning outcomes:

Children will be able to:

- add advanced features to a web page, like lists, images, links, tables and forms

HTML – Advanced Features		
Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Create lists (&lt;OL&gt;, &lt;UL&gt;).</li> <li>➤ Insert Images in web pages &lt;img src&gt;.</li> <li>➤ Insert links &lt;a href&gt;, tables &lt;tr&gt;, &lt;td&gt;, &lt;table&gt;.</li> <li>➤ Display objects through &lt;Marquee&gt;.</li> <li>➤ Create forms using &lt;form&gt; tag.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Revising and revisiting previous concepts learnt by children i.e. The HTML tags and building on the same.</li> <li>➤ Encouraging children to discuss:               <ul style="list-style-type: none"> <li>• about the features of the websites that they like and their reasons for the same.</li> <li>• how a webpage can be made more impressive/user friendly.</li> </ul> </li> <li>➤ Illustrating how to create lists, insert images, links, tables and forms in a web page and encouraging each child to do the same on his/her computer.</li> <li>➤ Providing opportunities for hands on activity through web page development.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Computers/ IWB with HTML editor.</li> <li>➤ Internet facility.</li> </ul>

## Topic 1: Operating System (OS) and Graphical User Interface (GUI) – Role and functions

This topic will familiarize and develop children's understanding about the operating system as an integral and important program of a computer system. It can be Character User Interface (CUI, e.g. DOS) or Graphical User Interface, GUI (e.g. Windows). They will know about some of the functions of OS: to boot the computer, perform basic computer tasks like managing peripheral devices (mouse, keyboard, printer, etc.), handling system resources, like computer's memory, sharing CPU, etc.

### Learning outcomes:

Children will be able to:

- ☑ differentiate between CUI and GUI in terms of multitasking;
- ☑ list the features, functions and advantages of GUI.

### Operating System (OS) and Graphical User Interface (GUI) – Role and functions

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Introduction, need, functions, features and types of Operating System: definition and examples of single user.</li> <li>➤ Meaning of user interface and its types (CUI, GUI).</li> <li>➤ Introduction to GUI and its advantages.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Revisiting the concept of system software discussed in previous classes</li> <li>➤ Using presentations/ Videos/ Comparative charts/ Interactive classes to explain the GUI and CUI Operating Systems to children.</li> <li>➤ Discussing the different types of OS with examples.</li> <li>➤ Explaining how an OS works - single user, multiuser.</li> <li>➤ Providing facilities for Quizzes/worksheets and Visuals.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Computers/ IWB with presentation software.</li> <li>➤ Videos.</li> <li>➤ Worksheets.</li> <li>➤ Field trips</li> <li>➤ Hands on experiences</li> <li>➤ Worksheets/quiz on this topic.</li> </ul>

## Topic 2: Spreadsheet – Functions and Charts

This topic will expose children to spreadsheet is used the built-in features and tools of spreadsheets namely functions, charts, etc.

### Learning outcomes:

Children will be able to:

- ☑ edit and format a worksheet;
- ☑ define cell range and apply formula;
- ☑ differentiate between different cell referencing;
- ☑ edit a sheet from sheet tab;
- ☑ formulate a function and create a chart.

### Spreadsheet – Functions and Charts

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Method to enter formulae.</li> <li>➤ Meaning of Range, selecting range, naming a range.</li> <li>➤ Cell referencing and its types (relative, absolute, mixed –with examples).</li> <li>➤ Naming, renaming and deleting a sheet from sheet tab.</li> <li>➤ Meaning of Functions.</li> <li>➤ Rules to enter a function like Sum, Average, Max, Min, count, etc.</li> <li>➤ Creating a chart.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Revising and revisiting the previous Key Concepts learnt by children by providing opportunities through presentations/ worksheets.</li> <li>➤ Building on children’s previous learning.</li> <li>➤ Illustrating /Demonstrating cell range, formula and function to children.</li> <li>➤ Emphasizing on the different ways of cell referencing (relative, absolute, mixed –with examples) in a formula/ function.</li> <li>➤ Illustrating how sheets can be edited in the sheet tab.</li> <li>➤ Providing opportunities to each child through hands on experience to apply common functions like Sum, Average, Max, Min, count, etc.</li> <li>➤ Asking children to collect data on two criteria (e.g. age and food preferences, gender and interest in sports, etc.) and preparing a chart on the same.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Computers/ IWB with presentation software.</li> <li>➤ Spreadsheet software.</li> <li>➤ Questionnaires</li> <li>➤ Surveys.</li> </ul> <p>Hands-on-activities</p>

## Topic 3: Algorithms and Flowcharts

An algorithm is 'rules or procedures' for solving problems and are used in all aspects of daily life activities. Two important aspects of algorithms are that the problem should be expressed in detail and without ambiguity. A Flowchart is a diagrammatic representation of an algorithm, in which different steps are shown as symbols of different shapes connected by arrows. To solve any problem, it is important to follow the stepwise strategy. This Topic focuses on enabling children to know and understand about an algorithm and flow chart and develop the ability to write an algorithm and design a flowchart for solution of a particular problem.

### Learning outcomes:

Children will be able to:

- ☑ describe an algorithm;
- ☑ list characteristics of algorithm;
- ☑ analyse a problem;
- ☑ apply algorithm to find the best solution of a given problem;
- ☑ describe flowchart with its symbols;
- ☑ design a flowchart.

Algorithms and Flowcharts		
Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Introduction to algorithm – definition and its use.</li> <li>➤ Characteristics of a good algorithm.</li> <li>➤ Steps to develop an algorithm.</li> <li>➤ Writing algorithms.</li> <li>➤ Definition of flowcharts.</li> <li>➤ Various symbols used in flowcharts.</li> <li>➤ Solving problems by writing algorithms and drawing flowcharts till decision making. (excluding loops).</li> </ul>	<ul style="list-style-type: none"> <li>➤ Introducing children to the topic by asking them to list the ingredients and steps involved in making a cup of tea/ sandwich, etc. (Ingredients may be compared to the Input, steps to the Process and the cup of tea to the Output). This can then be made into a flow chart.</li> <li>➤ Illustrating to children:                             <ul style="list-style-type: none"> <li>• the components of algorithm and flowchart.</li> <li>• the steps through a flow chart.</li> </ul> </li> <li>➤ Providing children opportunities, through projects, for hands on activity.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Computers/ IWB.</li> <li>➤ Projector.</li> <li>➤ Interactive class resources.</li> <li>➤ Projects.</li> </ul>

**Life Skills:** Logical thinking

**Integration:** Mathematics

## Topic 4: Program Coding

Program coding (programming) involves the use of a computer programming language to write a series of instructions (algorithms) called a computer program that the computer can interpret and carry out. All operations performed by a computer are controlled by computer programs. Introduction of program coding (programming) can be explained by using any programming language. This Topic will be developing children's ability to write, compile and execute any program to solve the problem on a computer. They will also appreciate the need and importance of programming.

### Learning outcomes:

Children will be able to:

- ☑ explain the need of programming;
- ☑ define the basic components of a program;
- ☑ explain the need of different data types;
- ☑ use correct syntax of components to write an error free program;
- ☑ compile and execute a program;
- ☑ use different operators.
- ☑ identify the flow of control in selection statements.
- ☑ design a program with appropriate selection statements.

### Program Coding

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Introduction to Program coding/ programming.</li> <li>➤ Components of a program: identifiers, their naming rules.</li> <li>➤ Literals (like integer, real and string).</li> <li>➤ Data types and the need for different data types (like int, char, float, etc.).</li> <li>➤ Declaration and initialisation of variables.</li> <li>➤ Arithmetic operators (+, -, *, /, %), relational and logical operators.</li> <li>➤ Assignment operator and its use.</li> <li>➤ Compiling and executing programs.</li> <li>➤ Concept, use and syntax of <i>if, if else, if else if ladder</i></li> </ul>	<ul style="list-style-type: none"> <li>➤ Citing examples from real life of computing being used in every field, and discussing with children the importance of learning to code.</li> <li>➤ Showing videos on the importance of programming.</li> <li>➤ Explaining:                             <ul style="list-style-type: none"> <li>☛ <i>different components of a program</i></li> <li>☛ <i>the correct syntax of each component</i></li> <li>☛ <i>the functionality of selection statements</i></li> <li>☛ <i>the use of selection statements by using simple examples</i></li> <li>☛ <i>how to compile and execute a program</i></li> </ul> </li> <li>➤ Providing opportunities for Hands-on-activity to each child on the computer,</li> </ul>	<ul style="list-style-type: none"> <li>➤ Computers/ IWB with any Programming software.</li> <li>➤ Internet facility.</li> <li>➤ Videos</li> <li>➤ Presentations.</li> <li>➤ A sample structure of a program.</li> </ul>

## Topic 5: App Development

An App (abbreviation for application) is a piece of software. It can run on our mobile phone, computer, internet or any other electronic device. There are many types of Apps used for different purposes. An App can be developed using any free app development software. This topic will introduce and enable children to understand the different apps, how they work and their uses.

### Learning outcomes:

Children will be able to:

- ☑ identify different types of apps;
- ☑ list uses of apps;
- ☑ classify apps;
- ☑ design and develop an app.

App Development		
Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Introduction to apps</li> <li>Working of apps.</li> <li>➤ Uses of some commonly known apps.</li> <li>➤ Types of apps: web or online, mobile.</li> <li>➤ Development of simple apps (using any free app development software).</li> </ul>	<ul style="list-style-type: none"> <li>➤ Asking children to share their experiences of using an app by them or by any other member in their family.</li> <li>➤ Demonstrating some apps on the mobile phone or through projection through computers.</li> <li>➤ Illustrating the steps to create an app (using any free app development software).</li> </ul>	<ul style="list-style-type: none"> <li>➤ IWB / Computers with an app development software.</li> <li>➤ Hands-on-activities on the use of app</li> </ul>

## Topic 6: Networks

This topic focuses on enabling children to know about a Computer Network and its components. They will understand that it consists of a large number of computers connected to each other so that they can exchange data and share resources and that every network has a topology, i.e., physical layout of communication links. They will also know more about the Internet -that it is a world-wide system for interconnecting smaller networks and 'cloud computing'.

### Learning outcomes:

Children will be able to:

- ☑ define a network and its components,
- ☑ differentiate between types of network.
- ☑ explain the ways in which data moves over the network.
- ☑ explain Internet terms.
- ☑ discuss the need of protocols in networking.
- ☑ summarize the characteristics and advantages of cloud computing.
- ☑ use cloud computing to store, share and present data/ information.

Networks		
Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Definition of Network and its components (sender, receiver, medium).</li> <li>➤ Definition of different types of networks with examples (LAN, MAN, WAN, PAN, CAN).</li> <li>➤ Meaning of various terms related to internet: Intranet, URL, ISP, IP address, DNS, webpage, website, web portal, MODEM, switch, hub, router, gateways, link, hyperlink, hypertext, band width.</li> <li>➤ Definition of protocol (HTTP, FTP, TCP/IP, IMAP, SMTP – a brief explanation of each and their purpose).</li> <li>➤ Introduction to Cloud Computing: characteristics and advantages.</li> <li>➤ Storing and sharing data/information using Cloud Computing.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Showing the school network (the server, the cables, switch, workstations) to explain its uses, components (sender, receiver, medium) and working of different parts.</li> <li>➤ Discussing and classifying the different types of networks with examples with respect to proximity, communication channels, etc.</li> <li>➤ Explaining and discussing the various internet terms.</li> <li>➤ Discussing protocols - a brief explanation of each and their purpose.</li> <li>➤ Providing opportunities through online collaborative project to develop a better understanding of cloud computing (using shared drives and various Web 2.0 tools).</li> </ul>	<ul style="list-style-type: none"> <li>➤ Computers/ IWB.</li> <li>➤ Videos.</li> <li>➤ Internet facility.</li> <li>➤ Interactive class resources</li> <li>➤ Projectors.</li> </ul>





*ARTS  
EDUCATION*



# Arts Education



The Arts are organised expressions of ideas, feelings and experiences in images, music, language, gesture and movement. They provide for sensory, emotional, intellectual and creative enrichment and contribute to the child's holistic development. Much of what is finest in society is developed through a variety of art forms which contribute to the cultural ethos and sense of well-being of an individual.

## Overview

Various policy documents have recommended Arts Education as an area of immense importance for the overall development of students. Report of the Education Commission (1952-53) emphasized the "release of creative energy among the students so that they may be able to appreciate cultural heritage and cultivate rich interests, which they can pursue in their leisure and later in life" and the Kothari Commission re-emphasized the role of arts in education and stated, "The neglect of arts in education impoverishes the educational process and leads to a decline of aesthetic tastes and values."

Arts education was always recommended as an important component of the school curriculum in all National Curriculum Frameworks (1975, 1988 and 2000). The NCF 2005 recommendations brought in the major shift giving Arts Education the status of a curricular area of school education from classes I to X on one hand and arts as an approach to learning to be integrated across the complete school curriculum on the other.

At International front the UNESCO outlines the importance of Arts Education and its essential role in improving the quality of education. UNESCO's Road Map (2006) endeavors to define concepts and identifies good practices in the field of arts education, globally. It is meant to serve as an evolving reference document which outlines concrete changes and steps required to promote arts education in educational settings.

The Seoul Agenda (2010) is another important policy document of UNESCO on Arts Education. Its

three Goals for the Development of Arts Education reflect that Arts education has an important role to play in the constructive transformation of educational systems that are struggling to meet the needs of learners in a rapidly changing world characterized by remarkable advances in technology on the one hand and intractable social and cultural injustices on the other.

## **Objectives of Teaching and Learning Arts**

Education deals with human nature, which has its own potential and pace of growth. Its objective is not to mould, but to facilitate the individual to grow and develop into a creative and productive citizen. The aim is to make an individual free to make his/her own choices in life and grow holistically. In other words, education in general and Art Education in particular is a way for one to grow and become sensitive to the beauty in nature, of social values and the aesthetic aspects of life as a whole.

The Objectives of teaching and learning Arts are:

- ✓ Awareness about oneself and one's immediate environment, from physical existence of objects to daily life experiences and their social importance.
- ✓ Development of individuality, sense of self and self-identity including personal identity and social identity.
- ✓ Opportunity for experiential learning through exploring, appreciating, creating, imagining and expressing.
- ✓ Develop sensory, kinesthetic, psycho motor and affective abilities.
- ✓ Develop cognitive abilities such as imagination, divergent thinking, critical and reflective thinking.
- ✓ Develop an understanding of art materials, methods, tools & techniques, and of processes to communicate and express ideas and feelings in different ways.
- ✓ Develop a non-verbal means of communicating ideas and seeing relationships to reinforce verbal learning.
- ✓ Develop the sensory and other skills in differently abled children (children with special needs) so as to include them in to the mainstream of the process of art learning with normal children.
- ✓ Appreciation of India's heritage and cultural diversity, and that of the world.
- ✓ Develop humane values of peaceful co-existence with nature and other human beings.

## **Art Education Curriculum and Suggestive Pedagogical Guidelines**

Art is essential for cognitive, affective and psychomotor development of every child. It also helps them in modes of expression, visualizing, scenario building, creative problem solving, divergent, critical and reflective thinking. Arts education enhances a child's ability to understand their traditional art heritage as a national treasure and conserve and preserve it. Experiencing arts and

its explorations during the school years give them avenues to nurture creativity which makes them contributing citizens.

The Curriculum of 'Art Education' is delimited to the 'Visual Arts', which consists of; 2-D work such as; Drawing, Painting, Printing, Still-life, pen & Ink, Collage, Paper-craft, Photography, Animation, Graphic-designing etc. and 3-D work such as; Mask making, Clay-modelling, Puppet making, Sculpture, Installations etc.

Stage wise/class wise pedagogical guidelines are given in detail alongside the theme charts of curriculum outcomes, with general guidelines to assist teachers / facilitators plan and conduct the teaching learning experiences better are as given below:

## **Upper Primary Level**

At the upper primary level children are just stepping into the period of adolescence. Physical and psychological changes are rapid and cause anxiety, mood swings, identity issues, etc. Arts education, as medium of creative and individual expression, can cater to their needs of engaging in constructive activities and channelization of thoughts and energy, which initiates a spirit to work in teams. This is the stage where children require adequate practice to develop skills in handling methods and materials, using tools and techniques of different art forms as they start analyzing their own work, as well as of others.

### **Profile of the Learner**

Children of this stage are between the ages of 10+ to 14+ years. They are extremely self-conscious and critical of themselves due to peer and social pressures. There are many physical and emotional distractions, and diversions due to gender differences.

### **Content and Methodology**

Content at upper primary level should cover self, family and society at large. Learning the skills to explore and express emotions through different art Experiences. Learning and understanding of regional arts and crafts to appreciate the national heritage and cultural diversity as value. Study of environmental and social issues and understanding of elements and principals of visual arts.

Methodology at this stage should be focused on experiential learning. Adequate time and space is to be given for exploration and experimentation with methods and materials. Teachers should ensure the participation of each child including those with special needs. Art experiences should be organized in such a way that it provides opportunities for individual as well as group assignments and presentations. Children should be encouraged to take the lead in the planning, designing and executing of different classroom and school programs. Art experiences should be designed and utilized to address values and life-skills. Exposure through media, field visits and community celebrations, where children and teachers interact and share responsibilities. Additional emphasis should be on

the process than the product. Wherever possible, art should be integrated with content of other subjects, for better understanding and joyful learning of concepts.

All activities whether individual or group, should be evaluated and tools and techniques for this stage recommended are; observation, interactions, portfolios, worksheets, display, presentations, visits, documentation and report etc.

## Visual Arts Education

Visual arts education is the area of learning that is based solely on the kind of art that one can see which includes drawing, painting, print making, collage, textiles, sculpture, artefacts and design in jewellery, pottery, weaving, fabrics, etc. and design applied to more practical fields such as commercial graphics and home furnishings. The different types of visual arts are highlighted below.

### *Drawing*



Drawing is a means of making an image, using any of a wide variety of tools and techniques. It generally involves making marks on a surface by applying pressure from a tool, or moving a tool across a surface using dry media such as graphite pencils, pen and ink, inked brushes, wax colour pencils, crayons, charcoals, pastels, and markers.

### *Painting*



Painting is the practice of applying paint, pigment, colour or other medium to a solid surface. The medium is commonly applied to the base with a brush, but other implements, such as knives, sponges, and airbrushes, can also be used. Painting is a mode of creative expression, and the forms are numerous. Drawing, gesture, composition, narration, or abstraction, among other aesthetic modes, reflect the expressive and conceptual intention of the artist.

### *Print making*



Print making is the process of making artworks by printing, normally on paper that involves the making of a work of art by transferring ink from the surface upon which the work was originally drawn or otherwise composed to another surface.

### *Collage*



Collage is a technique of an art production, primarily used in the visual arts, where the artwork is made from an assemblage of different forms, thus creating a new whole. A collage may sometimes include magazine and newspaper clippings, ribbons, paint, bits of coloured or handmade papers, portions of other artwork or texts, photographs and other found objects, glued to a piece of paper or canvas.

### *Textiles*



Textiles are arts and crafts that use plant, animal and or synthetic fibres to construct practical or decorative objects. The textile arts also include those techniques which are used to embellish or decorate textiles – dyeing and printing to add colour and pattern; embroidery and other types of needlework; tablet weaving; and lace-making.

### *Three Dimensional Work*



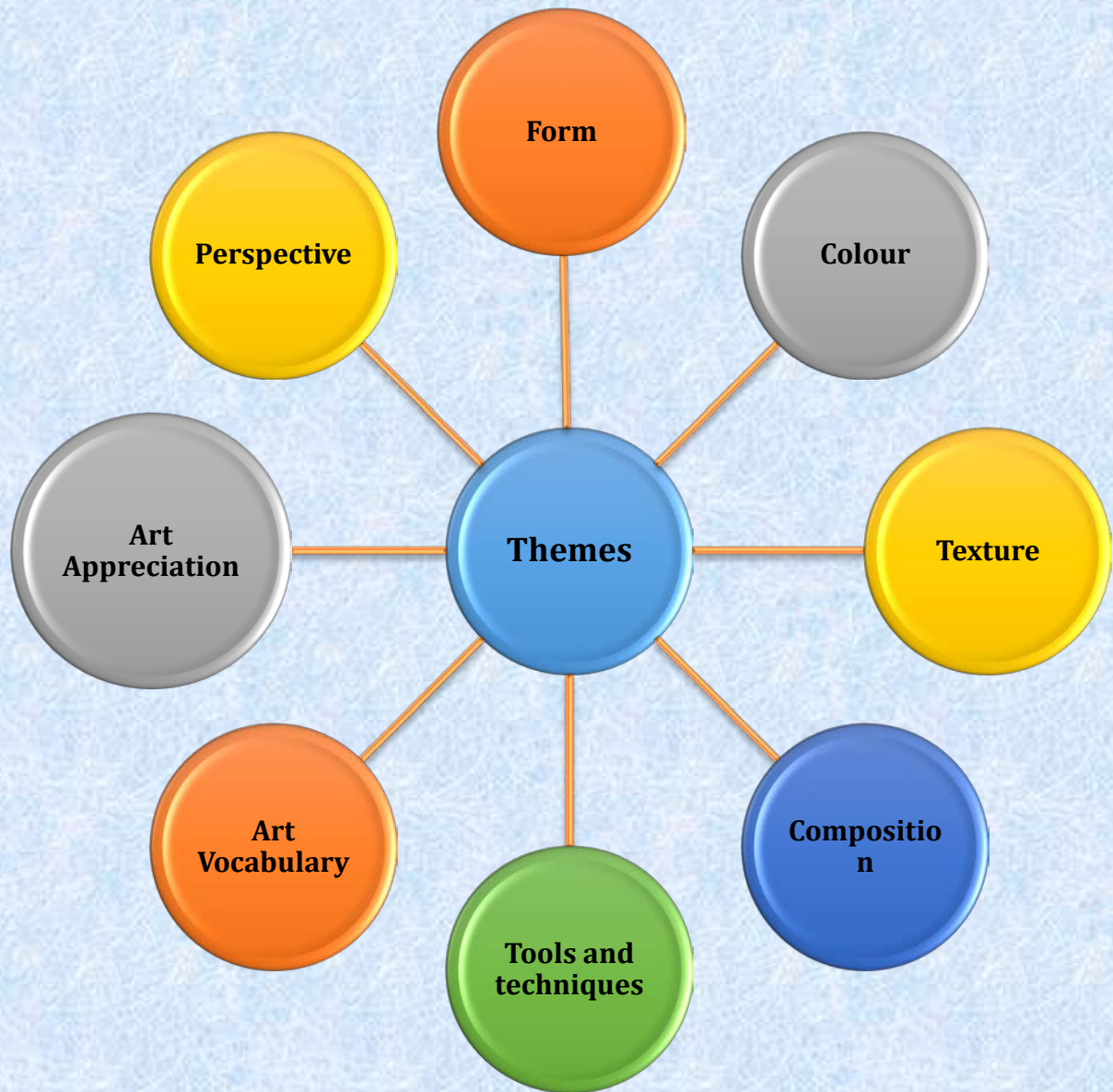
Three-dimensional art design is comprised of three main elements: balance, proportion and rhythm. Balance denotes visual balance and not the actual ability to stand upright. Proportion refers to the various parts of the three-dimensional object. The parts need to give the appearance of belonging together. Rhythm is the repetition of line or shape within the overall form.

### *Art & Artefacts*



An artefact is something made or given a shape by man, such as a tool or a work of art, especially an object of archaeological interest. Examples include stone tools, pottery vessels, metal objects such as weapons, and items of personal adornment such as buttons, jewellery and clothing.

At the upper primary level the themes dealt with in the curriculum for Classes VI , VII and VIII are presented below, there are seven totally.





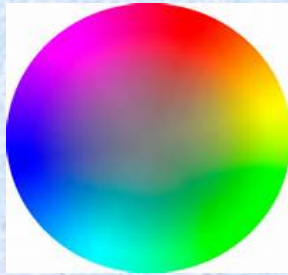
### Theme 1



### Form

Forms; Lines, shapes and sizes of the objects in the immediate surroundings/environment, both natural and man-made.

### Theme 2



### Colour

Colours and naming them after common objects /flowers /fruits /vegetables /animals etc. Understanding and using the characteristics of colour – hue, tint, shade

### Theme 3



### Texture

Different surfaces; soft, smooth, hard, rough etc.

### Theme 4



### Composition

Organisation of 2-D and 3-D space, Artistic placement of colours and forms, installation of 3-D objects, painting landscapes/seascapes, composition based on seasons, sports, parks, situations, arranging patterns, making designs etc. Identification of different kinds of symmetry as types of balance – radial, symmetrical and asymmetrical

### Theme 5



### Tools and Techniques

Use of flat and round brushes, exploring 2-D and 3D methods & materials, such as; drawing, painting, printing, collage making, paper crafts, clay modelling, pottery, construction of objects & situations, mask making, etc.

## **Theme 6**

### **Art Vocabulary**



Identification of tools, papers and materials with their names. Names of techniques, such as: drawing, painting, folding, stretching, printing, block impression, spray work, blow painting and thumb painting. Names of colours, shapes, sizes, words of appreciation etc.

## **Theme 7**

### **Art Appreciation or Responding to Artefacts and Nature**



Appreciation of artefacts and nature around us, understanding of visual representation of objects, situations and concepts.

## **Theme 8**

### **Perspective**



The way in which objects appear to our eyes based on their spatial dimensions, and position of our eye in relation to that object.

All the eight themes will be dealt with in the sequence given above. Each theme will deal with Classes VI, VII and VIII.

## Theme 1: Form

The theme 'Form' is aimed at children developing an understanding of lines, shapes and sizes of objects. The prime focus of this theme is to observe and identify lines and shapes in nature and in man-made objects from the immediate surroundings. Understanding of sizes such as: small, big, tall, huge, tiny etc., and creation of different forms with 2-D and 3-D materials. The process of identification of forms enhances skills, such as; observation, exploration, concentration and creative expression. Learning from this theme will be utilised for facilitating learning of other subjects.

### Learning Outcomes:

Children will be able to:

- ☑ identify different geometrical shapes in furniture, building, plants and trees;
- ☑ draw and paint forms from imagination, while using different shapes of different sizes;
- ☑ decorate objects using variety of shapes;
- ☑ draw patterns using straight, curved, smooth, crooked vertical and horizontal lines;
- ☑ differentiate between geometrical and natural forms;
- ☑ demonstrate use of extended vocabulary related to the theme;
- ☑ link the experience and understanding of forms (in line, shape and size) with the study of mathematics in their class;
- ☑ engage and explore their immediate surroundings for joy of knowing more.

## Form

Key Concepts	Suggested Transactional Process	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Identify different geometrical shapes in furniture, building, plants and trees.</li> <li>➤ Draw and paint forms from imagination, while using different shapes of different sizes.</li> <li>➤ Decorate objects using variety of shapes.</li> <li>➤ Draw patterns using straight, curved, smooth, crooked, vertical and horizontal lines, skilfully.</li> <li>➤ Link the experience and understanding of forms (lines, shapes and sizes) with learning of other subject of their class.</li> <li>➤ Engage and explore</li> </ul>	<ul style="list-style-type: none"> <li>➤ Providing opportunities to children for sharing their personal experiences related to forms with others in school. A few suggested areas of sharing could be; Common furniture items in home and school, buildings and bridges in the immediate surroundings and nature.</li> <li>➤ Encouraging children to create forms from their imagination, such as; chair, bed, classroom, furniture at home in drawing and painting, with clay and by using any other local specific materials for painting or construction.</li> <li>➤ Creating geometrical patterns skilfully using different types of lines, on paper and/or on objects made with clay.</li> <li>➤ Conducting discussions based on placards/ pictures/video clips etc. on</li> </ul>	<ul style="list-style-type: none"> <li>➤ Children's own learning experiences related to furniture items, classroom and school building, home and shopping centres, nature etc.</li> <li>➤ Picture cards/ placards on different forms.</li> <li>➤ Drawing and painting materials.</li> <li>➤ Local specific and low-cost art materials.</li> <li>➤ Potters clay.</li> <li>➤ Art Room with working tables of appropriate height.</li> <li>➤ Computers with relevant software and LCD projector for ICT based art experiences of varied</li> </ul>

## Form

Key Concepts	Suggested Transactional Process	Suggested Learning Resources
immediate surroundings for joy of knowing more.	<p>different type of forms.</p> <ul style="list-style-type: none"> <li>➤ Making Paper craft for creating and understanding the beauty of 3-D forms.</li> <li>➤ Creating forms using light and shadow technique (making use of sunlight or domestic torch to create different forms).</li> </ul> <p><b>Integration with other subjects:</b></p> <p><b>Language:</b></p> <ul style="list-style-type: none"> <li>➤ Provide opportunities to make poems/ songs on objects to develop verbal expression.</li> </ul> <p><b>Mathematics:</b></p> <ul style="list-style-type: none"> <li>➤ Clearing concepts of lines, angles of triangles, rectangles, square, circle etc.</li> </ul>	<p>forms.</p> <ul style="list-style-type: none"> <li>➤ White board or classroom board/s.</li> <li>➤ Water arrangements,</li> <li>➤ Potter's clay.</li> <li>➤ Origami paper.</li> <li>➤ Aprons and towels.</li> </ul>

**Life Skills:** Developing skills of observation, problem solving and co-operation by becoming aware of the immediate surroundings and accepting responsibility of its cleanliness through active participation.

## Theme 2: Colour

The theme 'colour' is aimed at developing an understanding of different colours on one hand and developing aesthetic sensibility on the other. The prime focus of this theme is to observe and identify colours in nature and in man-made objects. Understanding relationship of certain colours with plants, flowers, fruits and nature. For example, leaf green, sea blue & sky blue, bottle green, lemon yellow etc. Creation of different shades by mixing of two different colours. For example; mixing of red and yellow in equal quantity will create orange colour. The process of identification and understanding of colours enhances skills, such as; observation, exploration, experimentation and artistic expression.

Understanding relationship of colours with different subjects and emotions. For example, bright colours for joyful compositions and dull and grey shades for sad subjects. Contrast colours to break the monotony, bold use of warm colours to depict force and cool colours to depict peace and harmony, etc.

### Learning Outcomes:

Children will be able to:

- ☑ identify different colours and shades of household objects, furniture items, flowers, vegetables, fruits, plants and trees appropriately;
- ☑ draw and paint images from immediate surroundings and colour them in their appropriate colours;
- ☑ create a chart of tertiary colours;
- ☑ use neutral colours (black and white) and create a chart of grey tones;
- ☑ demonstrate use of extended vocabulary related to the theme;
- ☑ link the experience and understanding of colours with learning of other subjects in their class;
- ☑ appreciate the beauty of colours in nature and in man-made objects.

<b>Colour</b>		
<b>Key Concepts</b>	<b>Suggested Transactional Process</b>	<b>Suggested Learning Resources</b>
<ul style="list-style-type: none"> <li>➤ Identification of different colours and shades of household objects, furniture items, flowers, vegetables, fruits, plants and trees, appropriately.</li> <li>➤ Drawing and painting of images from immediate surroundings and colouring them with appropriate colours.</li> <li>➤ Create chart of tertiary colours.</li> <li>➤ Use neutral colours (black and white) and create chart of grey tones.</li> </ul>	<p>Providing opportunities for sharing personal experiences with colours around them.</p> <ul style="list-style-type: none"> <li>➤ Encouraging children to explore their immediate surroundings so as to learn more about colours of natural objects located /kept in different places such as -shopping centres, fruit and vegetable markets, mesas/fairs, events, gardens, zoo .</li> <li>➤ Motivating children to make a keen observation of nature for noting colours and shades; of plant/tree leaves, of flowers, feathers, twigs, fruits, vegetables etc., for making scrap book on 'Colours in Nature'.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Children's own experience related to colours. Their likes and dislikes, importance and value of colours to them.</li> <li>➤ Scrap book on colours and shades.</li> <li>➤ Shopping centres, fruit and vegetable markets, mesas/fairs, events, gardens, zoo.</li> <li>➤ Picture cards on colours and shades of different colours.</li> <li>➤ Drawing and painting materials, drawing sheets,</li> </ul>

## Colour

Key Concepts	Suggested Transactional Process	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Use of extended vocabulary related to the theme.</li> <li>➤ Integration of colour experiences with learning of other subjects of their class.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Emphasising on the use of secondary and tertiary colours and shades of these colours while painting/printing curtain designs/patterns for their own room.</li> <li>➤ Encouraging children to make their own colour chart of tertiary colours.</li> <li>➤ Giving Home assignments to draw and colour or click objects based on colour theme. For example; 'Green around us' (spinach, of lady-fingers, of bitter gourd, of cucumber, cabbage, green colour fruits).</li> <li>➤ 'Red around us', Yellow around us' etc.</li> <li>➤ Making new colours, shades, tones etc. while using computers.</li> <li>➤ Discussion on creation of new colours/shades and tones. Use sample cards. Ask questions such as;               <ul style="list-style-type: none"> <li>☛ How do you make the lemon-yellow colour?</li> <li>☛ What colour do you mix to get cherry red?</li> </ul> </li> <li>➤ Making Geometrical <i>Rangolis</i> using different colour leaves, flowers, sand, shells, coloured pebbles, saw dust, powder colours etc.</li> </ul> <p><b>Integration with other subjects:</b></p> <p><b>Language:</b></p> <ul style="list-style-type: none"> <li>➤ Facilitating children to create poem/s on colours of your choice. (individual activity)</li> <li>➤ <b>Mathematics:</b> Make Rangolis based on Geometrical designs</li> </ul>	<p>pigment, paints, inks, dyes, powder colours, sawdust, sand, etc.</p> <ul style="list-style-type: none"> <li>➤ Thread, sponge, straw, paper cuttings, etc.</li> <li>➤ Art Room with working tables of appropriate height, slabs on sides.</li> <li>➤ Computers with relevant software and LCD projector for ICT based art experiences.</li> <li>➤ Boards for art displays.</li> <li>➤ Aprons and towels.</li> <li>➤ Water arrangements</li> </ul>

**Life Skills:** Developing skills of observation, problem solving, communication and cooperation by exploring and knowing about their immediate surroundings in teams and accepting responsibility of its cleanliness and beautification through participation.

## Theme 3: Texture

The theme 'Texture' is aimed at developing an understanding of different textures and surfaces. The prime focus of this theme is to enable children to observe, identify and create textures and understand the relationship of certain textures with plants, trees, flowers, fruits, furs, feathers, wool, sand, fabric, etc. For example, fur is soft, sand is rough, bark of a tree is rough, etc. They will also be able to create different textures and surfaces by using mix mediums and materials. For example; sand painting, impression of bark on clay slab etc. Their experience with different textures will help to sharpen their sense of touch. The process of identification, understanding and creation of texture enhances skills, such as; observation, imagination, experimentation and artistic expression.

Learning from this theme will be utilised for facilitating learning of other subjects.

### Learning Outcomes:

Children will be able to:

- ✔ identify and name different textures and surfaces of common household and natural objects;
- ✔ create new textures in 2-D and 3-D mediums and materials;
- ✔ appreciate beauty and variety of surfaces in nature around them;
- ✔ demonstrate the use of extended vocabulary related to the theme;
- ✔ learn to link the experience and understanding of textures with learning in other subjects;
- ✔ engage and learn to observe and explore their immediate surroundings for joy of knowing and experiencing different surfaces and textures.

<b>Texture</b>		
<b>Key Concepts</b>	<b>Suggested Transactional Process</b>	<b>Suggested Learning Resources</b>
<ul style="list-style-type: none"> <li>➤ Identification and naming different textures and surfaces of the common household and natural objects.</li> <li>➤ Create new textures in 2-D and 3-D mediums and materials.</li> <li>➤ Appreciate beauty and variety of surfaces in nature around him/her.</li> <li>➤ Demonstrate use of extended vocabulary related to the theme.</li> <li>➤ Learn to link the experience and understanding of textures with learning of other subjects of their class.</li> <li>➤ Engage and learn to</li> </ul>	<ul style="list-style-type: none"> <li>➤ Encouraging children to conduct an 'Exploration Walk' in and around their school for observing and touching different textures and surfaces.</li> <li>➤ Providing opportunities for sharing their experiences related to different textures and surfaces in class.</li> <li>➤ Conducting activities related to drawing, painting and printing to create texture of different kinds of stone soil and wood etc. (2-D medium).</li> <li>➤ Making a 3-D Collage and clay modelling for creating texture of wool, wood and sandy surface.</li> <li>➤ Identifying textures and surfaces while blindfolded (group activity with a bag full of mixed objects to explore with).</li> </ul> <p><b>Integration with other subjects:</b> <b>Language:</b></p>	<ul style="list-style-type: none"> <li>➤ Children's own experiences related to their household objects,</li> <li>➤ Natural objects, such as; flowers, vegetables, fruits, plants &amp; trees, birds &amp; animals, fabrics, wool, sponge, soil of different kinds.</li> <li>➤ Samples of different kinds of surfaces.</li> <li>➤ Drawing and painting materials, glue, sponge, pieces of different fabrics, sand, bark, wool, feathers, potters clay, samples of soil, etc.</li> <li>➤ Art Room with working tables of appropriate height, slabs on sides.</li> </ul>

## Texture

Key Concepts	Suggested Transactional Process	Suggested Learning Resources
<p>observe and explore immediate surroundings for joy of knowing more.</p>	<ul style="list-style-type: none"> <li>➤ Facilitating children to create a poem or story on topic such as;                             <ul style="list-style-type: none"> <li>☛ <i>'I still remember my bare feet walking on a wet and slippery surface.'</i></li> <li>☛ <i>'The comforting touch of my dog/cat/rabbit.' etc.</i></li> </ul> </li> <li>(individual activity)</li> <li>➤ <b>EVS:</b> Aesthetic sensibility towards diversity in nature.                             <ul style="list-style-type: none"> <li>☛ <i>Engage children in the upkeep of the classroom after the art activity (to learn cleanliness, beautification and working together).</i></li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Boards for art displays.</li> <li>➤ Aprons and towels.</li> <li>➤ Water arrangements.</li> </ul>

**Life Skills:** Developing skills of observation, empathy and compassion by observing, understanding and appreciating nature. Accepting responsibility of its protection through participation.



## Theme 4: Composition

The theme 'composition', particularly in visual arts (painting, printing, graphic design, sculpture, installation etc.) is meant for the placement or arrangement of visual elements and organisation of the space (2-D and 3-D both). The prime focus of the theme is developing in children the ability to undertake an artistic placement of colours and forms, painting of landscapes, seascapes, composition based on seasons, sports, parks, situations, arranging patterns, making designs, installation of 3-D objects, still life, graphic designs, crafts etc. In the visual arts, composition is often used interchangeably with various terms such as design, visual ordering or formal structure, depending on the context. The prime focus of this theme is that the child observes and finds out compositions in nature, and in man-made structures. Children will understand the relationship of one object with the other, of form with the colours, of objects with the overall theme and finally the visual impact of the work of art. For example, in a composition of the 'Rainy Day', the form of clouds, the lines of falling rain drops, colours supporting mood of the weather, and finally the visual impact of a composition, all are interrelated and interdependent. The process of visualizing and making composition enhances skills, such as; observation, imagination, experimentation, communication and artistic expression.

### Learning Outcomes:

Children will be able to:

- ☑ select compositions from the immediate surroundings, using a view finder/window frame method;
- ☑ draw or paint compositions on themes, such as; my family, my school, festival/s I like, hockey/football/cricket match of my school, landscape, seascape, from their imagination;
- ☑ compose posters on environmental issues, such as; 'Save Trees', 'Save Tigers', 'Save Water', 'Keep your surrounding Clean';
- ☑ arrange and create 3-D objects on a given theme;
- ☑ demonstrate use of extended vocabulary related to the theme;
- ☑ link the experience gained while creating composition, with learning of other subjects;
- ☑ engage and learn to observe and explore immediate surroundings for joy of knowing different compositions;
- ☑ communicate and express their appreciation of visual images.

## Composition

Key Concepts	Suggested Transactional Process	Suggested Learning Resources
<ul style="list-style-type: none"> <li>▶ Select compositions from the immediate surroundings, using the view finder/window frame method.</li> <li>▶ Draw or paint compositions on themes, such as; my family, my school, festival/s I like, Hockey/Football/Cricket</li> </ul>	<ul style="list-style-type: none"> <li>▶ Providing opportunities and encouraging children an independent exploration of interesting locations in and around school and home.</li> <li>▶ Making a sketch of selected compositions with a pencil or dry pastels.</li> <li>▶ Encouraging use of personal sketchbooks.</li> <li>▶ Drawing and/or painting of imaginary</li> </ul>	<ul style="list-style-type: none"> <li>▶ Children's own experience related with arranging their household objects, land/seascapes, arranging idols during <i>poojas</i>, special days, festivals etc.</li> <li>▶ School garden, children parks, historical monuments, etc.</li> <li>▶ View finder, Picture cards</li> </ul>

## Composition

Key Concepts	Suggested Transactional Process	Suggested Learning Resources
<p>match of my school, landscape, seascape, etc., from imagination.</p> <ul style="list-style-type: none"> <li>➤ Compose poster on environmental issues, such as; 'Save Trees', 'Save Tigers', 'Save Water', 'Keep your surrounding Clean' etc.</li> <li>➤ Arrange and create 3-D objects on a given theme.</li> <li>➤ Use of extended vocabulary related to compositions.</li> <li>➤ Engage and learn to explore immediate surroundings for the joy of knowing more.</li> <li>➤ Link experience and understanding of composition with learning of other subjects of their class.</li> </ul>	<p>compositions on themes, such as; my family, my school, my village, community festival/s, Hockey/ Football/ Cricket match of my school, landscapes, seascapes etc.</p> <ul style="list-style-type: none"> <li>➤ Encouraging use by children of their own viewfinders.</li> <li>➤ Providing opportunities to children to create 3-D compositions on themes, such as; home furniture, garden furniture, Gym equipment, means of transportation etc., and installation of the same.</li> <li>➤ Discussing age appropriate compositional skills that cite examples related to the immediate environment of children.</li> <li>➤ Making <i>Rangoli</i> using different compositions.</li> </ul> <p><b>Integration with other subjects:</b>  <b>Languages:</b></p> <ul style="list-style-type: none"> <li>➤ Facilitation to narrate experiences on subject related compositions freely.</li> <li>➤ Write a paragraph describing experience related to the compositions created.</li> </ul>	<p>depicting different composition.</p> <ul style="list-style-type: none"> <li>➤ Sketch books of children.</li> <li>➤ Drawing/painting materials, paints, clay, adhesive, card board, <i>Rangoli</i> material, etc.</li> <li>➤ Art Room with working tables of appropriate height, slabs on sides.</li> <li>➤ Computers with relevant soft wares and LCD projector for ICT based art experiences.</li> <li>➤ Boards for art displays.</li> <li>➤ Aprons and towels.</li> <li>➤ Water arrangements.</li> </ul>

**Life Skills:** Developing skills of problem solving, communication and cooperation by observing, exploring and arranging compositions in their immediate surroundings. Accepting responsibility for the cleanliness and beautification of their surroundings through active participation.

## Theme 5: Tools & Techniques

The theme 'Tools and Techniques' is aimed at developing an understanding in children of the different tools and techniques used for experiencing visual arts. The prime focus of this theme is to identify, experiment and understand the appropriate use of different tools, materials and techniques used in visual arts. Understanding the relationship of tools and materials with that of the techniques. For example, knowledge of brushes, blocks, nibs & holders/pens for inks and their maintenance.

The ability to handle different tools, materials and techniques will be developed. For example; Use of soft, flat brushes (of bigger number) for broader strokes, round brushes for drawing lines of varied thickness, dry colours (pencils, wax crayons, pastels etc.) for drawings, inks for quick and transparent drawings and blow printing, glue/adhesives for fixing of paper cuttings and other materials for making collages, softness of clay for slab, coil and pinching method, converting clay models into terracotta, etc. Use of light and shade, ratio- proportion for arranging and making still life, knowing camera adjustments for clicking good pictures, knowing computer software for exploring and using computers for art experience. Knowing soft stone and wood for carving and sculpture, etc. The process of knowing and working with the tools and techniques enhances skills, such as; observation, experimentation, problem solving and free expression.

Experience with different tools and techniques can sharpen their common sense and make them a confident user and creator.

### Learning Outcomes:

Children will be able to:

- ☑ identify and name the age appropriate tools and materials including computer software/s;
- ☑ understand and apply the age appropriate techniques of visual expression, such as; drawing, still life, colouring, painting, pen & ink, block printing, 2-D and 3-D work, origami, coil, slab and pinching methods of clay modelling, 3-D masks and puppets, simple crafts (local specific) rangoli, wall painting, photography, animation;
- ☑ demonstrate use of extended vocabulary related to the theme;
- ☑ create their own tools and techniques of visual expression;
- ☑ link the experience and understanding of tools and techniques with learning of other subjects;
- ☑ appreciate beauty and variety of methods and materials for visual expression.

<b>Tools and Techniques</b>		
<b>Key Concepts</b>	<b>Suggested Transactional Process</b>	<b>Suggested Learning Resources</b>
<ul style="list-style-type: none"> <li>➤ Identify and name the age appropriate tools and materials including computer software/s.</li> <li>➤ Understand and apply the age appropriate techniques of visual expression, such as; drawing, colouring, painting, pen &amp; ink, block printing, 2-D and 3-D</li> </ul>	<ul style="list-style-type: none"> <li>➤ Providing opportunities for sharing experiences on use and preferences about different tools, materials and techniques used or seen.</li> <li>➤ Participating in collection activities of tools and materials from home, community and from the immediate surroundings.</li> <li>➤ Framing Question answers in 'Do you know?' format, such as;</li> </ul>	<ul style="list-style-type: none"> <li>➤ Children's experience with different tools and techniques, such as of drawing, painting, printing, and collage, of using sand, clay and soil, with origami and paper crafts, with self-found art materials etc.</li> <li>➤ Collection and display of</li> </ul>

## Tools and Techniques

Key Concepts	Suggested Transactional Process	Suggested Learning Resources
<p>work, origami, coil, slab and pinching methods of clay modelling, 3-D masks and puppets, simple crafts (local specific) <i>rangoli</i>, wall painting, photography, animation.</p> <ul style="list-style-type: none"> <li>➤ Create his / her own tools and techniques of visual expression.</li> <li>➤ Use of extended vocabulary related to the theme.</li> <li>➤ Create a small poem or song on tool/s of their liking.</li> <li>➤ Integration of knowledge and experience of tools, materials and techniques with learning of other subjects.</li> </ul>	<ul style="list-style-type: none"> <li>(i) <i>Name any 5 tools of drawing and painting.</i></li> <li>(ii) <i>Which are the materials that you have seen and used for drawing and painting?</i></li> <li>(iii) <i>Name any 3 printing tools/materials you know?</i></li> <li>(iv) <i>Name the collage materials that you like the most?</i></li> <li>(v) <i>What precautions should you take while working on ink and pen technique?</i></li> <li>(vi) <i>What is Block printing?</i></li> <li>(vii) <i>What is the difference between slab, coil and pinching methods?</i></li> <li>(viii) <i>What method of mask making do you like?</i></li> <li>(ix) <i>What material do you use in origami? etc. etc.</i></li> </ul> <ul style="list-style-type: none"> <li>➤ Facilitating learning of new technique/s and use of new tools through demonstration method. For example; Drawing of human face, How and why of water colours as transparent colours and poster colours as opaque. Making of a poster based on its elements, maintenance of tools, etc.</li> <li>➤ Making of wall painting is another example which involves local specific tools, technique/s, materials, motifs and composition.</li> <li>➤ Organising visits by children to meet and see what local artists/artisans do.</li> <li>➤ Inviting local artists and artisans to demonstrate and share their expertise with children.</li> <li>➤ Conducting competitions in class on children imagining new tools, materials and techniques of visual expression, to encourage innovations.</li> <li>➤ Organising group activities on block printing for creating carpet design on</li> </ul>	<p>age appropriate art tools, techniques and materials in the classroom.</p> <ul style="list-style-type: none"> <li>➤ Collection and display of local specific /easily available tools and materials in the art room/classroom.</li> <li>➤ Age appropriate samples in form of pictures or videos of different art methods and techniques.</li> <li>➤ Drawing &amp; painting materials, printing materials, dry and wet colours of different types, glue, sponge, pieces of different fabrics, sand, bark, wool, feathers, potters clay, etc.</li> <li>➤ Art Room with working tables of appropriate height, slabs for 3-D work and display on sides.</li> <li>➤ Computers with relevant soft wares and LCD projector for ICT based art experiences.</li> <li>➤ Boards for art displays.</li> <li>➤ Aprons and towels.</li> <li>➤ Water arrangements.</li> </ul>

## Tools and Techniques

Key Concepts	Suggested Transactional Process	Suggested Learning Resources
	<p>large size paper, using block created by the team.</p> <ul style="list-style-type: none"> <li>➤ Taking impressions of all Indian coins (in use) on clay slabs for demonstrating relief and reverse techniques.</li> </ul> <p><b>Integration with other subjects.</b></p> <p><b>Languages:</b></p> <ul style="list-style-type: none"> <li>➤ Encouraging children for creating stories on brush / colour/ block etc. in small groups.</li> <li>➤ Scripting the enactment of role play, such as; 'I am the brush', 'I am your new colour plate' 'I am your printing roller', etc.</li> <li>➤ <i>(story making can cover it's making process, it's use, it's value, etc.)</i></li> </ul>	

**Life Skills:** Developing skills of problem solving and perseverance by using different tools and materials of creative expression. Developing the confidence in learning to handle tools and materials and joy of learning the appropriate techniques to express through. Participation in cleaning and beautification of their own classroom, school and homes.

## Theme 6: Art (Visual Arts) Vocabulary

The theme "Art Vocabulary" is aimed at enabling children to learn and use appropriate names and terms related to art techniques, to hues and shades of colours, to tools and accessories that are used and to different mediums and materials for appreciating a work of art. The prime focus of this theme is to enable children to know, remember and to use art related vocabulary appropriately. For example, block printing is done with the blocks, and is a technique which is used to take same kind of impression again and again. Soft paint-brushes are used for doing water based colours, flat brushes (of bigger number) are used for broader strokes whereas round brushes are used for drawing lines of varied thickness, slab method and coil method are techniques of making 3-D objects with potter's clay, terracotta is the result of baking clay models at an appropriate temperature, perspective is a skill for making 2-D objects and sceneries look 3-D, use of different colours can help in creating different effects in an art work, composition is a grouping of different objects/forms and colours in a visually pleasant manner, animation is a technique which provides movement to the graphics, etc. etc. The process of knowing and using appropriate vocabulary will enhance the communication skills of the learner.

Knowledge and experience of art vocabulary helps in better learning of the subject on one hand and effective communication on the other.

### Learning Outcomes:

Children will be able to:

- ☑ identify and name different tools and techniques, such as; round brushes, flat brushes, hard and soft brushes, type of scissors, rollers/rolling pins, drawing and painting, printing, clay modelling, terracotta, pottery, spray painting, reverse techniques, origami, construction, round and relief work, 2-D and 3-D work, paper craft;
- ☑ name the terms/specifications of materials, such as; colours, medium of colours, water colours, pastel colours, neutral colours, shades and tones of colours, paints, pen & ink, background and foreground in the composition, landscapes, seascapes, lines of different types, shapes and sizes, modelling, still life, photography;
- ☑ narrate art experiences using appropriate (age appropriate) vocabulary;
- ☑ communicate in their art class using appropriate vocabulary;
- ☑ demonstrate use of extended vocabulary related to the theme;
- ☑ link the knowledge of art vocabulary with learning of other subjects.

### Art Vocabulary

Key Concepts	Suggested Transactional Process	Suggested Learning Resources
<ul style="list-style-type: none"> <li>▶ Names of age specific tools and techniques (brushes, type of scissors, rollers/rolling pins, drawing and painting, printing, clay modelling, terracotta, pottery, spray painting, reverse techniques, origami, construction,</li> </ul>	<ul style="list-style-type: none"> <li>▶ Encouraging use of appropriate art vocabulary while sharing knowledge and art experience in the classroom/school.</li> <li>▶ Providing opportunities to children to give their observations on art work of peers to promote and practice art vocabulary.</li> <li>▶ Discussing different art techniques,</li> </ul>	<ul style="list-style-type: none"> <li>▶ Children's scrap book on tools and materials of visual arts, with their name or title. The scrap book should cover all the tools, materials, including that of the local ones</li> <li>▶ Children's portfolios of their art activities.</li> </ul>

## Art Vocabulary

Key Concepts	Suggested Transactional Process	Suggested Learning Resources
<p>round and relief work, 2-D and 3-D arts, paper craft).</p> <ul style="list-style-type: none"> <li>➤ Terms/specifications of materials, such as; colours, medium of colours, water colours, pastel colours, neutral colours, shades and tones of colours, paints, pen and ink, background and foreground in the composition, landscapes, seascapes, lines of different types, shapes and sizes, modelling, still life, photography, etc.</li> <li>➤ Narrate art experiences using appropriate (age appropriate) vocabulary.</li> <li>➤ Communicate in their art class using appropriate art vocabulary.</li> <li>➤ Use of extended vocabulary related to the theme.</li> <li>➤ Integration of art experiences with learning of other subjects.</li> </ul>	<p>quality of materials and value of art tools, such as; brushes, type of scissors, rollers/ rolling pins, drawing &amp; painting, printing, clay modelling, terracotta, pottery, spray painting, reverse techniques, origami, construction, round and relief work, 2-D and 3-D arts, paper craft, etc.</p> <ul style="list-style-type: none"> <li>➤ Viewing art related videos for taking quick observations.</li> <li>➤ Encouraging presentation/s on tools, colours, paintings, clay work, different medium and materials, art room, art work in school corridors, etc. This can either be through scrap book or power point presentation (PPT).</li> <li>➤ Organising visits to local museums, galleries, art exhibitions, craftsmen, potter, etc. and writing of field experience, using appropriate vocabulary.</li> </ul> <p><b>Integration with other subjects:</b> <b>Languages:</b></p> <ul style="list-style-type: none"> <li>➤ Assisting them in writing letter/s to a friend describing painting/s of their liking, by using appropriate vocabulary.</li> <li>➤ Writing an imaginary dialogue:               <ul style="list-style-type: none"> <li>(i) between colour and its shades,</li> <li>(ii) between brush and sheet, between potter's clay and potter, between fire and terracotta, etc.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Samples of paintings, photographs, of selected compositions, slides, videos of art camps and exhibitions etc.</li> <li>➤ Collection and display of age appropriate art tools and materials in the class. This also includes the local specific and easily available tools and materials.</li> <li>➤ Drawing and painting materials, potters clay.</li> <li>➤ Boards for art displays</li> </ul>

**Life Skills:** Learning based on this theme will help in developing skills of observation, communication and free expression. Confidence of knowing words and terms for different tools and materials, methods and techniques and joy of free expression, can also enhance creativity.

## Theme 7: Responding to the Artefacts and Nature

The theme 'Responding to the Artefacts and Nature' is aimed at developing in children the knowledge, understanding and appreciation for the beauty of nature and the artefacts. The process of responding to the artefacts and nature will enhance the skills of; observation, exploration, critical analysis interpersonal relations, effective communication and artistic expression. The prime focus of this theme is to make children understand the beauty and value of natural, as well as man-made objects. The process of appreciation will sensitize their eye for aesthetics of an object, subject and situation. It will also will help in developing an attitude for accepting and appreciating multiple perspectives on any given subject or situation.

### Learning Outcomes:

Children will be able to:

- ☑ describe objects, buildings, structures, scenes and situations of their liking in the immediate surroundings;
- ☑ respond to the good in art work done by their classmates;
- ☑ appreciate nature and natural beauty based on form, colours, composition, perspective, etc.; such as plants and trees, buds & flowers, birds & animals, ponds & lakes, pastures & deserts, sea beaches, rivers and mountains, sky with and without clouds, wind and rain, sun, moon and stars, rainy day, starry night, sunny day.;
- ☑ respond to the artefacts displayed in galleries and museums, such as; paintings, prints, pottery, terracotta and sculptures, installations, local crafts, etc. done by experts/ artists;
- ☑ write an appreciation note on their experiences of the art museum and art gallery while describing a few artefacts seen;
- ☑ demonstrate use of extended vocabulary related to the theme; and
- ☑ link the knowledge of appreciation and responding to the nature and to the artefacts with learning of other subjects.

### Responding to the Artefacts and Nature

Key Concepts	Suggested Transactional Process	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Describe objects, buildings, structures, scenes and situations of their liking in the immediate surroundings.</li> <li>➤ Responds to the good in art work done by their classmates and herself/himself.</li> <li>➤ Appreciates nature and nature's beauty based on its form, colours, composition, such as; plants &amp; trees, buds &amp; flowers, birds &amp; animals,</li> </ul>	<ul style="list-style-type: none"> <li>➤ Encouraging and providing opportunities to explore and experience the beauty of nature and natural objects, buildings, structures, scenes and situations in their immediate surroundings.</li> <li>➤ Individual sharing/ of experience and appreciation on scenes of their liking.</li> <li>➤ Providing opportunities to record and share self/ peer assessment of art activities/ experiences, periodically.</li> <li>➤ Worksheet/s on appreciation of nature and its beauty and on specific theme/s, such as; plants, flowers, animals, lakes, deserts, sea beaches,</li> </ul>	<ul style="list-style-type: none"> <li>➤ Children's own experiences, likes and dislikes on nature and natural objects, on artefacts and architectural sites in the immediate surroundings.</li> <li>➤ Art work of every child in the class.</li> <li>➤ Samples/replicas of artists work in 2-D and 3-D, pictures or videos of artists' work.</li> <li>➤ Children's scrap books.</li> <li>➤ Collection and display of</li> </ul>



## Responding to the Artefacts and Nature

Key Concepts	Suggested Transactional Process	Suggested Learning Resources
<p>ponds &amp; lakes, pastures &amp; deserts, sea beaches, rivers &amp; mountains, sky with and without clouds, winds and rains, sun, moon and stars, rainy day, starry night, sunny day, etc.</p> <ul style="list-style-type: none"> <li>➤ Responds to the artefacts displayed in galleries and museums, such as; paintings, prints, pottery, terracotta and sculptures installations, local crafts, etc. done by experts/artists.</li> <li>➤ Writes an appreciation note on their experience of the art museum and art gallery while describing a few artefacts seen.</li> <li>➤ Links the skills of appreciation with learning of other subjects of their class.</li> </ul>	<p>rivers, mountains, clouds, wind and rain, sun, moon and stars, rainy day, starry night, sunny day, etc.</p> <ul style="list-style-type: none"> <li>➤ Conducting Visual thinking sessions on paintings, photographs, pottery and ceramics, terracotta and sculpture, installations, etc. of known artists</li> <li>➤ Providing a well-designed worksheet on museum and gallery visits to facilitate appreciation of any one section. For example, 'Make a sketch of the Harrappan terracotta, and describe its beauty in five lines'.</li> <li>➤ Organising guided tour to the museum/s and art galleries followed by discussion of/on/about what they saw.</li> </ul> <p><b>Integration with other subjects</b></p> <p><b>Languages:</b></p> <ul style="list-style-type: none"> <li>➤ Assisting children in illustrating one story from their course book.</li> <li>➤ Guiding children in writing 10 sentences describing any one drawing/painting they have made.</li> </ul>	<p>age appropriate art tools and materials in the class.</p> <ul style="list-style-type: none"> <li>➤ Display boards with theme based display of children work and/or artist work.</li> </ul>

**Life Skills:** Learning based on this theme will help in sharpening the skills of observation, critical thinking and that of art appreciation. Increase in participation for cleaning and beautification of classroom, school and home.

## Theme 8: Perspective

The theme "Perspective is aimed at knowing, understanding and appreciating the beauty of the 3rd dimension in any object, architecture, or in a scene etc. Perspective, in the context of visual perception, is the way in which objects appear to our eyes based on their spatial dimensions, and position of our eye in relation to that object. The prime focus of this theme is to make children aware of beauty and value of the 3rd dimension of any object in visual expressions. The process of applying perspective in the visual arts will sensitize their eye on the play of light and shade, ratio and proportion, colour variation, use of lines in creating life-like similarities in the objects. The application of perspective will also help in developing skill of creating required distance between foreground and background on a flat (2-D) surface. The process of understanding and application of the perspective in visual arts will enhance the skills of; observation, imagination, critical analysis, artistic skills and creative expression.

### Learning Outcomes:

Children will be able to:

- ✓ know the meaning of perspective;
- ✓ describe the play of light and shade on the given object;
- ✓ understand difference between 2-D and 3-D work of art;
- ✓ create 3-D objects and scenes of their liking from the immediate surroundings;
- ✓ respond to the perspective in art work done by their classmates and herself/himself;
- ✓ respond to the perspective in 2-D and 3-D artefacts displayed in galleries and museums, such as; paintings, pottery, terracotta and sculptures, installations, local crafts done by experts, artists and artisans;
- ✓ demonstrate use of extended vocabulary related to perspective;
- ✓ to link the knowledge of perspective with learning of other subjects.

<b>Perspective</b>		
<b>Key Concepts</b>	<b>Suggested Transactional Process</b>	<b>Suggested Learning Resources</b>
<ul style="list-style-type: none"> <li>➤ Know the meaning of perspective.</li> <li>➤ Describe the play of light and shade on the given object.</li> <li>➤ Understand difference between 2-D and 3-D work of art.</li> <li>➤ Create 3-D objects and scenes of his / her liking from the immediate surroundings.</li> <li>➤ Respond to the perspective in art work done by their classmates and self.</li> <li>➤ Respond to the perspective</li> </ul>	<ul style="list-style-type: none"> <li>➤ Encouraging and providing opportunities to children to explore and experience the play of light and shade on natural and artificial objects, buildings, structures, scenes etc. in their immediate surroundings.</li> <li>➤ Guided tour to view natural and artificial objects, architectural sites in the immediate surroundings.</li> <li>➤ Sharing of children's own understanding of perspective, light and shade, 2-D and 3-D art work, based on their sketch book.</li> <li>➤ Organising Individual sketching/ of natural and artificial objects based on children's liking in their sketch books.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Art work of every child in the class.</li> <li>➤ Actual samples or even replicas of artist's work on perspective, on 2-D and 3-D work, videos of artists' work etc.</li> <li>➤ Children's scrap books.</li> <li>➤ Computer with LCD projector /ICT facilities.</li> <li>➤ Display boards with theme based display of children work and/or artist work.</li> </ul>

## Perspective

Key Concepts	Suggested Transactional Process	Suggested Learning Resources
<p>in 2-D and 3-D artefacts displayed in galleries and museums, such as; paintings, pottery, terracotta and sculptures, installations, local crafts, etc. done by experts, artists and artisan.</p> <p>➤ Demonstrate use of extended vocabulary related to the theme.</p>	<p>➤ Conducting classroom discussions on 'perspective' and on the difference between 2-D and 3-D effects, based on live examples.</p> <p>➤ Organising Still life drawing to practice 3-D effects on a 2-D surface. A group of 2-3 objects such as; book, glass bottle/jug and a fruit can be organised on a table with proper light from one angle to practice light and shade, ratio and proportion etc.</p> <p>➤ Providing opportunities to describe self-work and work done by peers on use of perspective.</p> <p>➤ Guided tour to the museum/s and art galleries.</p> <p>➤ Worksheet/s on use of perspective and its description in the work of masters, while visiting art gallery/ies or a museum/s.</p>	

**Life Skills:** Learning based on this theme will help in sharpening the skills of observation, imagination, critical thinking and that of artistic expression. Increase in the interest of creating life like art work and also develop the ability to appreciate such work done by others.

## Theme 1: Form

The theme 'Form' is aimed at developing an understanding of line, shape and size of objects. The prime focus of this theme is to observe and identify lines and shapes in nature and in man-made objects from the immediate surroundings. Understanding of sizes such as: small, big, tall, huge, tiny etc., and creation of different forms with 2-D and 3-D materials. The process of identification of forms enhances skills, such as; observation, exploration, concentration and creative expression. Learning from this theme will be utilised for facilitating learning of other subjects.

### Learning Outcomes:

Children will be able to:

- ☑ identify different geometrical and natural forms, realistic and abstract forms, 2-D and 3-D forms of objects and artefacts;
- ☑ sketch natural and artificial objects from their immediate surroundings;
- ☑ create geometrical and natural, 2-D and 3-D forms from imagination, while using different shapes and sizes;
- ☑ decorate 3-D objects using variety of shapes using straight lines, curved lines, smooth lines, crooked lines, vertical and horizontal lines, patterns;
- ☑ differentiate between realistic and abstract forms;
- ☑ demonstrate use of extended vocabulary related to the theme;
- ☑ engage and explore various sites and immediate surroundings for the joy of knowing more.

## Form

Key Concepts	Suggested Transactional Process	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Identify different geometrical and natural forms, realistic and abstract forms, 2-D and 3-D forms of objects and artefacts.</li> <li>➤ Sketch natural and artificial objects from immediate surroundings.</li> <li>➤ Create geometrical and natural, 2-D and 3-D forms from imagination, while using different shapes and sizes.</li> <li>➤ Decorate 3-D objects using variety of shapes using straight line, curved line, smooth line, crooked line, vertical and horizontal</li> </ul>	<ul style="list-style-type: none"> <li>➤ Providing opportunities to children for observing and understanding different forms, such as; geometrical and natural forms, realistic and abstract forms, 2-D and 3-D forms of objects around and artefacts.</li> <li>➤ Providing a platform for children to share their individual experiences related to different types of forms. Suggested area of sharing can be; Interesting 'Forms of home furniture', of 'school furniture', different forms of building architecture and bridges in the immediate surroundings.</li> <li>➤ Independent and group exploration of the immediate surroundings and selected sites.</li> <li>➤ Encouraging children to make regular sketches of different forms from</li> </ul>	<ul style="list-style-type: none"> <li>➤ Children's own learning experiences of understanding of forms related to furniture items, building and bridge architecture etc., and forms in nature.</li> <li>➤ Sketchbooks of children.</li> <li>➤ Scrap books of children.</li> <li>➤ Picture cards/ placards, video clips on different forms and designs.</li> <li>➤ Drawing and painting materials, local specific, low cost art materials.</li> <li>➤ Art Room with working tables of appropriate height.</li> <li>➤ Computers with relevant</li> </ul>

## Form

Key Concepts	Suggested Transactional Process	Suggested Learning Resources
<p>lines, patterns etc.</p> <ul style="list-style-type: none"> <li>➤ Differentiate between realistic and abstract forms.</li> <li>➤ Demonstrate use of extended vocabulary related to the theme.</li> <li>➤ Engage and explore various sites and immediate surroundings for the joy of knowing more.</li> </ul>	<p>nature and from artificial creation.</p> <ul style="list-style-type: none"> <li>➤ Creating geometrical and natural, 2-D and 3-D forms from imagination, while using different shapes and sizes, on subjects/themes such as; 'the chair I would like to use for studies', 'the bed I would like to gift to my parents', 'my classroom, furniture', etc., in drawing and painting, with clay and with any other local specific materials for painting or construction.</li> <li>➤ Encouraging children to create their own patterns for decorating 3-D objects using variety of shapes using straight lines, curved lines, smooth lines, crooked line, vertical and horizontal lines, patterns etc.</li> <li>➤ Conducting discussions based on placards/ pictures/ video clips etc. on different type of forms, such as;               <ul style="list-style-type: none"> <li>• difference between realistic and abstract forms.'</li> <li>• 'difference between geometrical and natural forms.'</li> <li>• use of computer graphics to explore and understand the beauty and diversity of forms.</li> </ul> </li> </ul> <p><b>Integration with other subjects:</b></p> <p><b>Language</b></p> <ul style="list-style-type: none"> <li>➤ Providing opportunities to make poems/ songs on objects to develop verbal expression.</li> </ul> <p><b>Mathematics</b></p> <ul style="list-style-type: none"> <li>➤ concept of lines, angles of triangles, rectangles, square, circle etc.</li> </ul>	<p>soft wares and LCD projector for ICT based art experiences of varied forms.</p> <ul style="list-style-type: none"> <li>➤ Cameras.</li> <li>➤ White board or classroom board/s.</li> <li>➤ Easel /stand.</li> <li>➤ Water arrangements.</li> <li>➤ Potter's clay/wheel.</li> <li>➤ Origami paper.</li> <li>➤ Aprons and towels.</li> </ul>

**Life Skills:** Developing skills of observation, problem solving, communication and cooperation by becoming aware of the immediate surroundings and accepting responsibility of its beautification and cleanliness through active participation.

## Theme 2: Colour

The theme 'colour' is aimed at developing children's understanding of different colours on the one hand and developing aesthetic sensibility on the other. The prime focus of this theme is to develop children's ability to observe and identify colours in nature and in man-made objects and understand the relationship of certain colours with plants, flowers, fruits and nature. For example, leaf green, sea blue & sky blue, bottle green, lemon yellow etc. It will also enable them to create different shades by mixing of two different colours. For example; mixing of red and yellow in equal quantity will create orange colour.

Children will also be enabled to understand the relationship of colours with different subjects and emotions. For example, bright colours for joyful compositions and dull and grey shades for sad subjects. Contrast colours to break the monotony, bold use of warm colours to depict force and of cool colours to depict peace and harmony, etc. The process of identification and understanding of colours enhances skills, such as; observation, exploration, experimentation and artistic expression.

### Learning Outcomes:

Children will be able to:

- ✓ name different colours and shades of household objects, furniture items, flowers, vegetables, fruits, plants and trees etc., appropriately;
- ✓ describe art work based on its colours;
- ✓ draw and paint images from their immediate surroundings and colour them with appropriate colours;
- ✓ use neutral colours (black and white) and create chart of grey tones of all primary colours;
- ✓ understand use of theme appropriate colours in compositions;
- ✓ demonstrate use of extended vocabulary related to colours;
- ✓ link experience and understanding of colours with learning of other subjects;
- ✓ appreciate the beauty of colours in nature and in artificially made objects.

<b>Colour</b>		
<b>Key Concepts</b>	<b>Suggested Transactional Process</b>	<b>Suggested Learning Resources</b>
<ul style="list-style-type: none"> <li>➤ Name different colours and shades of household objects, furniture items, flowers, vegetables, fruits, plants &amp; trees etc., appropriately.</li> <li>➤ Describe art work based on its colours.</li> <li>➤ Draw and paint images from immediate surroundings and colour them with their appropriate colours.</li> <li>➤ Use neutral colours (black and white) and</li> </ul>	<ul style="list-style-type: none"> <li>➤ Motivating children to make keenly observe colours in nature and in artificial objects with the aim of making a note of different colours, shades and tones.</li> <li>➤ Encouraging children to make scrap book on Colours of 'Nature' 'Furniture items' and 'Walls and drapery' etc.</li> <li>➤ Providing opportunities for children to share their personal experiences related with colours around them. Their likes and dislikes, importance and value of different colours to them.</li> <li>➤ Encouraging children to explore their immediate surroundings such as- shopping centres, fruit and vegetable markets,</li> </ul>	<ul style="list-style-type: none"> <li>➤ Children's own experience related to colours and shades.</li> <li>➤ Theme based scrap books on colours and shades.</li> <li>➤ Shopping centres, Fruit and vegetable markets, Fairs (Melas), Events, Gardens, Zoos etc.</li> <li>➤ Picture cards on tones and shades of different colours, art works of artists, video clips to</li> </ul>

## Colour

Key Concepts	Suggested Transactional Process	Suggested Learning Resources
<p>create chart of grey tones of all primary colours.</p> <ul style="list-style-type: none"> <li>➤ Understand use of theme appropriate colours in compositions.</li> <li>➤ Demonstrate use of extended vocabulary related to the theme.</li> <li>➤ Link the experience and understanding of colours with learning of other subjects of their class.</li> <li>➤ Appreciate beauty of colours in nature and in artificially made objects.</li> </ul>	<p>fairs/melas, events, gardens, zoo etc. for learning more about colours of natural and artificial objects, structures and sceneries.</p> <ul style="list-style-type: none"> <li>➤ Encouraging children in making their own colour charts of 8to10 tones of primary colours, using neutral colours (white and black).</li> <li>➤ Facilitating the use of a computer for mixing and making colours. Using painting software for visual effects of different colours on the selected composition.</li> <li>➤ Drawing, colouring or clicking objects based on colour theme:               <ul style="list-style-type: none"> <li>☛ 'Green around us'</li> <li>☛ 'Red around us',</li> <li>☛ 'Yellow around us' etc., and display in the class.</li> </ul> </li> <li>➤ Discussing the use of theme based colours in art work by using sample cards, video clips, paintings and prints of renowned artists.</li> <li>➤ Arising a curiosity in children by asking:               <ul style="list-style-type: none"> <li>☛ 'Why he/she has used red colour in this work?'</li> <li>☛ 'What do you think about so much of white here?'</li> </ul> </li> <li>➤ Conducting practice sessions to describe one's own work and work of their peers, based on use of colours.</li> <li>➤ Making theme based Rangolis using different materials. Themes can be; 'save girl child', 'save water', 'save tigers' 'our planet earth' etc.</li> </ul> <p><b>Integration with other subjects:</b></p> <p><b>Languages:</b></p> <ul style="list-style-type: none"> <li>➤ Facilitating children to create poem/s on colours of their choice. (individual activity)</li> </ul> <p><b>Mathematics:</b></p> <ul style="list-style-type: none"> <li>➤ Make Rangolis on different topics, using mathematical skills and concepts.</li> </ul>	<p>study the use of different colours.</p> <ul style="list-style-type: none"> <li>➤ Drawing and painting materials: sheets, pigments, paints, inks &amp; dyes, powder colours, sawdust, sand, etc.</li> <li>➤ Thread, sponge, straw, paper cuttings, etc.</li> <li>➤ Art Room with working tables of appropriate height, slabs on sides.</li> <li>➤ Easel /stand.</li> <li>➤ Cameras.</li> <li>➤ Computers with relevant software and LCD projector for ICT based art experiences.</li> <li>➤ Boards for art displays.</li> <li>➤ Aprons and towels.</li> <li>➤ Water arrangements.</li> </ul>

**Life Skills:** Developing skills of observation, problem solving, communication and cooperation, acceptance of the social multiple perspective by exploring and knowing about their immediate surroundings in teams. Accepting the responsibility of maintaining the cleanliness and beautification of surroundings through *active participation*.

## Theme 3: Texture

The theme "Texture" is aimed at developing in children an understanding of different textures and surfaces. The prime focus of this theme is to enable children to observe, identify and create textures and understand the relationship of certain textures with plants, trees, flowers, fruits, furs, feathers, wool, sand, fabric, etc. For example, fur is soft, sand is rough, bark of a tree is rough, etc. They will also be able to create different textures and surfaces by using a mix mediums and materials. For example; sand painting, impression of bark on clay slab etc. Experience with different textures will lead to sharpening of the sense of touch among all learners, including those with special needs. The process of identification, understanding and creation of texture enhances skills, such as; observation, imagination, experimentation and artistic expression.

### Learning Outcomes:

Children will be able to:

- ☑ identify and name different textures and surfaces of household and natural objects;
- ☑ create new textures with 2-D and 3-D materials;
- ☑ appreciate beauty, variety and value of different surfaces in work of arts;
- ☑ demonstrate use of extended vocabulary related to the theme;
- ☑ link the experience and understanding of textures with learning of other subjects;
- ☑ engage and learn to observe and explore immediate surroundings for joy of knowing and experiencing different surfaces and textures.

<b>Texture</b>		
<b>Key Concepts</b>	<b>Suggested Transactional Process</b>	<b>Suggested Learning Resources</b>
<ul style="list-style-type: none"> <li>➤ Identification and naming different textures and surfaces of the common household and natural objects.</li> <li>➤ Create new textures with 2-D and 3-D materials.</li> <li>➤ Appreciate beauty, variety and value of different surfaces in work of arts.</li> <li>➤ Demonstrate use of extended vocabulary related to the theme.</li> <li>➤ Learn to link the experience and understanding of textures with learning of other subjects of their class.</li> <li>➤ Engage and learn to observe and explore</li> </ul>	<ul style="list-style-type: none"> <li>➤ Encouraging 'Exploration Walk' in and around school at different times of the day and in different weathers for observation, and feel of different textures and surfaces.</li> <li>➤ Providing opportunities for children to share their experiences on variety of textures and surfaces they have come across.</li> <li>➤ Conducting drawing, painting and printing activities to create texture of different kinds of stones, soil and wood etc. (with 2-D material).</li> <li>➤ Making 3-D Collage and clay modelling for creating texture of wool, wood, soft and hard, dry and wet, slippery and sandy surface.</li> <li>➤ Organising discussions on value of texture in work of art. Making use of children' work, scrap books and video</li> </ul>	<ul style="list-style-type: none"> <li>➤ Children's own experiences related to household objects.</li> <li>➤ Natural objects, plants, trees, birds &amp; animals, sand and soil of different kinds, etc.</li> <li>➤ Scrap books on textures.</li> <li>➤ Sample pictures and videos of different textures and surfaces.</li> <li>➤ Drawing and painting materials such as: glue, sponge, pieces of different fabrics, sand, bark, wool, feathers, potters clay, samples of soil, etc.</li> <li>➤ Art Room with working tables of appropriate height, slabs on sides</li> </ul>



## Texture

Key Concepts	Suggested Transactional Process	Suggested Learning Resources
<p>immediate surroundings for joy of knowing and experiencing different surfaces and textures.</p>	<p>clips.</p> <ul style="list-style-type: none"> <li>➤ Exploring new textures with the help of computer software/s.</li> <li>➤ Organising playing of games for identification of different textures while being blindfolded. (classroom activity).</li> </ul> <p><b>Integration with other subjects:</b> <b>Languages:</b></p> <ul style="list-style-type: none"> <li>➤ Facilitating children to create poem or story on topic such as;                             <ul style="list-style-type: none"> <li>☛ 'Walking bare foot in the grassy park on a winter morning'.</li> <li>☛ 'When I held frog/tortoise in my hands'!!</li> <li>☛ 'Walk on wet and slippery road.'</li> </ul> </li> </ul> <p>etc.(individual activity)</p>	<ul style="list-style-type: none"> <li>➤ Cameras for clicking pictures.</li> <li>➤ Easels /stands.</li> <li>➤ Computers with relevant software and LCD projector for ICT based art experiences.</li> <li>➤ Boards for art displays.</li> <li>➤ Aprons and towels.</li> <li>➤ Water arrangements.</li> </ul>

**Life Skills:** Developing skills of observation, empathy and compassion for nature and for animals by observing and understanding of the nature. Accepting the responsibility of protecting the environment and surroundings through participation in its upkeep.

## Theme 4: Composition

The theme 'composition', particularly in visual arts (painting, printing, graphic design, sculpture, installation etc.) is meant for the placement or arrangement of visual elements and organisation of the space (2-D and 3-D both). The prime focus of the theme is on artistic placement of colours and forms, painting of landscapes, seascapes, composition based on seasons, sports, parks, situations, arranging patterns, making designs, installation of 3-D objects, still life, graphic designs, crafts etc. In the visual arts, composition is often used interchangeably with various terms such as design, visual ordering or formal structure, depending on the context. The process of visualizing and making composition enhances skills, such as; observation, imagination, experimentation, communication and artistic expression. Another major focus of this theme is to observe and find out compositions in nature, and in man-made structures. It will also enable children to understand the relationship of one object with the other, of form with the colours, of objects with the overall theme and finally the visual impact of the work of art. For example, in a composition of the 'Rainy Day', the form of clouds, the lines of falling rain drops, colours supporting mood of the weather, and finally the visual impact of a composition, all are interrelated and interdependent.

### Learning Outcomes:

Children will be able to:

- ☑ select compositions from the immediate surroundings;
- ☑ draw and paint compositions on themes, such as; my family, my school, festival/s I like, Hockey/Football/Cricket/basketball match of my school, game I like the most, landscape, seascape from imagination;
- ☑ compose poster on social and environmental issues, such as; 'Save Girl Child', 'Help Senior Citizens', 'Save Trees', 'Save Tigers', 'Save Water', 'Keep your surrounding Clean' etc.;
- ☑ arrange and create 3-D objects on a given theme;
- ☑ demonstrate use of extended vocabulary related to the theme;
- ☑ link the experience gained while creating composition, with learning of other subjects of their class;
- ☑ engage and learn to observe and explore immediate surroundings for joy of knowing different compositions;
- ☑ communicate and express their arrangement of visual images.

## Composition

Key Concepts	Suggested Transactional Process	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Select compositions from the immediate surroundings, using view finder.</li> <li>➤ Draw and paint compositions on themes, such as; my family, my school, festival/s I like, Hockey/Football/</li> </ul>	<ul style="list-style-type: none"> <li>➤ Providing children opportunities and encouraging them to independently explore interesting locations in and around school and home.</li> <li>➤ Conducting sessions of quick sketching of selected compositions with pencil or with dry pastels.</li> <li>➤ Encouraging the use of personal sketchbooks and Viewfinders.</li> <li>➤ Organising guided and independent walks to</li> </ul>	<ul style="list-style-type: none"> <li>➤ Children's own experience related with arranging their household objects, landscapes/seascapes, arranging idols during poojas, special days, festivals etc.</li> </ul> <p>Forest area, Zoo, School garden, Children's parks,</p>

## Composition

Key Concepts	Suggested Transactional Process	Suggested Learning Resources
<p>Cricket/basketball match of my school, game I like the most, landscape, seascape, etc., from imagination.</p> <ul style="list-style-type: none"> <li>➤ Compose poster/s on social and environmental issues, such as; 'Save Girl Child', 'Help Senior Citizens', 'Save Trees', 'Save Tigers', 'Save Water', 'Keep your surrounding Clean' etc.</li> <li>➤ Arrange and create 3-D objects on a given theme.</li> <li>➤ Use of extended vocabulary related to compositions.</li> <li>➤ Engage and learn to explore immediate surroundings for the joy of knowing more.</li> <li>➤ Link experience and understanding of composition with learning of other subjects.</li> </ul>	<p>green/forest area, to historical monuments, to the fairs (melas), sports complex and to the social gatherings /celebrations to make a sketch of the same.</p> <ul style="list-style-type: none"> <li>➤ Encouraging children to make use of camera/s to click compositions which can be displayed and also used for developing art work.</li> <li>➤ Organising activities of drawing and/or painting of imaginary compositions on social themes, such as;               <ul style="list-style-type: none"> <li>☛ My family,</li> <li>☛ My school,</li> <li>☛ My village/ community,</li> <li>☛ Our festival/s,</li> <li>☛ Hockey/ Football/ Cricket match at school, Landscapes, seascapes etc.</li> </ul> </li> <li>➤ Making poster/s on social and environmental issues, such as; 'Save Girl Child', 'Help Senior Citizens', 'Save Trees', 'Save Tigers', 'Save Water', 'Keep your Surrounding Clean' etc.</li> <li>➤ Providing Opportunities to create 3-D composition/s on themes, such as; 'Furniture in my room', 'Garden furniture', 'Gym in the park', 'Means of Transportation' etc., and installation of the same.</li> <li>➤ Organising discussions on age appropriate compositional skills. Examples should be related to the immediate environment of the child and their class work. Use of video clips and original work of artists is always motivational.</li> <li>➤ Making a Rangoli using different compositions.</li> </ul> <p><b>Integration with other subjects:</b></p> <p><b>Languages:</b></p> <ul style="list-style-type: none"> <li>➤ Facilitating children to narrate their experiences on subjects related to the selected compositions.</li> <li>➤ Writing a letter to your friend describing experience related to the sketching walk for new compositions.</li> </ul>	<p>Historical monuments, Social gatherings, Fairs etc.</p> <ul style="list-style-type: none"> <li>➤ View finder, Picture cards, Videos depicting different compositions.</li> <li>➤ Sketch books of children.</li> <li>➤ Drawing/painting materials, clay, adhesive, card board, Rangoli material, etc.</li> <li>➤ Art Room with working tables of appropriate height, slabs on sides.</li> <li>➤ Computers with relevant soft wares and LCD projector for ICT based art experiences.</li> <li>➤ Cameras.</li> <li>➤ Boards for art displays.</li> <li>➤ Easel /stand</li> <li>➤ Aprons and towels.</li> <li>➤ Water arrangements.</li> </ul>

**Life Skills:** Developing skills of problem solving, visualization, communication, cooperation and interpersonal relationship by observing, imagining and arranging compositions on their immediate surroundings and of other places of social and historical importance. Accepting responsibility of the cleanliness, maintenance and beautification of the environment and surroundings through active participation.

## Theme 5: Tools & Techniques

The theme 'Tools and Techniques' is aimed at developing an understanding in children of the different types of tools and techniques that are used for experiencing the visual arts. The process of knowing and working with the tools and techniques enhances skills, such as; observation, experimentation, problem solving and free expression. The prime focus of this theme is to identify, experiment and understand the appropriate use of different tools, materials and techniques used in visual arts. It also focuses on developing an understanding of the relationship of tools and materials with that of the techniques. For example, knowledge of brushes, blocks, nibs& holders/pens for inks and their maintenance.

Children will also be enabled to handle of different tools, materials and techniques. For example; Use of soft but flat brushes (of bigger number) for broader strokes, Round brushes for drawing lines of varied thickness, dry colours (pencils, wax crayons, pastels etc.) for drawings, inks for quick and transparent drawings and blow printing, glue/adhesives for fixing of paper cuttings and other materials for making collages, softness of clay for slab, coil and pinching method, converting clay models in to terracotta, etc. Use of light and shade, ratio - proportion for arranging and making still life, knowing camera adjustments for clicking good pictures, knowing computer software for exploring and using computers for art experience. Knowing soft stone and wood for carving and sculpture, etc.

The experiences with the different tools and techniques will sharpen children's common sense and make them confident users and creators.

### Learning Outcomes:

Children will be able to:

- ☑ identify and name age appropriate tools and materials including camera and computer software/s;
- ☑ understand and apply the age appropriate techniques of visual expression, such as; drawing, still life, poster making, painting composition, pen & ink drawings, block printing, 2-D and 3-D work, origami, coil, slab and pinching methods of clay modelling, terracotta, engraving and relief work, 3-D masks and puppets, simple crafts (local specific) rangoli, wall painting, photography, animation (manual and computer based);
- ☑ demonstrate use of extended vocabulary related to tools and techniques;
- ☑ create their own tools and techniques of visual expression;
- ☑ maintain their tools and equipment of use;
- ☑ link the experience and understanding of tools and techniques with learning of other subjects;
- ☑ appreciate the beauty and variety of methods and materials for visual expression.

<b>Tools and Techniques</b>		
<b>Key Concepts</b>	<b>Suggested Transactional Process</b>	<b>Suggested Learning Resources</b>
<ul style="list-style-type: none"> <li>➤ Identify and name the age appropriate tools and materials including camera and computer software/s.</li> <li>➤ Understand and apply the age appropriate techniques</li> </ul>	<ul style="list-style-type: none"> <li>➤ Providing opportunities to children to share their experiences on use and preferences about different tools, materials and techniques used or seen.</li> <li>➤ Encouraging children's participation in the collection activities of tools and</li> </ul>	<ul style="list-style-type: none"> <li>➤ Children's experience with different tools &amp; techniques, such as drawing, still life, poster making, painting composition, pen &amp; ink</li> </ul>

## Tools and Techniques

Key Concepts	Suggested Transactional Process	Suggested Learning Resources
<p>of visual expression, such as; drawing, still life, poster making, painting composition, pen &amp; ink drawings, block printing, 2-D and 3-D work, origami, coil, slab and pinching methods of clay modelling, terracotta, engraving and relief work, 3-D masks and puppets, simple crafts (local specific) rangoli, wall painting, photography, animation (manual and computer based)..</p> <ul style="list-style-type: none"> <li>▶ Demonstrate use of extended vocabulary related to the theme.</li> <li>▶ Create his / her own tools and techniques of visual expression.</li> <li>▶ Maintain their tools and equipments of use.</li> <li>▶ Create small poem or song on tool/s of their liking.</li> <li>▶ Integration of knowledge &amp; experience of tools, materials and techniques with learning of other subject.</li> <li>▶ Appreciate beauty and variety of methods and materials for visual expression.</li> </ul>	<p>materials from home, community and from the immediate surroundings.</p> <ul style="list-style-type: none"> <li>▶ Question answers in 'Do you know?' format, such as; <ul style="list-style-type: none"> <li>☛ Name any 5 tools of drawing &amp; painting.</li> <li>☛ Which are the materials that you have seen and used for the drawing &amp; painting?</li> <li>☛ Name any 5 printing tools/equipment/materials you know?</li> <li>☛ What is mixed collage?</li> <li>☛ What precautions should you take while working on terracotta?</li> <li>☛ What is Block printing?</li> <li>☛ What is the difference between slab, coil and pinching methods in clay modelling?</li> <li>☛ What method of puppet making do you like?</li> <li>☛ What is the role of the Camera in art making?</li> <li>☛ Which computer software have you used for making graphics?</li> </ul> </li> <li>▶ Facilitating learning of new technique/s and use of new tools through demonstration method. For example; <ul style="list-style-type: none"> <li>☛ Drawing of still life.</li> <li>☛ How and why water colours are the most transparent colours, and Poster colours as opaque. Making of a poster based on its elements.</li> <li>☛ Baking terracotta, Engraving on clay &amp; soft wood and</li> <li>☛ Maintenance of tools, etc.</li> <li>☛ Making of wall painting is another example which involves local specific tools, technique/s, materials, motifs and</li> </ul> </li> </ul>	<p>drawings, block printing, 2-D and 3-D work, origami, coil, slab and pinching methods of clay modelling, terracotta, engraving and relief work, 3-D masks and puppets, simple crafts (local specific) rangoli, wall painting, photography, animation (manual and computer based), etc.</p> <ul style="list-style-type: none"> <li>▶ Collection and display of age appropriate art tools, techniques and materials in the classroom.</li> <li>▶ Collection and display of local specific /easily available tools and materials in the art room/classroom.</li> <li>▶ Age appropriate samples in form of pictures or videos of different art methods and techniques.</li> <li>▶ Drawing, painting and printing materials, glue, sponge, pieces of different fabrics, sand, bark, wool, feathers, potters clay, etc.</li> <li>▶ Art Room with working tables of appropriate height, slabs for 3-D work and display on sides.</li> <li>▶ Computers with relevant soft wares and LCD projector for ICT based art experiences.</li> <li>▶ Cameras.</li> <li>▶ Easel /stand.</li> <li>▶ Boards for art displays.</li> <li>▶ Aprons and towels.</li> <li>▶ Water arrangements.</li> </ul>

## Tools and Techniques

Key Concepts	Suggested Transactional Process	Suggested Learning Resources
	<p style="text-align: center;">composition.</p> <ul style="list-style-type: none"> <li>➤ Organising a visit to the local artists/artisans to see the process, tools and equipment used for creating particular art work.</li> <li>➤ Conducting a Class quiz or competition for testing children's knowledge about tools, materials and techniques of visual expression and also to encourage further innovations.</li> <li>➤ Organising an Annual group show of classroom activities on tools, techniques and materials.</li> <li>➤ Taking impressions of all Indian coins (in use) on clay slabs for demonstrating relief and reverse techniques.</li> </ul> <p><b>Integration with other subjects:</b></p> <p><b>Language:</b></p> <ul style="list-style-type: none"> <li>➤ Encouraging children to create stories on brush / colour/ block etc. in small groups.</li> <li>➤ Enacting role plays, such as; 'I am the brush', 'I am your new colour plate' 'I am your printing roller', etc.</li> <li>➤ <i>(story making can cover it's making process, it's use, its value, etc.)</i></li> </ul>	

**Life Skills:** Developing skills of problem solving and perseverance by using different tools and materials of creative expression. Confidence of learning to handle tools and materials and joy of learning the appropriate techniques to express through will also be developed. An increase in active participation for cleaning and beautification of one's own classroom, school and home.

## Theme 6: Art (Visual Arts) Vocabulary

The theme 'Art Vocabulary' is aimed at children learning and using appropriate names and terms related to art techniques, to hues and shades of colours, to tools and accessories used, to different mediums and materials for appreciating a work of art. The process of knowing and using appropriate vocabulary will enhance the communication skills of the learner. The prime focus of this theme is for the child to know, to remember, and to use art related vocabulary appropriately. For example, block printing is done with the blocks, block printing is a technique which is used to take same kind of impression again and again. Soft paint-brushes are used for doing water based colours, flat brushes (of bigger number) are used for broader strokes whereas round brushes are used for drawing lines of varied thickness, slab method and coil method are techniques of making 3-D objects with potter's clay, terracotta is the result of baking clay models at an appropriate temperature, perspective is a skill for making 2-D objects and sceneries look 3-D, use of different colours can help in creating different effects in an art work, composition is a grouping of different objects/forms and colours in a visually pleasant manner, animation is a technique which provides movement to the graphics, etc.

### Learning Outcomes:

Children will be able to:

- ☑ identify and name different tools and techniques, such as; round brushes, flat brushes, hard and soft brushes, type of scissors, rollers/rolling pins, drawing and painting, printing, clay modelling, terracotta, pottery, spray painting, reverse techniques, origami, construction, engraving, round and relief work of sculpture, 2-D and 3-D work, paper craft, photography, animation, light and shade, still life and graphics.
- ☑ name the terms/specifications of materials, such as; colours, medium of colours, water colours, pastel colours, neutral colours, shades and tones of colours, paints & dyes, pen & ink, background and foreground in the composition, perspective, landscapes, seascapes, lines of different types, shapes and sizes, modelling, still life and photography.
- ☑ describe one's own art work and that of their peers;
- ☑ narrate art experiences using age appropriate vocabulary;
- ☑ communicate in their art class using appropriate art vocabulary;
- ☑ demonstrate use of extended vocabulary related to art vocabulary;
- ☑ learn to link the knowledge of art vocabulary with learning of other subjects.

<b>Art Vocabulary</b>		
<b>Key Concepts</b>	<b>Suggested Transactional Process</b>	<b>Suggested Learning Resources</b>
<ul style="list-style-type: none"> <li>➤ Identification of different tools and techniques, such as; round brushes, flat brushes, hard and soft brushes, type of scissors, rollers/rolling pins, drawing and painting, printing, clay modelling, terracotta, pottery, spray</li> </ul>	<ul style="list-style-type: none"> <li>➤ Encouraging children to use appropriate art vocabulary while sharing knowledge of art tools, techniques and materials, of art experience and artistic expression, in the classroom or elsewhere.</li> <li>➤ Providing children opportunities to analyse the art work of peers and of artists to practice use of art vocabulary.</li> <li>➤ Discussing different art techniques,</li> </ul>	<ul style="list-style-type: none"> <li>➤ Children's scrap books on tools and materials of visual arts, with their name or title. (<i>The scrap book should cover all the tools, materials, including that of the local ones.</i>)</li> <li>➤ Children's portfolios of</li> </ul>

## Art Vocabulary

Key Concepts	Suggested Transactional Process	Suggested Learning Resources
<p>painting, reverse techniques, origami, construction, engraving, round and relief work, 2-D and 3-D work, paper craft, photography, animation, light and shade, still life, graphics, etc.</p> <ul style="list-style-type: none"> <li>➤ Terms/specifications of materials, such as; colours, medium of colours, water colours, pastel colours, neutral colours, shades and tones of colours, paints, pen &amp; ink, background and foreground in the composition, perspective, landscapes, seascapes, lines of different types, shapes and sizes, modelling, still life, photography, etc.</li> <li>➤ Describe one's own art work and that of their peers.</li> <li>➤ Narrate art experiences using appropriate (age appropriate) vocabulary.</li> <li>➤ Communicate in their art class using appropriate art vocabulary.</li> <li>➤ Use of extended vocabulary related to the theme.</li> <li>➤ Integration of art experiences with learning of other subjects.</li> </ul>	<p>quality of materials and value of art tools, such as; brushes, type of scissors, rollers/rolling pins, drawing &amp; painting, printing, clay modelling, terracotta, pottery, spray painting, reverse techniques, origami, construction, round and relief work of sculpture, 2-D and 3-D arts, paper craft, etc.</p> <ul style="list-style-type: none"> <li>➤ Viewing art related pictures, videos for giving quick observations.</li> <li>➤ Encouraging presentation/s based on tools, colours, different medium and materials, different techniques, art work in school corridors, etc. This can either be through scrap book or power point presentation (PPT).</li> <li>➤ Organising a visit to the local museums and galleries, to the art exhibitions, to the craftsmen, potter, etc., and writing note on field experience, using appropriate vocabulary.</li> <li>➤ Helping children to write a review after a visit to the gallery.</li> </ul> <p><b>Integration with other subjects:</b></p> <p><b>Languages:</b></p> <ul style="list-style-type: none"> <li>➤ Encouraging children to write letter/s, stories, describing experience of the field visit to museum, by using appropriate vocabulary.</li> <li>➤ Writing an imaginary dialogue; <ul style="list-style-type: none"> <li>☛ between composition and it's subject,</li> <li>☛ between brush and sheet,</li> <li>☛ between potter's clay and potter,</li> <li>☛ between fire and terracotta, etc.</li> </ul> </li> </ul> <p><b>EVS:</b></p> <ul style="list-style-type: none"> <li>➤ Knowing our immediate surroundings.</li> <li>➤ Engaging children in classroom displays, to learn cleanliness, maintenance and beautification.</li> </ul>	<p>art activities.</p> <ul style="list-style-type: none"> <li>➤ Samples of paintings, photographs, of selected compositions, slides, videos of art camps and exhibitions etc.</li> <li>➤ Collection and display of age appropriate art tools and materials in the class. This also includes local specific and easily available tools and materials.</li> <li>➤ Drawing and painting materials, potters clay, etc.</li> <li>➤ Museums, Art galleries.</li> <li>➤ Local craftsmen and potters, etc.</li> <li>➤ Computers with relevant soft wares</li> <li>➤ LCD projector for ICT based art experiences.</li> <li>➤ Cameras.</li> <li>➤ Boards for art displays.</li> </ul>

**Life Skills:** Learning based on this theme will help in developing skills of observation, communication and free expression. Confidence of knowing words and terms for different tools and materials, methods and techniques and joy of free expression, will also enhance creativity and aesthetic appreciation.



## Theme 7: Responding to the Artefacts and Nature

The theme "Responding to the Artefacts and Nature" is aimed at children getting to know, understand and appreciate the beauty of nature and artefacts. The prime focus of this theme is to make children understand the beauty and value of arts, of nature, as well as man-made objects, structure and architecture. The process of appreciation will sensitize their eye for aesthetics of an object, subject and situation. And will help in developing an attitude for accepting and appreciating multiple perspectives on any given subject or situation. This theme will make children understand the 'importance of elements of visual arts'. The process of responding to the artefacts and nature will enhance the skills of; observation, exploration, critical analysis interpersonal relations, effective communication and artistic expression.

### Learning Outcomes:

Children will be able to:

- ☑ describe objects, buildings, structures, scenes and situations of his / her liking in the immediate surroundings;
- ☑ appreciate nature and natural beauty of form, colours, composition, perspective, etc.; such as plants & trees, buds & flowers, birds & animals, ponds & lakes, pastures & deserts, sea beaches, rivers & mountains, sky with and without clouds, wind and rain, sun, moon and stars, rainy day, starry night, sunny day.;
- ☑ respond to the impact of art work done by their classmates and herself;
- ☑ state the elements of visual arts;
- ☑ appreciate the artefacts displayed in galleries and museums, such as; paintings, prints, pottery, terracotta and sculptures, installations, local crafts, etc. done by the experts/ artists;
- ☑ write an appreciation note on their experience of the art museum and art gallery while describing a few artefacts seen;
- ☑ demonstrate use of extended vocabulary related to the artefacts and nature;
- ☑ link the knowledge of appreciation and responding to the nature and to the artefacts with learning of other subjects.

### Responding to the Artefacts and Nature

Key Concepts	Suggested Transactional Process	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Describe the objects, buildings, structures, scenes and situations of their liking in the immediate surroundings.</li> <li>➤ Appreciate nature and natural beauty of form, colours, composition, perspective, etc.; such as plants &amp; trees, buds &amp; flowers, birds &amp; animals, ponds &amp; lakes, pastures &amp; deserts, sea beaches, rivers</li> </ul>	<ul style="list-style-type: none"> <li>➤ Encouraging children and providing opportunities to them to explore and experience the beauty of nature and natural objects, buildings, structures, scenes and situations in their immediate surroundings.</li> <li>➤ Providing a platform for children to share their experiences, likes and dislikes on nature and natural objects, on artefacts and architectural sites in their immediate surroundings,</li> <li>➤ and appreciation on scenes of their liking in the classroom. Providing</li> </ul>	<ul style="list-style-type: none"> <li>➤ Children's own experiences, likes and dislikes on nature and natural objects, on artefacts and architectural sites in the immediate surroundings.</li> <li>➤ Art work of every child in the class.</li> <li>➤ Guided tour to the museum/s and art galleries.</li> <li>➤ Samples/replicas of artists</li> </ul>

## Responding to the Artefacts and Nature

Key Concepts	Suggested Transactional Process	Suggested Learning Resources
<p>&amp; mountains, sky with and without clouds, wind and rain, sun, moon and stars, rainy day, starry night, sunny day, etc.</p> <ul style="list-style-type: none"> <li>➤ Respond to the impact of art work done by their classmates and himself/herself.</li> <li>➤ Know about the elements of the visual arts.</li> <li>➤ Appreciate the artefacts displayed in galleries and museums, such as; paintings, prints, pottery, terracotta and sculptures, installations, local crafts, etc. done by the experts/ artists.</li> <li>➤ Write an appreciation note on their experiences of the art museum and art gallery while describing a few artefacts seen.</li> <li>➤ Demonstrate use of extended vocabulary related to the theme.</li> <li>➤ Learn to link the knowledge of appreciation and responding to the nature and to the artefacts with learning of other subjects.</li> </ul>	<p>opportunities for children to record and share self/ peer assessment of art activities and experiences, periodically.</p> <ul style="list-style-type: none"> <li>➤ Worksheet/s on                             <ul style="list-style-type: none"> <li>☛ appreciation of nature and its beauty,</li> <li>☛ specific theme/s, such as; plants, flowers, animals, lakes, deserts, sea beaches, rivers, mountains, clouds, wind and rain, sun, moon and stars, rainy day, starry night, sunny day, etc.</li> </ul> </li> <li>➤ Conducting Class Sessions on introduction to the 'Elements of Visual arts', based on art examples.</li> <li>➤ Organising Visual thinking sessions on paintings, photographs, pottery &amp; ceramics, terracotta &amp; sculpture, installations, etc. of known artists</li> <li>➤ Providing a well-designed worksheet on museum and gallery visits to facilitate appreciation of any one section. For example, write an appreciation note on the Ajanta paintings.</li> </ul> <p><b>Integration with other subjects:</b></p> <p><b>Languages:</b></p> <ul style="list-style-type: none"> <li>➤ Assisting them in illustrating one story from their course book.</li> <li>➤ Giving assignment based on Writing 10 sentences describing 4 whether of India along with its visual representation.</li> </ul>	<p>work in 2-D and 3-D, pictures or videos of artists' work.</p> <ul style="list-style-type: none"> <li>➤ Power Point Presentation or video clip on 'Elements of Visual arts'.</li> <li>➤ Children's scrap books.</li> <li>➤ Collection and display of age appropriate art tools and materials in the class.</li> <li>➤ Display boards with theme based display of children's work and/or artist's work.</li> <li>➤ Computers with relevant soft wares.</li> <li>➤ LCD projector for ICT based art experiences.</li> <li>➤ Cameras.</li> </ul>

**Life Skills:** Learning based on this theme will help in sharpening the skills of observation, critical thinking and that of art appreciation. Increase in participation for cleaning and beautification of classroom, school and home.

## Theme 8: Perspective

The theme "Perspective is aimed at children knowing, understanding and appreciating the beauty of 3rd dimension in any object, architecture, or in a scene etc. Perspective, in the context of visual perception, is the way in which objects appear to our eyes based on their spatial dimensions, and position of our eye in relation to that object. The prime focus of this theme is to make children aware of beauty and value of the 3rd dimension of any object in visual expressions. The process of applying perspective in visual arts will sensitize their eye on the play of light and shade, ratio and proportion, colour variation, use of lines in creating life like similarities in the objects. The application of perspective will also help in developing skill of creating required distance between foreground and background on a flat (2-D) surface. The process of understanding and application of the perspective in visual arts will enhance the skills of; observation, imagination, critical analysis, artistic skills and creative expression.

### Learning Outcomes:

Children will be able to:

- ✓ state the meaning of perspective;
- ✓ describe the play of light and shade on the given object/s;
- ✓ describe linear and areal perspective;
- ✓ create landscape/seascape using age appropriate perspective skills;
- ✓ respond to the perspective in art work done by their classmates and himself/herself;
- ✓ respond to the perspective in 2-D and 3-D artefacts displayed in galleries and museums, such as; paintings, pottery, terracotta and sculptures, installations, local crafts, etc. done by experts, artists and artisans;
- ✓ demonstrate use of extended vocabulary related to the theme- perspective.

### Perspective

Key Concepts	Suggested Transactional Process	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ State the meaning of perspective.</li> <li>➤ Describe the play of light and shade on the given object/s.</li> <li>➤ Describe Linear and areal perspective.</li> <li>➤ Create landscape/ seascape using age appropriate perspective skills.</li> <li>➤ Respond to the perspective in art work done by their classmates and himself/herself.</li> <li>➤ Respond to the perspective in 2-D and 3-D artefacts displayed in galleries and</li> </ul>	<ul style="list-style-type: none"> <li>➤ Encouraging children and providing opportunities to explore and experience the play of light and shade on natural and artificial objects, buildings, structures, scenes etc. in their immediate surroundings.</li> <li>➤ Organising classroom discussions on what is perspective and its relationship with the 3<sup>rd</sup> dimension of any object.</li> <li>➤ Explaining Linear and Areal perspective, based on live examples.</li> <li>➤ Organising sketching and painting sessions of landscape/ seascape of their liking, while using age appropriate perspective skills.</li> <li>➤ Guided tour to view natural and</li> </ul>	<ul style="list-style-type: none"> <li>➤ Sharing of children's own understanding of perspective, light and shade, 2-D and 3-D art work, based on their sketch book.</li> <li>➤ Art work of every child in the class.</li> <li>➤ Actual samples or even replicas of artist's work on perspective, both; linear and areal, on 2-D and 3-D work, Videos of artists' work etc.</li> <li>➤ Children's scrap books.</li> <li>➤ Easels /stands.</li> <li>➤ Computer with LCD</li> </ul>

## Perspective

Key Concepts	Suggested Transactional Process	Suggested Learning Resources
<p>museums, such as; paintings, pottery, terracotta and sculptures, installations, local crafts, etc. done by expert artists and artisan.</p> <p>➤ Demonstrate use of extended vocabulary related to the theme.</p>	<p>artificial objects, architectural sites in the immediate surroundings.</p> <p>➤ Providing every child opportunities to describe his/her own work and work done by the peers using perspective skills.</p> <p>➤ Conducting sessions of Still life drawing to practice 3-D effects on a 2-D surface. A group of 2-3 objects such as; book, glass bottle/jug and a fruit can be organised on a table with proper light from one angle to practice light and shade, ratio and proportion etc.</p> <p>➤ Worksheet/s on use of perspective and its description in the work of masters, while visiting art gallery or a museum.</p>	<p>projector /ICT facilities.</p> <p>➤ Display boards with theme based display of children work and/or artist work.</p>

**Life Skills:** Learning based on this theme will help in sharpening the skills of observation, imagination, critical thinking and that of artistic expression. Increase in the interest of creating life like art work and also the ability to appreciate such work of others.

## Theme 1: Form

The theme 'Form' aims at developing in children an understanding of line, shape and size of objects. The prime focus of this theme is to observe and identify lines and shapes in nature and in man-made objects from the immediate surroundings. Understanding of sizes such as: small, big, tall, huge, tiny etc., and creation of different forms with 2-D and 3-D materials. The process of identification of forms enhances skills, such as; observation, exploration, concentration and creative expression.

### Learning Outcomes:

Children will be able to:

- ☑ differentiate between geometrical and natural forms, realistic and abstract forms in the given artefacts;
- ☑ create border designs using geometrical patterns from their imagination;
- ☑ draw human forms in action, such as; sports scene, people crossing road, someone running to catch the bus;
- ☑ create theme based forms and designs;
- ☑ demonstrate use of extended vocabulary related to form;
- ☑ engage and explore various sites and immediate surroundings for the joy of knowing more.

<b>Form</b>		
<b>Key Concepts</b>	<b>Suggested Transactional Process</b>	<b>Suggested Learning Resources</b>
<ul style="list-style-type: none"> <li>➤ Differentiate between geometrical and natural forms, realistic and abstract forms in the given artefacts.</li> <li>➤ Create border design using geometrical patterns from imagination.</li> <li>➤ Draw human forms in action, such as; sports scene, people crossing road, someone running to catch the bus.</li> <li>➤ Create theme based forms and designs.</li> <li>➤ Demonstrate use of extended vocabulary related to the theme.</li> <li>➤ Engage and explore various sites and immediate surroundings for the joy of knowing</li> </ul>	<ul style="list-style-type: none"> <li>➤ Providing opportunities to children to explore and observe and thus develop an understanding of different forms, such as;                             <ul style="list-style-type: none"> <li>☛ geometrical and natural forms,</li> <li>☛ realistic and abstract forms,</li> <li>☛ 2-D and 3-D forms of objects and artefacts.</li> </ul> </li> <li>➤ Providing opportunities for children sharing their individual experiences related to different type of forms. Suggested areas of sharing can be; interesting forms of home furniture, school furniture, people at work, local Fairs (Melas), different forms of buildings and bridges in the immediate surroundings.</li> <li>➤ Organising classroom activities to make border designs based on imagination for a Handkerchief, Saree, for a Wall or Floor, while using lines and geometrical shapes.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Children's own learning experiences of forms related to furniture items, building/architecture, nature, human figures etc.</li> <li>➤ Sketchbooks and art work of children.</li> <li>➤ Children's Scrap books.</li> <li>➤ Picture cards/ placards, video clips on different forms.</li> <li>➤ Drawing and painting materials, local specific, low cost art materials.</li> <li>➤ Art Room with working tables of appropriate height</li> <li>➤ Computers with relevant soft wares and LCD projector for ICT based art experiences of varied forms.</li> </ul>

## Form

Key Concepts	Suggested Transactional Process	Suggested Learning Resources
more.	<ul style="list-style-type: none"> <li>➤ Creating human forms in action, such as; sports scene, people crossing road, someone running to catch the bus, etc. in drawing and painting or while using local specific materials for construction.</li> <li>➤ Creating theme based forms / designs, such as; ' Happy me', 'Happy Family', 'Tree Plantation', 'Fishing Day Out' etc. for decorating earthen pots.</li> <li>➤ Organising classroom discussions based on placards/ pictures/video clips etc. on different type of forms, such as;               <ul style="list-style-type: none"> <li>☛ What is the difference between realistic and abstract forms?</li> <li>☛ What is the difference between geometrical and natural forms?</li> </ul> </li> <li>➤ Using computer graphics to explore and understand the beauty and diversity of forms.</li> </ul> <p><b><i>Integration with other subjects</i></b></p> <p><b><i>Languages</i></b></p> <ul style="list-style-type: none"> <li>➤ Providing opportunities for children to make poems/ songs on different theme based designs to develop verbal expression.</li> <li>➤ Engaging children in the upkeep of the classroom after the art activity (to learn cleanliness, beautification and working together).</li> </ul>	<ul style="list-style-type: none"> <li>➤ Camera.</li> <li>➤ White board or classroom board/s.</li> <li>➤ Easels /stands.</li> <li>➤ Water arrangements.</li> <li>➤ Potter's clay.</li> <li>➤ Origami paper.</li> <li>➤ Aprons and towels.</li> </ul>

**Life Skills:** Developing skills of observation, problem solving, communication and cooperation by becoming aware of the immediate surroundings. Accepting responsibility of the beautification and cleanliness of the environment through active participation.

## Theme 2: Colour

The theme 'colour' aims at developing an understanding of different colours on one hand and developing aesthetic sensibility on the other in children. The prime focus of this theme is to observe and identify colours in nature and in man-made objects. Understanding relationship of certain colours with plants, flowers, fruits and nature. For example, leaf green, sea blue & sky blue, bottle green, lemon yellow etc. Creation of different shades by mixing of two different colours. For example; mixing of red and yellow in equal quantity will create orange colour.

It will also develop an understanding relationship of colours with different subjects and emotions. For example, bright colours for joyful compositions and dull and grey shades for sad subjects. Contrast colours to break the monotony, bold use of warm colours to depict force and of cool colours to depict peace and harmony, etc. The process of identification and understanding of colours enhances skills, such as; observation, exploration, experimentation and artistic expression.

### Learning Outcomes:

Children will be able to:

- ☑ differentiate between primary, secondary and tertiary colours;
- ☑ describe quality of art work based on its colours;
- ☑ draw and paint images from their immediate surroundings and colour them with appropriate colours;
- ☑ use neutral colours (black and white) and create chart of grey tones/scales of all primary and secondary colours;
- ☑ understand and use theme appropriate colours in compositions;
- ☑ demonstrate use of extended vocabulary related to colour;
- ☑ link the experience and understanding of colours with learning in other subjects;
- ☑ appreciate the beauty of colours in nature and in man-made objects.

<b>Colour</b>		
<b>Key Concepts</b>	<b>Suggested Transactional Process</b>	<b>Suggested Learning Resources</b>
<ul style="list-style-type: none"> <li>➤ Differentiate between primary, secondary and tertiary colours.</li> <li>➤ Describe quality of art work based on its colours.</li> <li>➤ Draw and paint images from immediate surroundings and colour them with their appropriate colours.</li> <li>➤ Use neutral colours (black and white) and create chart of grey tones/scales of all primary and secondary colours.</li> <li>➤ Understand use of theme</li> </ul>	<ul style="list-style-type: none"> <li>➤ Motivating children to make keen observations of primary, secondary and tertiary colours in nature and in artificial objects for making note of colours and their shades.</li> <li>➤ Encouraging exploration of children's immediate surroundings by conducting visits to shopping centres, fruit and vegetable markets, fairs /melas, events, gardens, zoo etc. for learning more about colours of natural and artificial objects, structures and sceneries. their likes and dislikes, importance and value of colours to them.</li> <li>➤ Providing opportunities for sharing of personal experiences by children about</li> </ul>	<ul style="list-style-type: none"> <li>➤ Children's own experience related to colours and shades. Their likes and dislikes, importance and value of colours to them.</li> <li>➤ Theme based scrap book on colours and shades.</li> <li>➤ Shopping centres, fruit and vegetable markets, fairs /melas, events, gardens, zoo etc.</li> <li>➤ Picture cards on tones and shades of different colours, art works of</li> </ul>

## Colour

Key Concepts	Suggested Transactional Process	Suggested Learning Resources
<p>appropriate colours in compositions.</p> <ul style="list-style-type: none"> <li>➤ Demonstrate use of extended vocabulary related to the theme.</li> <li>➤ Link the experience and understanding of colours with learning of other subjects of their class.</li> <li>➤ Appreciate beauty of colours in nature and in man-made objects around him/her.</li> </ul>	<p>colours around them such as:</p> <ul style="list-style-type: none"> <li>➤ Encouraging children to make their own colour charts of 8-10 tones of every primary colour, using neutral colours (white and black), and shades of secondary colours.</li> <li>➤ Using computer and computer software for mixing and making colours. Using painting software for seeing variation in effects of different colours and shades on a selected composition.</li> <li>➤ Conducting activities on drawing, colouring or clicking objects based on colour themes such as:               <ul style="list-style-type: none"> <li>☛ 'Green around us'.</li> <li>☛ 'Red around us', Yellow around us'</li> <li>'Varieties of blue' etc.</li> </ul> </li> <li>➤ Discussing the use of theme based colours in art work. Using sample cards, video clips, paintings and prints of work of renowned artists. Ask questions such as;               <ul style="list-style-type: none"> <li>☛ Why he/she has used red colour in this work?</li> <li>☛ What do you think of white/yellow here in this composition?</li> </ul> </li> <li>➤ Conducting practice sessions to describe own work and work of peers based on use of different colours.</li> <li>➤ Making social theme based Rangolis using different materials. 'Save girl child', 'save water', 'save tigers' 'our planet earth' etc.</li> </ul> <p><b>Integration with other subjects:</b></p> <p><b>Languages:</b></p> <ul style="list-style-type: none"> <li>➤ Facilitating children to create poem/s on colours of your choice. (individual activity)</li> </ul> <p>➤ <b>Maths:</b></p> <ul style="list-style-type: none"> <li>➤ Making Rangolis on different topics, using mathematics skills and concepts.</li> </ul>	<p>artists, video clips to study the use of different colours.</p> <ul style="list-style-type: none"> <li>➤ Drawing and painting materials, sheets, pigments, paints, inks and dyes, powder colours, sawdust, sand, etc.</li> <li>➤ Thread, sponge, straw, paper cuttings, etc.</li> <li>➤ Art Room with working tables of appropriate height, slabs on sides.</li> <li>➤ Easels /stands.</li> <li>➤ Cameras.</li> <li>➤ Computers with relevant software and LCD projector for ICT based art experiences.</li> <li>➤ Boards for art displays.</li> <li>➤ Aprons and towels.</li> <li>➤ Water arrangements.</li> </ul>

**Life Skills:** Developing skills of observation, problem solving, communication and cooperation, and working together. Also, acceptance of the social multiple perspective by exploring and knowing about their immediate surroundings in teams and accepting responsibility of its cleanliness and beautification through participation.



## Theme 3: Texture

The theme "Texture" is aimed at developing in children an understanding of different textures and surfaces. The prime focus of this theme is to observe, identify and create textures. Understanding relationship of certain textures with plants, trees, flowers, fruits, furs, feathers, wool, sand, fabric, etc. For example, fur is soft, sand is rough, bark of a tree is rough, etc. Creation of different textures and surfaces by using mix mediums and materials. For example; sand painting, impression of bark on clay slab etc. Experience with different textures can sharpen the sense of touch among all learners, including those with special needs. The process of identification, understanding and creation of texture enhances skills, such as; observation, imagination, experimentation and artistic expression.

### Learning Outcomes:

Children will be able to:

- ☑ identify and describe different textures and surfaces of natural objects and those of household items;
- ☑ depict different type of textures such as; rough, smooth, silky, hard, soft, sandy, wooden, etc. using drawing and painting techniques;
- ☑ create new textures with 3-D methods and materials;
- ☑ appreciate beauty, variety and value of different surfaces in work of arts;
- ☑ demonstrate use of extended vocabulary related to texture;
- ☑ link the experience and understanding of textures with learning of other subjects.
- ☑ engage and learn to observe and explore immediate surroundings for joy of knowing and experiencing different surfaces and textures.

<b>Texture</b>		
<b>Key Concepts</b>	<b>Suggested Transactional Process</b>	<b>Suggested Learning Resources</b>
<ul style="list-style-type: none"> <li>➤ Identify and describe different textures and surfaces of natural objects and those of household items.</li> <li>➤ Depict different type of textures such as; rough, smooth, hard, soft, sandy, wooden, etc. using drawing and painting techniques.</li> <li>➤ Create new textures with 3-D methods and materials.</li> <li>➤ Appreciate beauty, variety and value of different surfaces in work of arts.</li> <li>➤ Demonstrate use of extended vocabulary related to the theme.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Conducting an 'Exploration Walk' in and around the school to encourage observation, and exploration of different textures and surfaces through touch and feel.</li> <li>➤ Exploration walk in the immediate surroundings at different times of the day and in different weathers to experience different textures and surfaces.</li> <li>➤ Providing opportunities for children sharing experiences on variety of textures and surfaces, they have come across.</li> <li>➤ Organising drawing and painting activities to create textures, such as; rough, smooth, silky, hard, soft, sandy, wooden, etc.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Children's own experiences related to household objects,</li> <li>➤ Natural objects, plants &amp; trees, birds &amp; animals, sand and soil of different kinds, etc.</li> <li>➤ Children's Scrap books on materials having different textures.</li> <li>➤ Sample pictures and videos of different surfaces.</li> <li>➤ Drawing &amp; painting materials, Glue, sponge, pieces of different fabrics, sand, bark, wool, feathers, potters clay, samples of soil, etc.</li> </ul>

## Texture

Key Concepts	Suggested Transactional Process	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Learn to link the experience and understanding of textures with learning of other subjects of their class.</li> <li>➤ Engage and learn to observe and explore immediate surroundings for joy of knowing and experiencing different surfaces and textures.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Using 3-D materials to experiment and create new textures and name them.</li> <li>➤ Discussing the value of texture in work of art by making use of children's work, scrap books, relevant pictures and video clips on theme.</li> <li>➤ Exploring new textures with the help of computer software.</li> <li>➤ Conducting Play games such as 'Touch and Tell' to identify textures while being blindfolded. (classroom activity).</li> </ul> <p><b>Integration with other subjects:</b></p> <p><b>Languages:</b></p> <ul style="list-style-type: none"> <li>➤ Facilitating children to create poem or story describing textures of opposite nature. (individual activity)</li> </ul>	<ul style="list-style-type: none"> <li>➤ Art Room with working tables of appropriate height, slabs on sides</li> <li>➤ Cameras for clicking pictures.</li> <li>➤ Easel /stand</li> <li>➤ Computers with relevant software and LCD projector for ICT based art experiences.</li> <li>➤ Boards for art displays</li> <li>➤ Aprons and towels</li> <li>➤ Water arrangements</li> </ul>

**Life Skills:** Developing skills of observation, empathy and compassion for nature and for animals by observing and understanding of the nature. Accepting responsibility of environment protection through participation in its upkeep.

## Theme 4: Composition

The theme 'composition', particularly in visual arts (painting, printing, graphic design, sculpture, installation etc.) aims at developing children's understanding about the placement or arrangement of visual elements and organisation of the space (2-D and 3-D both). The prime focus of the theme is on artistic placement of colours and forms, painting of landscapes, seascapes, composition based on seasons, sports, parks, situations, arranging patterns, making designs, installation of 3-D objects, still life, graphic designs, crafts etc. In the visual arts, composition is often used interchangeably with various terms such as design, visual ordering or formal structure, depending on the context. Another aspect this theme focuses on is to develop the ability in children to observe and find out compositions in nature, and in man-made structures. It will help children to understand the relationship of one object with another, form with the colours, objects with the overall theme, and finally the visual impact of the work of art. For example, in a composition of the 'Rainy Day', the form of clouds, the lines of falling rain drops, colours supporting mood of the weather, and finally the visual impact of a composition, all are interrelated and interdependent. The process of visualizing and making composition enhances skills, such as; observation, imagination, experimentation, communication and artistic expression.

### Learning Outcomes:

Children will be able to:

- ☑ use view finder to select composition of landscapes/seascapes from the immediate surroundings;
- ☑ know the elements of composition, namely; Balance, Movement, Rhythm, Focus, Contrast, Pattern and Proportion;
- ☑ draw and paint compositions on themes, such as; my family, my school, festival/s I like the hockey/football/cricket/basketball match of my school, the game I like the most, landscape, seascape, from imagination;
- ☑ compose posters on social and environmental issues, such as; 'Save the Girl Child', 'Help Senior Citizens', 'Save Trees', 'Save Tigers', 'Save Water', 'Keep your Surroundings Clean';
- ☑ arrange and create 3-D objects on the given theme;
- ☑ demonstrate use of extended vocabulary related to the theme composition;
- ☑ link the experience gained while creating composition, with learning of other subjects of their class;
- ☑ engage and learn to observe and explore immediate surroundings for joy of knowing different compositions;
- ☑ communicate and express arrangement of visual images.

### Composition

Key Concepts	Suggested Transactional Process	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Use view finder to select composition of landscapes/seascapes from the immediate surroundings.</li> <li>➤ Know the elements of</li> </ul>	<ul style="list-style-type: none"> <li>➤ Encouraging an independent exploration of interesting locations in and around school and home, with view-finder.</li> <li>➤ Organising guided trips to give adequate exposure of social as well as</li> </ul>	<ul style="list-style-type: none"> <li>➤ Household objects, landscapes/seascapes, arranging idols during poojas, special days, festivals etc.</li> <li>➤ View finder, Picture cards</li> </ul>

## Composition

Key Concepts	Suggested Transactional Process	Suggested Learning Resources
<p>composition, that is; Balance, Movement, Rhythm, Focus, Contrast, Pattern and Proportion.</p> <ul style="list-style-type: none"> <li>➤ Draw and paint compositions on themes, such as; my family, my school, festival/s I like, Hockey/Football /Cricket/basketball match of my school, game I like the most, landscape, seascape, etc., from imagination.</li> <li>➤ Compose poster/s on social and environmental issues, such as; 'Save Girl Child', 'Help Senior Citizens', 'Save Trees', 'Save Tigers', 'Save Water', 'Keep your surrounding Clean' etc.</li> <li>➤ Arrange and create 3-D objects on the given theme.</li> <li>➤ Use of extended vocabulary related to compositions.</li> <li>➤ Engage and learn to explore immediate surroundings for the joy of knowing more.</li> <li>➤ Link experience and understanding of composition with learning of other subjects of their class.</li> </ul>	<p>natural situations for the quality and variety of compositions.</p> <ul style="list-style-type: none"> <li>➤ Promoting the sharing of children's own experiences in relation to household objects, landscapes/seascapes, arranging idols during poojas, special days, festivals etc.</li> <li>➤ Organising session on quick sketching of the selected compositions with pencil or with dry pastels. Encouraging the use of personal sketchbook.</li> <li>➤ Organising guided and independent exploration/walks to green / forest areas, zoos, school garden, historical monuments, to the fairs/melas, sports complexes and to the social gathering /celebrations for making sketches.</li> <li>➤ Encouraging children to make use of camera/s to click compositions which can be displayed and also used for developing art work.</li> <li>➤ Organising activities of drawing and/or painting of imaginary compositions on social themes, such as; <ul style="list-style-type: none"> <li>☛ <i>My family,</i></li> <li>☛ <i>My school,</i></li> <li>☛ <i>My village/ community,</i></li> <li>☛ <i>Our festival/s,</i></li> <li>☛ <i>Hockey/ Football/ Cricket match of my school, Landscapes, seascapes etc. etc.</i></li> </ul> </li> <li>➤ Helping in making poster/s on social and environmental issues, such as; Save the Girl Child', 'Help Senior Citizens', 'Save Trees', 'Save Tigers', 'Save Water', 'Keep your Surrounding Clean' etc.</li> <li>➤ Providing opportunities to create 3-D composition/s on themes, such as; 'Furniture in my room', 'Garden furniture', 'Gym in the park', 'Means of</li> </ul>	<p>and Videos depicting different compositions.</p> <ul style="list-style-type: none"> <li>➤ Sketch books of children.</li> <li>➤ Drawing/painting materials, clay, adhesive, card board, Rangoli materials, etc.</li> <li>➤ Art Room with working tables of appropriate height, slabs on sides.</li> <li>➤ Camera.</li> <li>➤ Computers with relevant soft wares and LCD projector for ICT based art experiences.</li> <li>➤ Boards for art displays.</li> <li>➤ Easels /stands.</li> <li>➤ Aprons and towels.</li> <li>➤ Water arrangements.</li> </ul>

## Composition

Key Concepts	Suggested Transactional Process	Suggested Learning Resources
	<p>Transportation' etc., and installation of the same.</p> <ul style="list-style-type: none"> <li>➤ Discussing the elements of composition to understand the secret of beauty in a composition. Examples should be related to the immediate environment of the children.</li> <li>➤ Showing video clips and original work of different artists for motivating children.</li> </ul> <p><b>Integration with Other Subjects:</b></p> <p><b>Languages:</b></p> <ul style="list-style-type: none"> <li>➤ Facilitating children to narrate their experiences on a theme/ topic related to the selected composition.</li> <li>➤ Writing a letter to a friend describing best composition seen during a gallery/museum visit.</li> </ul>	

**Life Skills:** Developing skills of problem solving, visualization, communication, cooperation and interpersonal relationship by observing, imagining and arranging compositions on their immediate surroundings and of other places of social and historical importance. Accepting responsibility of keeping the environment /surrounding clean and maintaining beautifying it through active participation.

## Theme 5: Tools & Techniques

The theme 'Tools and Techniques' is aimed at developing an understanding in children of the different tools and techniques used for experiencing the visual arts. The prime focus of this theme is to enable children to identify, experiment and understand the appropriate use of different tools, materials and techniques used in visual arts. It will also help them to understand the relationship of tools and materials with that of the techniques. For example, knowledge of brushes, blocks, nibs & holders/pens for inks and their maintenance.

Children will also be able to handle different tools, materials and techniques. For example; Use of soft but flat brushes (of bigger number) for broader strokes, Round brushes for drawing lines of varied thickness, dry colours (pencils, wax crayons, pastels etc.) for drawings, inks for quick and transparent drawings and blow printing, glue/adhesives for fixing of paper cuttings and other materials for making collages, softness of clay for slab, coil and pinching method, converting clay models in to terracotta, etc. Use of light and shade, ratio - proportion for arranging and making still life, knowing camera adjustments for clicking good pictures, knowing computer software for exploring and using computers for art experience. Knowing soft stone and wood for carving and sculpture, etc. The process of knowing and working with the tools and techniques enhances skills, such as; observation, experimentation, problem solving and free expression.

Experience with different tools and techniques will also aim at sharpening their common sense and making them confident users and creators.

### Learning Outcomes:

Children will be able to:

- ☑ identify and name the age/stage appropriate tools and materials including camera and computer and computer software/s;
- ☑ understand and apply the age appropriate techniques of visual expression, such as; drawing, still life, poster making, painting composition, pen & ink drawings, block printing, 2-D and 3-D work, origami, coil, slab and pinching methods of clay modelling, terracotta, engraving and relief work on 3-D materials, 3-D masks and puppets, simple crafts (local specific) rangoli, wall painting, photography, animation (manual and computer based);
- ☑ create their own tools and techniques of visual expression;
- ☑ maintain their tools and equipment of use;
- ☑ demonstrate use of extended vocabulary related to tools and techniques;
- ☑ learn to link the experience and understanding of tools and techniques with learning of/in other subjects;
- ☑ appreciate beauty and variety of methods and materials for visual expression.

### Tools and Techniques

Key Concepts	Suggested Transactional Process	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Identify and name the age and stage appropriate tools and materials including camera, computer and computer software/s.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Providing opportunities for children in sharing experiences on use and preferences regarding different tools, materials and techniques, used or seen.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Children's experience with different tools techniques. Collection and display of age appropriate art tools, techniques and materials</li> </ul>

## Tools and Techniques

Key Concepts	Suggested Transactional Process	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Understand and apply the age appropriate techniques of visual expression, such as; drawing, still life, poster making, painting composition, pen &amp; ink drawings, block printing, 2-D and 3-D work, origami, coil, slab and pinching methods of clay modelling, terracotta, engraving and relief work, 3-D masks and puppets, simple crafts (local specific) rangoli, wall painting or graffiti, photography, animation (manual and computer based), etc.</li> <li>➤ Create their own tools and techniques of visual expression.</li> <li>➤ Demonstrate use of extended vocabulary related to the theme.</li> <li>➤ Maintain their tools and equipment of use.</li> <li>➤ Create small poem or song on tool/s of their liking.</li> <li>➤ Integration of knowledge &amp; experience of tools, materials and techniques with learning of other subject.</li> <li>➤ Appreciate beauty and variety of methods and materials for visual expression.</li> </ul>	<ul style="list-style-type: none"> <li>➤ such as drawing, still life, poster making, painting composition, pen &amp; ink drawings, block printing, 2-D and 3-D work, origami, coil, slab and pinching methods of clay modelling, terracotta, engraving and relief work, 3-D masks and puppets, simple crafts (local specific) rangoli, wall painting, photography, animation (manual and computer based), etc.</li> <li>➤ Encouraging active participation in the collection of tools and materials from home, community and from the immediate surroundings.</li> <li>➤ Conducting Question Answer sessions in class in 'Do you know?' format, such as;               <ul style="list-style-type: none"> <li>☛ <i>Name any 5 tools of drawing and painting.</i></li> <li>☛ <i>Which are the materials that you have seen and used for the drawing and painting so far?</i></li> <li>☛ <i>Name any 5 printing tools/equipments/materials you know?</i></li> <li>☛ <i>What is a mixed collage?</i></li> <li>☛ <i>What precautions should you take while working with pen and ink?</i></li> <li>☛ <i>What material/s have you used for making your Block for printing?</i></li> <li>☛ <i>What is the difference between clay modelling and Terracotta?</i></li> <li>☛ <i>What method of mask making do you like?</i></li> <li>☛ <i>Which Camera do you use for taking pictures? Describe the camera.</i></li> <li>☛ <i>Which computer software have you used for animation?</i></li> </ul> </li> <li>➤ Facilitating learning of new technique/s and use of new tools through demonstration method. For example;</li> </ul>	<p>in</p> <ul style="list-style-type: none"> <li>➤ Collection and display of local specific /easily available tools and materials in the art room/classroom.</li> <li>➤ Local artists and artisans.</li> <li>➤ Age appropriate samples in form of pictures or videos of different art methods and techniques.</li> <li>➤ Drawing painting and printing materials such as glue, sponge, pieces of different fabrics, sand, bark, wool, feathers, potters clay, etc.</li> <li>➤ Art Room with working tables of appropriate height, slabs for 3-D work and display on sides.</li> <li>➤ Computers with relevant soft wares and LCD projector for ICT based art experiences.</li> <li>➤ Cameras.</li> <li>➤ Easels /stands.</li> <li>➤ Boards for art displays.</li> <li>➤ Aprons and towels.</li> <li>➤ Water arrangements</li> </ul>

## Tools and Techniques

Key Concepts	Suggested Transactional Process	Suggested Learning Resources
	<ul style="list-style-type: none"> <li>☛ Drawing of still life</li> <li>☛ Using the potter's wheel;</li> <li>☛ Making a poster based on its elements;</li> <li>☛ Engraving tools which can be used on soft wood; and</li> <li>☛ Maintenance of tools, etc.</li> </ul> <ul style="list-style-type: none"> <li>➤ Making of a wall painting or graffiti as these involve the use of local specific tools, technique/s, materials, motifs and composition.</li> <li>➤ Organising a visit to the local artists/artisans to see the process involved and the tools and equipment they use for their art.</li> <li>➤ Conducting class quiz or competitions for testing of their knowledge about tools, materials and techniques of visual expression and also to encourage further innovations.</li> <li>➤ Organising Annual group show of classroom activities on tools, techniques and materials.</li> <li>➤ Making replicas of Harrapan seals and toys in terracotta.</li> </ul> <p><b>Integration with Other Subjects:</b></p> <p><b>Languages:</b></p> <ul style="list-style-type: none"> <li>➤ Encourage children for creating poems and/or stories on printing roller/ printing table, etc. in small groups.</li> <li>➤ Script of role play, such as;               <ul style="list-style-type: none"> <li>☛ 'I am clay',</li> <li>☛ 'I am your new sketchbook',</li> <li>☛ 'I am your colour plate', etc.</li> <li>☛ (story making can cover it's making process, its use, its value, etc.)</li> </ul> </li> </ul>	

**Life Skills:** *Developing skills of problem solving and perseverance by using different tools and materials of creative expression. Also, confidence of learning to handle tools and materials and joy of learning the appropriate techniques to express through. An increase in the participation for cleaning and beautification of own's classroom, school and home and environment.*



## Theme 6: Art (Visual Arts) Vocabulary

The theme 'Art Vocabulary' is aimed at children learning and using appropriate names and terms related to art techniques, hues and shades of colours, tools and accessories used and different mediums and materials and for appreciating a work of art. The process of knowing and using appropriate vocabulary will enhance the communication skills of the learner. The prime focus of this theme is to know, to remember, and to use art related vocabulary appropriately. For example, block printing is done with the blocks, block printing is a technique which is used to take same kind of impression again and again. Soft paint-brushes are used for doing water based colours, flat brushes (of bigger number) are used for broader strokes whereas round brushes are used for drawing lines of varied thickness, slab method and coil method are techniques of making 3-D objects with potter's clay, terracotta is the result of baking clay models at an appropriate temperature, perspective is a skill for making 2-D objects and sceneries look 3-D, use of different colours can help in creating different effects in an art work, composition is a grouping of different objects/forms and colours in a visually pleasant manner, animation is a technique which provides movement to the graphics, etc.

### Learning Outcomes:

Children will be able to:

- ☑ identify and name different tools and techniques, such as; round brushes, flat brushes, hard and soft brushes, type of scissors, rollers/rolling pins, drawing & painting, printing, clay modelling, terracotta, pottery, spray painting, reverse techniques, origami, construction, engraving, round and relief work, paper craft, photography, animation, light and shade, still life, graphics, perspective;
- ☑ name terms/specifications used in visual arts, such as; types of colours, medium of colours, water colours, pastel colours, neutral colours, shades and tones of colours, paints, pen & ink, background and foreground in the composition, perspective; linear and aerial, landscapes, seascapes, lines of different types, geometrical shapes and sizes, modelling, still life, wall painting, graffiti, photography;
- ☑ describe own art work and that of their peers, using appropriate terms and vocabulary;
- ☑ narrate art experiences confidently;
- ☑ write a note on given art work using appropriate vocabulary;
- ☑ learn to link the knowledge of art vocabulary with learning of/in other subjects.

<b>Art Vocabulary</b>		
<b>Key Concepts</b>	<b>Suggested Transactional Process</b>	<b>Suggested Learning Resources</b>
<ul style="list-style-type: none"> <li>➤ Identify and name different tools and techniques, such as; round brushes, flat brushes, hard and soft brushes, type of scissors, rollers/rolling pins, drawing and painting, printing, clay modelling, terracotta, pottery, spray painting, reverse</li> </ul>	<ul style="list-style-type: none"> <li>➤ Encouraging use of appropriate art vocabulary by children while sharing their knowledge and experience about art tools, techniques and materials.</li> <li>➤ Providing opportunities to every child to analyse their own art work and also the art work of their peers and artists to practice the use of art vocabulary.</li> <li>➤ Organising classroom discussions on different art techniques, quality of</li> </ul>	<ul style="list-style-type: none"> <li>➤ Children's scrap books on tools and materials of visual arts, with their name or title. (<i>The scrap books should cover all the tools, materials, including that of the local ones.</i>)</li> <li>➤ Children's portfolios of art activities.</li> <li>➤ Samples of paintings,</li> </ul>

## Art Vocabulary

Key Concepts	Suggested Transactional Process	Suggested Learning Resources
<p>techniques, origami, construction, engraving, round and relief work, paper craft, photography, animation, light and shade, still life, graphics and perspective.</p> <ul style="list-style-type: none"> <li>➤ name terms/specifications used in visual arts, such as; types of colours, medium of colours, water colours, pastel colours, neutral colours, shades and tones of colours, paints, pen and ink, background and foreground in the composition, perspective; linear and aerial, landscapes, seascapes, lines of different types, geometrical shapes and sizes, modelling, still life, wall painting, graffiti, photography, etc.</li> <li>➤ Describe own art work and that of their peers, using appropriate terms and vocabulary.</li> <li>➤ Narrate art experiences confidently.</li> <li>➤ Write note on given art work using appropriate vocabulary.</li> <li>➤ Link the knowledge of art vocabulary with learning of other subjects.</li> </ul>	<p>materials and value of art tools, such as; brushes, type of scissors, printing rollers/ rolling pins, drawing &amp; painting, printing, clay modelling, terracotta, pottery, spray painting, reverse techniques, origami, construction, round and relief work, 2-D and 3-D arts, paper craft, etc.</p> <ul style="list-style-type: none"> <li>➤ Encouraging children to explain terms such as; perspective (linear and aerial), landscapes, seascapes, lines of different types, geometrical shapes and sizes, modelling, still life, wall painting, graffiti, photography, animation etc.</li> <li>➤ Providing opportunities to children to view art related pictures and videos followed by taking quick observations of every child, to encourage verbal expression among children.</li> <li>➤ Encouraging presentation/s on tools, colours, different medium and materials, different techniques, art work in school corridors, etc. This can be done either through scrap books or Power Point Presentation (PPT).</li> <li>➤ Organising children's visits to local museums, galleries, art exhibitions, craftsmen, potter, etc. and writing notes on their field experiences, using appropriate vocabulary.</li> <li>➤ Helping children in writing a review after a visit to the gallery.</li> </ul> <p><b>Integration with other Subjects:</b></p> <p><b>Languages:</b></p> <ul style="list-style-type: none"> <li>➤ Encouraging children in writing letter/s, stories, describing their experiences of the field visit to museum, by using appropriate vocabulary.</li> <li>➤ Facilitating the writing of an</li> </ul>	<p>photographs, of selected compositions, slides, videos of art camps and exhibitions etc.</p> <ul style="list-style-type: none"> <li>➤ Collection and display of age appropriate art tools and materials in the class. This also includes the local specific and easily available tools and materials.</li> <li>➤ Drawing and painting materials, potters clay, etc.</li> <li>➤ Computers with relevant soft wares and LCD projector for ICT based art experiences.</li> <li>➤ Cameras.</li> <li>➤ Boards for art displays.</li> </ul>

## Art Vocabulary

Key Concepts	Suggested Transactional Process	Suggested Learning Resources
	<p>imaginary dialogue;</p> <ul style="list-style-type: none"><li>• <i>between the objects in a given composition,</i></li><li>• <i>between printing roller and the print, between potter's clay and potter, between fire and terracotta, etc.</i></li></ul>	

**Life Skills:** Learning based on this theme will help in developing skills of observation, communication and free expression. It will also develop confidence of knowing words and terms for different tools and materials, methods and techniques and joy of free expression and can also enhance creativity.

## Theme 7: Responding to the Artefacts and Nature

The theme "Responding to the Artefacts and Nature" is aimed at children knowing, understanding and appreciating the beauty of nature and the artefacts. The prime focus of this theme is to make children understand the beauty and value of arts, of nature as well as man-made objects, structure and architecture. The process of appreciation will sensitize their eye for aesthetics of an object, subject and situation. The process of responding to the artefacts and nature will enhance the skills of; observation, exploration, critical analysis interpersonal relations, effective communication and artistic expression. It will help in developing in children an attitude for accepting and appreciating multiple perspectives on any given subject or situation.

### Learning Outcomes:

Children will be able to:

- ☑ describe the objects, buildings, structures, scenes and situations of their liking in the immediate surroundings;
- ☑ appreciate nature and natural beauty such as; plants, trees, buds, flowers, birds, animals, ponds, lakes, pastures, deserts, sea beaches, rivers, mountains, sky with and without clouds, wind, rain, sun, moon, stars, rainy day, starry night and sunny day. based on its lines, forms, colours, composition and perspective;
- ☑ respond to the impact of art done by their classmates and self;
- ☑ identify the elements of visual arts in a given art work;
- ☑ describe the artefacts displayed in galleries and museums, such as; paintings, prints, pottery, terracotta and sculptures, installations, local crafts for its artistic rendering;
- ☑ write an appreciation note on their experience of the art museum and art gallery while describing a few artefacts seen;
- ☑ demonstrate use of extended vocabulary related to responding to the artefacts and nature;
- ☑ link the knowledge of appreciation and responding to the nature and to the artefacts with learning of other subjects.

### Responding to the Artefacts and Nature

Key Concepts	Suggested Transactional Process	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Describe the objects, buildings, structures, scenes and situations of their liking in the immediate surroundings.</li> <li>➤ Appreciate nature and natural beauty such as; plants, trees, buds, flowers, birds, animals, ponds, lakes, pastures, deserts, sea beaches, rivers, mountains, sky with and without clouds, wind, rain, sun, moon, stars, rainy day,</li> </ul>	<ul style="list-style-type: none"> <li>➤ Encouraging and providing opportunities to every child to explore and experience the beauty of nature and natural objects, building architecture and structures, scenes and situations in their immediate surroundings.</li> <li>➤ Encouraging sharing/ of art experiences and appreciation of art objects and compositions of their liking by every child individually.</li> <li>➤ Providing opportunities for children to give observations on their own art and also on art activities/ experiences of</li> </ul>	<ul style="list-style-type: none"> <li>➤ Children's own experiences, likes and dislikes on nature and natural objects, on artefacts and architectural sites in the immediate surroundings.</li> <li>➤ Art work of every child in the class.</li> <li>➤ Samples/replicas of artists work in 2-D and 3-D, pictures or videos of artists' work.</li> <li>➤ Power Point Presentation</li> </ul>

## Responding to the Artefacts and Nature

Key Concepts	Suggested Transactional Process	Suggested Learning Resources
<p>starry night and sunny day, based on its line, form, colours, composition and perspective.</p> <ul style="list-style-type: none"> <li>➤ Respond to the impact of art work done by their classmates and self.</li> <li>➤ Identify the elements of visual arts in a given art work.</li> <li>➤ Describe the artefacts displayed in galleries and museums, such as: paintings, prints, pottery, terracotta and sculptures, installations, local crafts, etc. for its artistic rendering.</li> <li>➤ Write an appreciation note on their experience of the art museum and art gallery while describing a few artefacts seen.</li> <li>➤ Learn to link the knowledge of appreciation and responding to the nature and to the artefacts with learning of other subjects.</li> </ul>	<p>peers, periodically.</p> <ul style="list-style-type: none"> <li>➤ Worksheet/s on appreciation of nature and natural beauty such as; plants, trees, buds, flowers, birds, animals, ponds, lakes, pastures, deserts, sea beaches, rivers, mountains, sky with and without clouds, wind and rain, sun, moon and stars, rainy day, starry night, and sunny day, based on its line, form, colours, composition and perspective.</li> <li>➤ Conducting classroom discussions on quality of visual art elements in selected work of art.</li> <li>➤ Conducting /Organizing guided tour /s to the museum/s and art galleries.</li> <li>➤ Providing a well -designed worksheet on museum and galleries to facilitate appreciation of any one section. For example, ' Indian Miniatures', 'Sculptures of Gupta period' etc.</li> <li>➤ Organising Visual thinking sessions on paintings, photographs, pottery, ceramics, terracotta, sculpture, installations, etc. of professional artists.</li> </ul> <p><b>Integration with other Subjects:</b></p> <p><b>Languages:</b></p> <ul style="list-style-type: none"> <li>➤ Assisting children in illustrating at least one story from their language course.</li> <li>➤ Organising exhibitions of illustrated stories of the class.</li> </ul>	<p>or video clip on 'Elements of Visual Arts'.</p> <ul style="list-style-type: none"> <li>➤ Children's scrap book.</li> <li>➤ Collection and display of age appropriate art tools and materials in the class.</li> <li>➤ Display boards with theme based display of children work and/or artist work.</li> <li>➤ Computers with relevant soft wares and LCD projector for ICT based art experiences.</li> <li>➤ Cameras.</li> <li>➤ Exhibition Hall.</li> </ul>

**Life Skills:** Learning based on this theme will help in sharpening the skills of observation, critical thinking and art appreciation. It will also increase children's participation in cleaning and beautification of classroom, school home and their environment.

## Theme 8: Perspective

The theme "Perspective is aimed at children knowing, understanding and appreciating the beauty of the 3rd dimension in any object, architecture, or in a scene etc. Perspective, in the context of visual perception, is the way in which objects appear to our eyes based on their spatial dimensions, and position of our eye in relation to that object. The process of understanding and application of the perspective in visual arts will enhance the skills of; observation, imagination, critical analysis, artistic skills and creative expression. The prime focus of this theme is to make children aware of beauty and value of the 3rd dimension of any object in visual expressions. The process of applying perspective in visual arts will sensitize their eye on the play of light and shade, ratio and proportion, colour variation, use of lines in creating life like similarities in the objects. The application of perspective will also help in developing amongst children the skill of creating required distance between foreground and background on a flat (2-D) surface.

### Learning Outcomes:

Children will be able to:

- ☑ state the role of perspective in landscape compositions;
- ☑ describe the play of light and shade on the given composition;
- ☑ differentiate between 'Linear' and 'Areal' perspective;
- ☑ create landscape/seascape using age appropriate perspective skills;
- ☑ respond to the perspective in art work done by themselves and their classmates;
- ☑ respond to the perspective in 2-D and 3-D artefacts displayed in galleries and museums, such as; paintings, pottery, terracotta and sculptures, installations, local crafts, etc. done by professional artists and artisans;
- ☑ demonstrate use of extended vocabulary related to perspective.

<b>Perspective</b>		
<b>Key Concepts</b>	<b>Suggested Transactional Process</b>	<b>Suggested Learning Resources</b>
<ul style="list-style-type: none"> <li>➤ State the role of perspective in landscape compositions.</li> <li>➤ Describe the play of light and shade on the given composition.</li> <li>➤ Differentiate between 'Linear' and 'Areal' perspective.</li> <li>➤ Create landscape/ seascape using age appropriate perspective skills.</li> <li>➤ Respond to the perspective skills applied in the art work done by their classmates and</li> </ul>	<ul style="list-style-type: none"> <li>➤ Encouraging and providing opportunities for children to explore and experience the play of light and shade on natural and artificial objects, building architecture, bridges and other structures, scenes etc. in their immediate surroundings.</li> <li>➤ Organising classroom discussions on what is perspective and its relationship with the 3<sup>rd</sup> dimension of any object.</li> <li>➤ Explaining Linear and Areal perspective, based on live examples.</li> <li>➤ Conducting activities related to sketching and painting landscape/ seascape of their liking, while using age appropriate perspective skills.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Children's own understanding of perspective, light and shade, 2-D and 3-D art work, based on their sketch books.</li> <li>➤ Art work of every child in the class.</li> <li>➤ Actual samples or even replicas of artist's work on perspective, both; linear and areal, on 2-D and 3-D work, videos of artists' work etc.</li> <li>➤ Children's scrap book.</li> <li>➤ Easels /stands.</li> </ul>

## Perspective

Key Concepts	Suggested Transactional Process	Suggested Learning Resources
<p>himself/herself.</p> <ul style="list-style-type: none"> <li>➤ Observations on perspective used in artefacts displayed in galleries and museums, such as; paintings of different periods or of different artists, pottery, terracotta and sculptures, installations, local crafts, etc. done by professional artists and artisans.</li> <li>➤ Demonstrate use of extended vocabulary related to the theme.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Providing opportunities for children to describe self-work and work done by the peers using perspective skills.</li> <li>➤ Conducting practice sessions on Still life drawing to practice 3-D effects on a 2-D surface. A group of 3-4 objects such as; book, glass bottle/jug, a fruit and drapery can be organised on a table with proper lighting from one angle to practice the light and shade, ratio &amp; proportion, reflection etc.</li> <li>➤ Conducting/organising guided tour/s to view natural and artificial objects, architectural sites in the immediate surroundings.</li> <li>➤ Conducting/organising guided tour/s to the museum/s and art galleries.</li> <li>➤ Worksheet/s on use of perspective and its description in the work of masters, while visiting art gallery or a museum/s.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Computer with LCD projector /ICT facilities.</li> <li>➤ Cameras.</li> <li>➤ Display boards with theme based display of children work and/or artist work.</li> </ul>

**Life Skills:** Learning based on this theme will help in sharpening the skills of observation, imagination, critical thinking and that of artistic expression. It will also lead to an increase in the interest of creating life like art work and the ability to appreciate such work done by others.





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