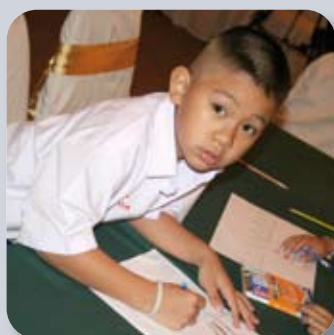




# Basic Education Core Curriculum

## B.E. 2551 (A.D. 2008)



Ministry of Education  
Thailand





**Basic Education Core Curriculum  
B.E. 2551 (A.D. 2008)**

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Thailand**



As far back as 2002, the Ministry of Education announced experimental application of the Basic Education Curriculum 2001 in its pilot and network schools. Mandatory implementation was subsequently effected in all schools providing basic education from academic year 2003 to the present time. Various agencies with direct responsibilities, as well as those concerned, have continuously followed up and evaluated the application. Different strengths identified have proved to be quite gratifying. In fact, the application has been found to facilitate decentralization of educational authority, enabling local communities and educational institutions to participate and make significant contributions to preparation of curriculums that met their real needs. Clear concepts and principles for promoting learners' holistic development were quite apparent. Nonetheless, the outcomes of the studies revealed several problems and issues of concern arising from shortcomings of the 2001 Curriculum.

Problems and issues of concern included the provisions, application process and outcome of the curriculum. The problems identified were confusion and uncertainty in preparing school curriculums; schools' ambition in prescribing learning areas and expected outcomes; measurement and evaluation did not correlate with the standards set, which effectes on preparation of certifying documents and tranferring of learning outcomes. Furthermore, issues of learners' quality resulting from acquisition of essential knowledge, skills, capacity and desired characteristics and attributes were quite disconcerting.

Consequently, the Office of the Basic Education Commission (OBEC), under close supervision of the Basic Education Commission Board, revised the Basic Education Curriculum 2001 in order to prepare the subsequent Basic Education Core Curriculum 2008. In so doing, OBEC availed the outcomes of the studies undertaken and benefited from the data and information provided in the Tenth National Economic and Social Development Plan (2007-2011). Pertinent research results and projections led to greater clarity regarding the goals of improving learners' quality and curriculum application at school and educational service area levels. Succinct information is presented regarding the vision, goals, learners' significant capacities, desired characteristics and attributes, learning standards and relevant indicators, allotted time to each subject area for each grade level, and evaluation criteria that correlate with learning standards and consequently facilitate

curriculum implementation. All these measures were aimed at providing schools with desirable orientation and guidance for preparation of the curriculum required for each level of education. The Basic Education Core Curriculum 2008 also allows opportunities for further amplification in accord with the schools' priorities and readiness.

The Basic Education Core Curriculum 2008 thus prepared will undoubtedly provide all educational service area offices, local offices and basic education institutions under jurisdiction of various agencies with an appropriate framework and guidance for preparing the pertinent curriculum. The basic education to be provided to all Thai children and youths will be of higher quality in regard to acquisition of essential knowledge and skills required for learners' lives in the constantly changing society. Learners will also be able to acquire knowledge for continuous lifelong self-development.

On behalf of the Basic Education Commission, may I express my thanks and appreciation of the active participation and contributions of all agencies concerned of the Ministry of Education and other state offices, the private sectors, people of all walks of life, parents and students. Their concerted efforts have led to successful completion of this policy document, which, I trust, will henceforth be most beneficial to educational provision for Thai people all over the country.

*Chai-anan Samudavanija*

**(Mr. Chai-anan Samudavanija)**

Chairman of the Basic Education Commission



**Directive of the Ministry of Education**

**No. OBEC 293/2551 (2008)**

**Subject: Implementation of the Basic Education Core Curriculum**

**B.E. 2551 (A.D. 2008)**

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Rapid economic and social change together with scientific and technological advancement have made it imperative to adapt basic education provision, which must be harmonized with such change and progress. Innovative strategies must be identified to improve the quality of education, which necessarily serves the needs of individuals as well as Thai society, and learners' capacities for competitiveness and creative cooperation in the world society. There are also urgent needs for inculcation of awareness of Thai-ness, self-discipline, public interest and adherence to a democratic form of government under a constitutional monarchy as stipulated in Section 80 of the Constitution of the Kingdom of Thailand 2007 and the National Education Act 1999 and Amendments 2002 (Second National Education Act).

By virtue of Sections 12 and 15 of the Administrative Organization of the Ministry of Education Act 2003 as well as approval of the Basic Education Commission for application of the Basic Education Core Curriculum 2008, the Ministry of Education hereby authorizes implementation of the Curriculum, the provisions of which are appended to this directive. The Basic Education Core Curriculum 2008 shall replace the Basic Education Curriculum 2001. Conditions and time frame for application of the Basic Education Core Curriculum 2008 shall be as follow:

1. For model schools and those ready for the curriculum implementation, the names of which have been announced by the Ministry of Education:

(1) In academic year 2009, the Basic Education Core Curriculum 2008 shall be applied for Grades 1-6 and Grades 7 and 10;

(2) In academic year 2010, the Basic Education Core Curriculum 2008 shall be applied for Grades 1-6, and Grades 7, 8, 10 and 11; and

(3) From academic year 2011, on the Basic Education Core Curriculum 2008 shall be applied for all grades.

2. For schools in general:

(1) In academic year 2010, the Basic Education Core Curriculum 2008 shall be applied for Grades 1-6 and Grades 7 and 10;

(2) In academic year 2011, the Basic Education Curriculum 2008 shall be applied for Grades 1-6 and Grades 7, 8, 10 and 11; and

(3) From academic year 2012, on the Basic Education Core Curriculum 2008 shall be applied for all grades.

With prior approval of the Basic Education Commission, the Secretary-General of the Basic Education Commission is hereby authorized to make annulment, augmentation and change to the Basic Education Core Curriculum 2008 in accord with exigencies of the target groups and methods of educational provision.

Given on July 11, 2008.

*Somchai Wongsawat*  
**(Mr. Somchai Wongsawat)**  
Minister of Education



	Page
<b>Preface</b>	
<b>Directive of the Ministry of Education No. OBEC 293/2551 (2008)</b>	
<b>Subject: Implementation of the Basic Education Core Curriculum</b>	
<b>B.E. 2551 (A.D. 2008)</b>	
Background	1
Vision	4
Principles	4
Goals	5
Learners' Key Competencies	6
Desired Characteristics	7
Learning Standards	8
Indicators	9
Learning Areas	10
Relationships in the Development of Learners' Quality According to the Basic Education Core Curriculum	11
Strands and Learning Standards	12
Learner Development Activities	22
Educational Levels	23
Learning Time Allotment	24
Learning Time Structure	25
Educational Provision for Special Target Groups	26
Learning Management	27
Learning Media	29
Learning Assessment	30
Criteria for Learning Assessment	33
Documents Showing Evidence of Education	37
Transfer of Learning Outcomes	38

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	<b>Page</b>
Curriculum Implementation and Management	39
Learning Standards and Indicators	40
Thai Language	41
Mathematics	62
Science	104
Social Studies, Religion and Culture	162
Health and Physical Education	200
Art	224
Occupations and Technology	250
Foreign Languages	266
<b>References</b>	<b>294</b>
<b>Translation Contributors</b>	<b>295</b>

## Background

The Ministry of Education announced implementation of the Basic Education Curriculum 2001, which served as the core curriculum for national education at the basic level. The curriculum prescribed goals, learning standards, and also provided a framework and orientation to enhance virtue, wisdom, as well as capacity of learners to maintain Thailand's competitive position in the world community (Ministry of Education, 2001). At the same time, the curriculum was duly adjusted for harmonisation with the objectives of the National Education Act 1999 and amendments made in 2002 (Second National Education Act). These laws have placed emphasis on decentralisation of educational authority to local communities and schools, which are to play significant roles and actively participate in preparing curriculums suitable to actual situations and serving their real needs (Office of the Prime Minister, 1999).

Based on relevant studies and monitoring as well as evaluation of the curriculum in application during the past six years (Bureau of Academic Affairs and Educational Standards, 2003a, 2003b, 2005a; 2005b; Office of the Education Council, 2004; Bureau of Inspection and Evaluation, 2005; Suvimol Wongvanich and Nonglak Wiratchai, 2004; Nutravong, 2002; Kittisunthorn 2003), strengths of the Basic Education Curriculum 2001 were identified. For example, it facilitated decentralisation of educational authority, enabling local communities and schools to participate and play important roles in preparing curriculums which met their real needs. Clear concepts and principles for promoting learners' holistic development were quite apparent. Nonetheless, the outcomes of these studies revealed several problems arising from lack of clarity. Shortcomings were found in provisions of the curriculum itself, its application and emerging unsatisfactory outcomes, resulting in confusion and uncertainty of practitioners at school level in preparing their own curriculums. Most schools were ambitious in prescribing the learning areas, leading to overcrowded curriculums. Excessively high expectations were also set. Measurement and evaluation did not correlate with the standards set which effected on preparation of certifying documents and transferring of learning outcomes. Moreover, problems regarding learners' ability to acquire essential knowledge, skills, capacities and desired characteristics were quite disconcerting.

In addition, the Tenth National Economic and Social Development Plan (2007-2011) emphasises the need to shift the focus of human development. It has become imperative for the Thai people to be endowed with desired moral values, intelligence and sagacity. They should be able to enjoy full development in all respects - physical, intellectual, emotional and spiritual. They will thus be able to adjust themselves to unavoidable change, leading to a transformation to a firmly-founded knowledge-based society. The direction of such human capacity development provides children and youths with a firm foundation for attaining morality and public-mindedness, together with capacities, skills and basic knowledge essential to their future lives, which lead to sustainable national development (Office of the National Economic and Social Development Board, 2006). Such priorities are consistent with the policy of the Ministry of Education in guiding Thai children and youths towards the 21<sup>st</sup> century. Emphases have been placed on morality, preference for Thai-ness, skills in analytical and creative thinking, technological know-how, capacity for teamwork and ability to live in peace and harmony in the world community (Ministry of Education, 2008).

Studies, monitoring and evaluation of application of the Basic Education Curriculum 2001, together with the information from the Tenth National Economic and Social Development Plan for human capacity development, as well as priorities advocated by the Ministry of Education for youth development for the 21<sup>st</sup> century led to revision of this curriculum. Consequently, the Basic Education Core Curriculum 2008 was formulated for greater clarity and appropriateness. Improvement was made for presentation of objectives and process of implementing the curriculum at educational service areas and school levels. Succinct vision, objectives, learners' significant capacities and desired characteristics, learning standards and indicators have been presented, providing guidance for preparation of curriculum for teaching-learning activities at each educational level. Furthermore, the new curriculum has prescribed a structure of minimum time to be allotted to each subject area for each grade level. Schools are given opportunities to increase learning time allotment, depending on their readiness and priorities. Improvement has been made to the process of measuring and evaluating learners' performance as well as criteria for graduation at each educational level. Adjustment has also been made for streamlining certification which correlates with learning standards, thus facilitating application of certifying documents.

The Basic Education Core Curriculum 2008 thus formulated will provide local communities and schools with the framework and orientation for preparing school curriculums. Teaching-learning activities organised for all Thai children and youths at basic education level are aimed at enhancing learners' quality regarding essential knowledge and skills required for their lives in an ever-changing society. They will thus be empowered to seek further knowledge for continuous lifelong self-development.

The learning standards and indicators prescribed in this document will enable agencies concerned at all levels to clearly visualise expected learning outcomes throughout the entire course of study. It will provide relevant local agencies and schools with confidence in their collaborative efforts to prepare school curriculums of higher quality and harmony. Learning measurement and evaluation will have greater clarity, thus eliminating the problem of inter-school transfer of learning outcomes. Therefore, curriculum development at all levels - from national to school levels - must exhibit the quality as prescribed in the learning standards and indicators. The core curriculum will provide the framework and direction for provision of education of all types, covering all target groups of learners with basic education.

To achieve the expecting goals in implementing the core curriculum depends on the concerted efforts of the groups concerned at all levels - nation, community, family and individual. They need to work on a systematic and continuous basis on planning, functioning, promotion and support, inspection, and amendment as well as improvement, so that the development of our youths will attain the quality of learning standards required.

## Vision

The Basic Education Core Curriculum is aimed at enhancing capacity of all learners, who constitute the major force of the country, so as to attain a balanced development in all respects - physical strength, knowledge and morality. They will fully realise their commitment and responsibilities as Thai citizens and members of the world community. Adhering to a democratic form of government under a constitutional monarchy, they will be endowed with basic knowledge and essential skills and favourable attitude towards further education, livelihood and lifelong learning. The learner-centred approach is therefore strongly advocated, based on the conviction that all are capable of learning and developing themselves to their highest potentiality.

## Principles

Notable principles underlying the Basic Education Core Curriculum are as follow.

1. The ultimate aim is attainment of national unity; learning standards and goals are therefore set with a view to enabling the children and youths to acquire knowledge, skills, attitude and morality to serve as a foundation for Thai-ness and universal values.
2. The curriculum facilitates education for all, who have equal access to education of high quality.
3. The curriculum facilitates decentralisation of authority by allowing society to participate in educational provision, which suits prevailing situations and serves local needs.
4. Structure of the curriculum enjoys flexibility regarding learning contents, time allotment and learning management.
5. The learner-centred approach is strongly advocated.
6. The curriculum is intended for education of all types - formal, non-formal and informal, covering all target groups and facilitating transfer of learning outcomes and experiences.

## Goals

The Basic Education Core Curriculum is aimed at the full development of learners in all respects - morality, wisdom, happiness, and potentiality for further education and livelihood. The following goals have consequently been set for achievement upon completing basic education:

1. Morality, ethics, desired values, self-esteem, self-discipline, observance of Buddhist teachings or those of one's faith, and applying principles of Sufficiency Economy Philosophy;
2. Knowledge and skills for communication, thinking, problem-solving, technological know-how, and life skills;
3. Good physical and mental health, hygiene, and preference for physical exercise;
4. Patriotism, awareness of responsibilities and commitment as Thai citizens and members of the world community, and adherence to a democratic way of life and form of government under a constitutional monarchy; and
5. Awareness of the need to preserve all aspects of Thai culture and Thai wisdom, protection and conservation of the environment, and public-mindedness with dedication to public service for peaceful and harmonious coexistence.

## Learners' Key Competencies

The Basic Education Core Curriculum is aimed at inculcating learners with the following five key competencies:

### 1. Communication Capacity

Capacity to receive and transmit information; linguistic ability and skills in expressing one's thoughts, knowledge and understanding, feelings and opinions for exchanging information and experience, which will be beneficial to oneself and society; negotiation for solving or reducing problems and conflicts; ability to distinguish and choose whether to receive or avoid information through proper reasoning and sound judgement; and ability to choose efficient methods of communication, bearing in mind possible negative effects on oneself and society.

### 2. Thinking Capacity

Capacity for analytical, synthetic, constructive, critical and systematic thinking, leading to bodies of knowledge creation or information for judicious decision-making regarding oneself and society.

### 3. Problem-Solving Capacity

Capacity to properly eliminate problems and obstacles, based on sound reasoning, moral principles and accurate information; appreciation of relationships and changes in various social situations; ability to seek and apply knowledge to prevent and solve problems; and ability for judicious decision-making, bearing in mind possible negative effects on oneself, society and the environment.

### 4. Capacity for Applying Life Skills

Capacity for applying various processes in daily life; self-learning; continuous learning; working; and social harmony through strengthening of happy interpersonal relationships; elimination of problems and conflicts through proper means; ability for self-adjustment to keep pace with social and environmental changes; and capacity for avoiding undesirable behaviour with adverse effects on oneself and others.



### 5. Capacity for Technological Application

Ability to choose and apply different technologies; skills in application of technological processes for development of oneself and society in regard to learning, communication, working, and problem-solving through constructive, proper, appropriate and ethical means.

## Desired Characteristics

The Basic Education Core Curriculum focuses on learners' development for attainment of the following desired characteristics, which enable learners to enjoy their lives as Thai citizens and global citizens:

1. Love of nation, religion and the monarchy
2. Honesty and integrity
3. Self-discipline
4. Avidity for learning
5. Applying principles of Sufficiency Economy Philosophy in one's way of life
6. Dedication and commitment to work
7. Cherishing Thai nationalism
8. Public-mindedness

## Learning Standards

Observance of the principles of development of the brain and multiple intelligence is required to achieve learners' balanced development. The Basic Education Core Curriculum has therefore prescribed the following eight learning areas:

1. Thai Language
2. Mathematics
3. Science
4. Social Studies, Religion and Culture
5. Health and Physical Education
6. Art
7. Occupations and Technology
8. Foreign Languages

For each learning area, the learning standards serve as the goals in developing learners' quality. These standards prescribe what the learners should know and should be able to perform. They also indicate moral and ethical values as well as desired characteristics upon completing education at basic level. Besides, the learning standards serve as essential mechanisms in advancing the whole education system, as they inform us of the contents and teaching and evaluation methods. They also serve as instruments for quality assurance and are adopted for both internal quality assurance and external evaluation, practised at both educational service area and national levels. Monitoring for internal quality assurance is essential, as it indicates the extent of success in achieving the quality as prescribed in the pertinent standards.

## Indicators

Indicators specify what learners should know and be able to perform as well as their characteristics for each grade level. Indicators reflect the learning standards. Being specific and concrete, they can be utilised for prescribing contents, determining learning units and organising teaching-learning activities. They serve as essential criteria for evaluation in order to verify the learners' quality.

**1. Grade-Level Indicators** specify the goals in developing learners for each level of compulsory education (Primary Education Grade 1-Secondary Education Grade 3, i.e., Grades 1-9).

**2. Interval Indicators** specify the goals for upper secondary education (Secondary Education Grades 4-6, i.e., Grades 10-12).

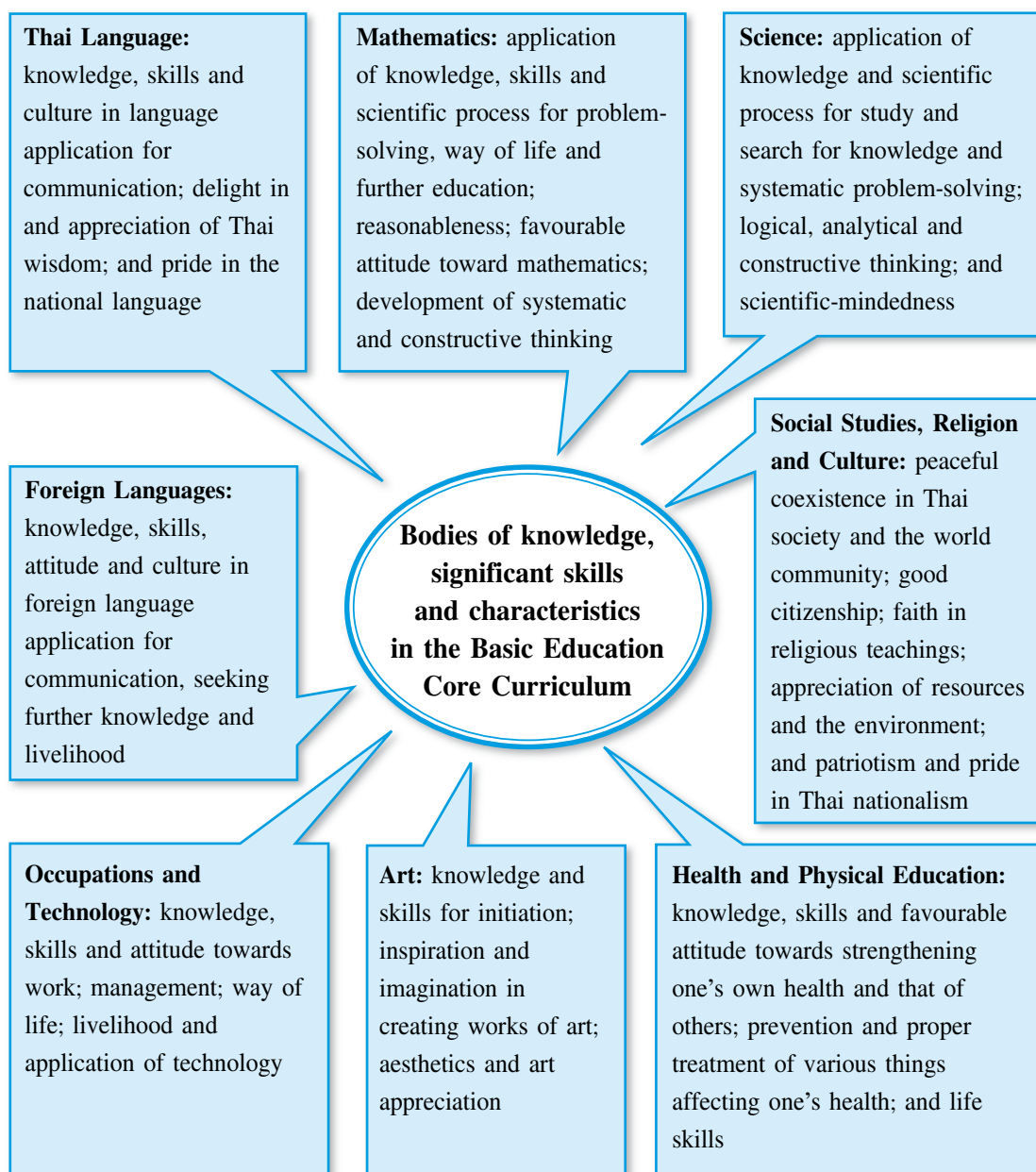
For common understanding and correct interpretation, the curriculum prescribes various codes for learning standards and indicators, examples of which are shown below.

SC1.1 Gr 1/2	
SC	Subject area of Science
1.1	First subject area, Standard 1
Gr 1/2	Indicator 2 for Grade 1

FO2.2 Gr 10-12/2	
FO	Subject area of Foreign Languages
2.2	Second subject area, Standard 2
Gr 10-12/2	Indicator 2 for upper secondary education (Upper Secondary Education Grades 4-6, i.e., Grades 10-12)

## Learning Areas

Learning areas comprise bodies of knowledge, skills or learning processes and desired characteristics, attainment of which is required of all basic education learners. The contents are divided into eight learning areas:



## Relationships in the Development of Learners' Quality According to the Basic Education Core Curriculum

### Vision

The Basic Education Core Curriculum is aimed at enhancing capacity of all learners, who constitute the major force of the country, so as to attain a balanced development in all respects - physical strength, knowledge and morality. They will fully realise their commitment and responsibilities as Thai citizens and members of the world community. Adhering to a democratic form of government under a constitutional monarchy, they will be endowed with basic knowledge and essential skills and favourable attitude towards further education, livelihood and lifelong learning. The learner-centred approach is therefore strongly advocated, based on the conviction that all are capable of learning and developing themselves to their highest potentiality.

### Goals

1. Morality, ethics, desired values, self-esteem, self-discipline, observance of Buddhist teachings or those of one's faith, and applying principles of Sufficiency Economy Philosophy;
2. Knowledge and skills for communication, thinking, problem-solving, technological know-how, and life skills;
3. Good physical and mental health, hygiene, and preference for physical exercise;
4. Patriotism, awareness of responsibilities and commitment as Thai citizens and members of the world community, and adherence to a democratic way of life and form of government under a constitutional monarchy; and
5. Awareness of the need to preserve all aspects of Thai culture and Thai wisdom, protection and conservation of the environment, and public-mindedness with dedication to public service for peaceful and harmonious coexistence.

### Learners' Key Competencies

1. Communication Capacity
2. Thinking Capacity
3. Problem-Solving Capacity
4. Capacity for Applying Life Skills
5. Capacity for Technological Application

### Desired Characteristics

1. Love of nation, religion and the monarchy
2. Honesty and integrity
3. Self-discipline
4. Avidity for learning
5. Applying principles of Sufficiency Economy Philosophy in one's way of life
6. Dedication and commitment to work
7. Cherishing Thai nationalism
8. Public-mindedness

### Learning Standards and Indicators for Eight Learning Areas

1. Thai Language
2. Mathematics
3. Science
4. Social Studies, Religion and Culture
5. Health and Physical Education
6. Art
7. Occupations and Technology
8. Foreign Languages

### Learner Development Activities

1. Counselling activities
2. Student activities
3. Activities for social and public interest

**Learners' quality at basic education level**

## Strands and Learning Standards

The Basic Education Core Curriculum prescribes a total of 67 standards for the eight learning areas as follows:

### Thai Language

#### Strand 1: Reading

Standard TH1.1: Application of reading process to build knowledge and thoughts for decision-making and problem-solving to life, and encouraging acquisition of reading habit

#### Strand 2: Writing

Standard TH2.1: Effective application of writing process for communications, compositions, synopses, stories in various forms, data and information reports, study reports and research reports

#### Strand 3: Listening, Viewing and Speaking

Standard TH3.1: Competency in selective and critical listening and viewing, and in critical and creative expression of knowledge, thoughts and feelings on various occasions

#### Strand 4: Principles of Thai Language Usage

Standard TH4.1: Understanding of the nature and the principles of Thai language, linguistic changes and power, linguistic wisdom and preservation of Thai language as national treasure

#### Strand 5: Literature and Literary Works

Standard TH5.1: Understanding and expressing opinions; criticism of Thai literature and literary works through appreciative approach; and application to real life

## Mathematics

### Strand 1: Numbers and Operations

- Standard MA1.1: Understanding of diverse methods of presenting numbers and their application for real life
- Standard MA1.2: Understanding of the results of operations of numbers, the relationships of operations, and the application of operations for problem-solving
- Standard MA1.3: Use of estimation in calculation and problem-solving
- Standard MA1.4: Understanding of the numerical system and the application of numerical properties

### Strand 2: Measurement

- Standard MA2.1: Understanding of the basics of measurement; ability to measure and to estimate the size of objects.
- Standard MA2.2: Solving measurement problems

### Strand 3: Geometry

- Standard MA3.1: Ability to explain and analyse two-dimensional and three-dimensional geometric figures
- Standard MA3.2: Ability in visualisation, spatial reasoning and application of geometric models for problem-solving

### Strand 4: Algebra

- Standard MA4.1: Understanding and ability to analyse patterns, relations and functions
- Standard MA4.2: Ability to apply and to interpret algebraic expressions, equations, inequalities, graphs and other mathematical models to represent various situations and to apply them for problem-solving

### Strand 5: Data Analysis and Probability

- Standard MA5.1: Understanding and ability to apply statistical methodology for data analysis
- Standard MA5.2: Application of statistical methodology and knowledge of probability for valid estimation
- Standard MA5.3: Application of knowledge of statistics and probability for decision-making and problem-solving

## Mathematics

### Strand 6: Mathematical Skills and Processes

Standard MA6.1: Ability in problem-solving, reasoning, communication and presentation of mathematical concept, linking various bodies of mathematical knowledge, and linking mathematics with other disciplines; and attaining ability for creative thinking

## Science

### Strand 1: Living Things and Life Processes

Standard SC1.1: Understanding of the basic units of living things; the relationship between structures and functions of various systems of living things which are interlinked; having investigative process for seeking knowledge; ability to transfer and put the knowledge into practice and care for living things

Standard SC1.2: Understanding of the process and the importance of genetic transmission; the evolution of living things; the biodiversity; the application of biotechnology affecting humans and the environment; having investigative process for seeking knowledge and scientific reasoning; transferring and putting the knowledge into practice

### Strand 2: Life and the Environment

Standard SC2.1: Understanding of the local environment; the relationship between the environment and living things; the relationship between living things in the eco-system; having investigative process for seeking knowledge and scientific reasoning; transferring and putting the knowledge into practice

Standard SC2.2: Appreciating the importance of natural resources; the utilization of natural resources at local, national and global levels; and the application of knowledge for management of natural resources and local environment on a sustainable basis



**Science****Strand 3: Substances and Properties of Substances**

Standard SC3.1: Understanding of the properties of substances; the relationship between the properties of substances and the structures and binding forces between particles; having investigative process for seeking knowledge and scientific reasoning; transferring and putting the knowledge into practice

Standard SC3.2: Understanding of the principles and the nature of change in the state of substances; the solution formation; the chemical reaction; having investigative process for seeking knowledge and scientific reasoning; transferring and putting the knowledge into practice

**Strand 4: Forces and Motion**

Standard SC4.1: Understanding of the nature of electromagnetic, the gravitational and nuclear forces; having investigative process for seeking knowledge; transferring and putting the knowledge into practice

Standard SC4.2: Understanding of the characteristics and various types of motion of natural objects; having investigative process for seeking knowledge and scientific reasoning; transferring and putting the knowledge into practice

**Strand 5: Energy**

Standard SC5.1: Understanding of the relationship between energy and living; the energy transformation; the interrelationship between substances and energy; the effects of energy utilization on life and the environment; having investigative process for seeking knowledge; transferring and putting the knowledge into practice

**Science****Strand 6: Change Processes of the Earth**

Standard SC6.1: Understanding of various processes on the earth surface and the interior; the relationship between various processes causing changes in climate, topography and form of the earth; having investigative process for seeking knowledge and scientific reasoning; transferring and putting the knowledge into practice

**Strand 7: Astronomy and Space**

Standard SC7.1: Understanding of the evolution of the solar system, galaxies and the universe; the interrelationships within the solar system and their effects on living things on the earth; having investigative process for seeking knowledge and scientific reasoning; transferring and putting the knowledge into practice

Standard SC7.2: Understanding of the importance of space technology utilised for space exploration and natural resources for agriculture and communication; having investigative process for seeking knowledge and scientific reasoning; transferring and putting the knowledge into practice

**Strand 8: Nature of Science and Technology**

Standard SC8.1: Application of the scientific process and scientific reasoning in investigation for seeking knowledge and problem-solving; knowing that most natural phenomena assume definite patterns which are explainable and verifiable within limitations of data and instruments available during particular periods of time; and understanding that science, technology, society and the environment are interrelated

**Social Studies, Religion and Culture****Strand 1: Religion, Morality and Ethics**

- Standard SO1.1: Knowledge and understanding of the history, the importance, the Masters and the moral principles of Buddhism or those of one's faith and other religions; having the right faith; adherence to and observance of the moral principles for peaceful coexistence
- Standard SO1.2: Understanding, awareness and personal conduct of devout believers; and furtherance of Buddhism or one's faith

**Strand 2: Civics, Culture and Living in Society**

- Standard SO2.1: Understanding and personal conduct in accord with the duties and the responsibilities of good citizens; observance and preservation of Thai tradition and culture; and enjoying peaceful coexistence in Thai society and the world community
- Standard SO2.2: Understanding of the political and administrative systems of the present society; adherence to, faith in, and upholding of the democratic form of government under a constitutional monarchy

**Strand 3: Economics**

- Standard SO3.1: Understanding and ability of managing resources for production and consumption; efficient and cost-effective utilization of limited resources available; and understanding principles of Sufficiency Economy for leading a balanced life
- Standard SO3.2: Understanding of various economic systems and institutions; the economic relations; and the necessity for economic cooperation in the world community

**Strand 4: History**

- Standard SO4.1: Understanding of the meaning and the significance of historical times and periods; and ability to use historical methodology for systematic analysis of various events
- Standard SO4.2: Understanding of the development of mankind from the past to the present; realising the importance of the relationships and the continuous changes of events, and ability to analyse their effects
- Standard SO4.3: Knowledge of the historical development of Thailand as a nation; culture; Thai wisdom; cherishing, pride in and preservation of Thai nationalism

## Social Studies, Religion and Culture

### Strand 5: Geography

- Standard SO5.1: Understanding of the physical characteristics of the earth and the inter-relationship of various things in the natural system which affect one another; the utilization of maps and geographical instruments for searching, analysing, drawing conclusions, and efficient utilization of geo-data and information
- Standard SO5.2: Understanding of the interrelationship between man and the physical environment leading to cultural creativity; the awareness of and the participation in conservation of resources and the environment for sustainable development

## Health and Physical Education

### Strand 1: Human Growth and Development

- Standard HP1.1: Understanding of the nature of human growth and development

### Strand 2: Life and Family

- Standard HP2.1: Understanding and appreciation of oneself; family; sex education; and having life skills

### Strand 3: Movement, Physical Exercise, Games, Thai and International Sports

- Standard HP3.1: Understanding and having skills in movement; physical activities; playing games and sports
- Standard HP3.2: Favour of physical exercise, playing games and sports with regular practices; self-discipline; observance of rights, rules and regulations; having sporting spirit; having true competitive spirit; and appreciation of the aesthetics of sports

### Strand 4: Health-Strengthening Capacities and Disease Prevention

- Standard HP4.1: Appreciation and having skills in health-strengthening; maintaining their health; disease prevention and strengthening capacity for health

### Strand 5: Safety in Life

- Standard HP5.1: Prevention and avoidance of the risk factors; the behaviours detrimental to health; accidents; taking medicines; addictive substances; and violences

**Art****Strand 1: Visual Arts**

- Standard AR1.1: Creation of visual art works through imagination and creativity; analysis and criticism on the values of visual art works through free expression of feelings and thoughts; appreciation and application of visual arts in daily life
- Standard AR1.2: Understanding of the relationship between the visual arts, the history and the culture; appreciating visual art works that represent the cultural heritage, the local wisdom, and Thai and universal wisdom

**Strand 2: Music**

- Standard AR2.1: Understanding of and ability in creative self-expression through music; analysis and criticism on the values of music; free conveyance of feelings and thoughts on music; appreciation and application of music in daily life
- Standard AR2.2: Understanding of the relationship between the music, the history and the culture; appreciating the musical works that represent the cultural heritage, the local wisdom, and Thai and universal wisdom

**Strand 3: Dramatic Arts**

- Standard AR3.1: Understanding and creation of self-expression through dramatic arts; analysis and criticism on the values of dramatic arts; free expression of feelings and thoughts; appreciation and application of dramatic arts in daily life
- Standard AR3.2: Understanding of the relationship between the dramatic arts, the history and the culture; appreciating dramatic art performances that represent the cultural heritage, the local wisdom, and Thai and universal wisdom

## Occupations and Technology

### Strand 1: Living and Family

Standard OT1.1: Understanding of the concept of work; possessing creativity and skills in various respects-work processes, management, problem-solving, teamwork and investigation for seeking knowledge, morality, diligence, and awareness of the need to economise on the consumption of energy, resources and the environment for living and for family

### Strand 2: Design and Technology

Standard OT2.1: Understanding of the technology and technological processes; designing and making objects, utensils or the methodologies through the creative technological processes; selective utilization of the technologies beneficial to one's life, society and the environment; participation in sustainable technological management

### Strand 3: Information and Communication Technology

Standard OT3.1: Understanding, appreciation and efficient, effective and ethical application of information technology in searching for data, communicating, problem-solving, working and livelihood

### Strand 4: Occupations

Standard OT4.1: Understanding and acquiring the necessary skills and experiences; proper perception of future career; the technological application for occupational development; possessing morality and favourable attitude towards careers

## Foreign Languages

### Strand 1: Language for Communication

- Standard FL1.1: Understanding and ability in interpreting what has been heard and read from various types of media, and ability to express opinions with reasons
- Standard FL1.2: Possessing language communication skills for effective exchange of information; efficient expression of feelings and opinions
- Standard FL1.3: Ability to speak and write about information, concepts and views on various matters

### Strand 2: Language and Culture

- Standard FL2.1: Appreciating the relationship between language and culture of native speakers and ability in using language appropriately
- Standard FL2.2: Appreciating the similarities and differences between language and culture of the native speakers and Thai speakers, and ability in using accurate and appropriate language

### Strand 3: Language and Relationship with Other Learning Areas

- Standard FL3.1: Using foreign languages to link knowledge with other learning areas, as foundation for further development, seeking knowledge and boardening one's world view

### Strand 4: Language and Relationship with Community and the World

- Standard FL4.1: Ability to use foreign languages in various situations: in school, community and society
- Standard FL4.2: Using foreign languages as basic tools for further education, livelihood and exchange of learning with the world community

## Learner Development Activities

Learner development activities are aimed at allowing learners to develop themselves to their highest potentiality, thus becoming well-rounded and fully developed in all respects - physical, intellectual, emotional and social; inculcating of morality, ethics and self-discipline; creating and strengthening spirit of philanthropy for social benefits; ability for self-management and enjoying happy life.

Learner development activities are divided into three types as follows.

### 1. Counselling Activities

These activities are aimed at encouraging and developing learners to know themselves, know how to protect the environment, be able to make decisions, solve problems, set goals and make plans in regard to their education and future careers and adapt themselves appropriately. Furthermore, these activities will enable teachers to know and understand their learners and therefore assist and advise parents regarding their participation in learner development.

### 2. Student Activities

These activities are aimed at instilling self-discipline, ability to lead and follow, teamwork, responsibility, problem-solving skills, appropriate decision-making, rationality, helpfulness and sharing, care, generosity and unity. The activities are organised in accord with capacities, aptitudes and interests of learners, who practise the activities at all stages, i.e., study, analysis, planning, plan implementation, evaluation and improvement. The activities emphasise working in team appropriately under learners' maturity, school and local contexts. Student activities include:

2.1 Boy Scout organisation, Girl Guides, Junior Red Cross, social service and territorial defence; and

2.2 Activities of various clubs.

### 3. Activities for Social and Public Interest

These activities are aimed at encouraging learners to devote themselves and provide voluntary services for the benefit of society, their communities and local areas in accord with their interests, thus manifesting commitment, virtue, sacrifice for social causes and public-mindedness. They include voluntary services in various fields and those for public interest and concerns.



## Educational Levels

The Basic Education Core Curriculum covers three educational levels as follows.

### **1. Primary Education Level** (Primary education grades 1-6)

This level covers the first stage of compulsory education. It focuses on acquiring various skills--reading, writing, calculation, fundamental thinking, communication, social learning process and fundamentals of human beings, complete and balanced development of quality of life in various respects - physical, intellectual, emotional, social and cultural - emphasizing on integrated learning management.

**2. Lower Secondary Education Level** (Lower secondary education grades 1-3, also known as grades 7-9)

This level covers the last stage of compulsory education. It focuses on allowing learners to explore their aptitudes and interests, promoting development of individual personality, skills for critical and creative thinking, problem-solving, life skills and skills required to apply technologies as learning tools, social responsibility, proper balance in regard to knowledge, virtue and pride in Thai nationalism, which together provide a foundation for future livelihood or further education.

**3. Upper Secondary Education Level** (Upper secondary education grades 4-6, also known as grades 10-12)

This level focuses on increasing specific knowledge and skills in line with capacities, aptitudes and interests of individual learners in regard to academic and technological application, skills for high-level thinking process, ability to apply knowledge for further education and livelihood, and self-development and national progress in accordance with students' respective roles, as well as ability to lead and offer community services in various respects.

## Learning Time Allotment

The Basic Education Core Curriculum prescribes the framework for minimal learning time structure for the eight learning areas and learner development activities. Educational institutions can increase the allotment of time, depending on their readiness and priorities, through adjustment to suit their contexts and learners' situations as follows:

**1. Primary Education Level** (Primary education grades 1-6)

Learning time is allotted on annual basis; not exceeding five hours a day.

**2. Lower Secondary Education Level** (Secondary education grades 1-3 or grades 7-9)

Learning time is allotted on semester basis; not exceeding six hours a day. The weight of a course is counted in credits with the criterion of 40 hours per semester that is equivalent to one credit (cr).

**3. Upper Secondary Education Level** (Upper secondary education grades 4-6 or grades 10-12)

Learning time is allotted on semester basis; not less than six hours a day. The weight of a course is counted in credits with the criterion of 40 hours per semester that is equivalent to one credit (cr).

## Learning Time Structure

The Basic Education Core Curriculum prescribes the framework for learning time as follows.

Learning Areas/ Activities	Learning Time (in hours)									
	Primary Education Level						Lower Secondary Education Level			Upper Secondary Education Level
	Gr 1	Gr 2	Gr 3	Gr 4	Gr 5	Gr 6	Gr 7	Gr 8	Gr 9	Gr 10-12
● <i>Learning Areas</i>										
Thai Language	200	200	200	160	160	160	120 (3 crs)	120 (3 crs)	120 (3 crs)	240 (6 crs)
Mathematics	200	200	200	160	160	160	120 (3 crs)	120 (3 crs)	120 (3 crs)	240 (6 crs)
Science	80	80	80	80	80	80	120 (3 crs)	120 (3 crs)	120 (3 crs)	240 (6 crs)
Social Studies, Religion and Culture	120	120	120	120	120	120	160 (4 crs)	160 (4 crs)	160 (4 crs)	320 (8 crs)
- <i>History</i>	40	40	40	40	40	40	40 (1 cr)	40 (1 cr)	40 (1 cr)	80 (2 crs)
- <i>Religion, Morality and Ethics, Civics, Culture and Living in Society, Economic, Geography</i>	80	80	80	80	80	80	120 (3 crs)	120 (3 crs)	120 (3 crs)	240 (6 crs)
Health and Physical Education	80	80	80	80	80	80	80 (2 crs)	80 (2 crs)	80 (2 crs)	120 (3 crs)
Art	80	80	80	80	80	80	80 (2 crs)	80 (2 crs)	80 (2 crs)	120 (3 crs)
Occupations and Technology	40	40	40	80	80	80	80 (2 crs)	80 (2 crs)	80 (2 crs)	120 (3 crs)
Foreign Languages	40	40	40	80	80	80	120 (3 crs)	120 (3 crs)	120 (3 crs)	240 (6 crs)
<b>Total Learning Time (Basic Level)</b>	<b>840</b>	<b>840</b>	<b>840</b>	<b>840</b>	<b>840</b>	<b>840</b>	<b>880 (22 crs)</b>	<b>880 (22 crs)</b>	<b>880 (22 crs)</b>	<b>1,640 (41 crs)</b>
● <i>Learner Development Activities</i>	120	120	120	120	120	120	120	120	120	360
● <i>Additional courses/ activities provided by schools, depending on their readiness and priorities</i>	Not more than 40 hours for each year						Not more than 200 hours for each year			Not less than 1,600 hours
<b>Total Learning Time</b>	<b>Not more than 1,000 hours for each year</b>						<b>Not more than 1,200 hours for each year</b>			<b>Not less than 3,600 hours for a total of 3 years</b>

## Prescribing structure for basic and additional learning time

Educational institutions are authorised to proceed as follows.

**Primary education level:** basic learning time for each learning area can be adjusted as appropriate. Total learning time structure shall be as prescribed in basic learning time structure, while learners must attain the quality prescribed in learning standards and indicators.

**Secondary education level:** the basic learning time structure shall be as prescribed and shall meet all criteria and requirements for graduation.

Regarding additional learning time for both primary and secondary education levels, additional courses or learner development activities can be organised, with due consideration being given to the educational institutions' readiness and priorities as well as criteria and requirements for graduation. For primary education grades 1-3, additional learning time can be included in the learning areas of Thai language and mathematics.

Regarding the allocation of 120 hours each year for learner development activities, for primary education grade 1 to secondary education grade 3 (Grades 1-9) and 360 hours three years for secondary education grades 4-6 (Grades 10-12), such allotment is meant for counselling activities, student activities and activities for social and public interest. In regard to the last category of activities, educational institutions shall allot the time required as follows:

Primary education level (Grades 1-6), totalling 6 years: 60 hours.

Lower secondary education level (Grades 7-9), totalling 3 years: 45 hours.

Upper secondary education level (Grades 10-12), totalling 3 years: 60 hours.

## Educational Provision for Special Target Groups

Regarding educational provision for special target groups, e.g., specialised education, education for the gifted and talented, alternative education, education for the disadvantaged and informal education, the Basic Education Core curriculum can be adjusted to suit the situations and contexts of each target group, on condition that the quality attained shall be as prescribed in the standards. Such adjustment shall meet the criteria and follow the methods specified by the Ministry of Education.

## Learning Management

Learning management is an important process for curriculum implementation. The Basic Education Core Curriculum prescribes learning standards and learners' major capacities and desired characteristics, which are the main goals of children and youth development.

Teachers must carefully select appropriate learning process, and provide learning management in order to foster learners to achieve the quality indicated in the eight learning areas; inculcate and strengthen the desired characteristics, and develop various essential skills.

### 1. Principles of learning management

In order to enable the learners to attain knowledge and competencies for the learning standards required, major capacities and characteristics as prescribed in the Basic Core Curriculum, teachers should adhere to: the importance of the learners, they are capable of learning and developing themselves; the learners' benefits; individual differences; the analytical ability; knowledge and morality.

### 2. Learning process

For learning management through the learner-centred approach, learners will depend on a variety of learning processes that serve as tools for enabling them to achieve the curriculum goals. Among the essential learning processes for learners are: integrated learning process; knowledge-creating process; thinking process; social process; heuristic learning process; learning process from actual experience; process of actual practice; management process; research process; self-learning process; and process of developing characteristics.

Learners should be trained and receive further development for acquiring competence in these processes, which will facilitate their learning, enabling them to achieve the curriculum goals. It is imperative for teachers to study and understand various learning processes in order to be able to make judicious choices.

### 3. Designing learning management

Teachers are required to study the curriculum of the educational institution concerned in order to understand the learning standards, indicators, learners' major capacities, desired characteristics and learning areas suitable to the learners. The teachers then proceed to design learning management by choosing teaching methods and techniques, learning media/resources, and evaluation measures, so as to allow the learners to develop to their highest potentiality and thereby attain the established goals.

### 4. Roles of teachers and learners

In regard to learning management enabling learners to attain the quality as prescribed in the curriculum goals, teachers and learners should play the following roles.

#### 4.1 Roles of teachers

Teachers should:

- 1) Study and analyse learners individually, and then use the data obtained to plan the learning management in order to stimulate and challenge the learners' capacities;
- 2) Set the targets for the learners in regard to knowledge, skills, process of conceptualisation, principles, relationships as well as desired characteristics;
- 3) Design and organise learning processes to serve individual differences and intellectual development, so as to enable the learners to attain the goals of learning;
- 4) Provide an ambience and necessary cares to enable the learners to learn;
- 5) Prepare and utilise media that are suitable to the activities organised, and use local wisdom and appropriate technologies for teaching-learning activities;
- 6) Assess the learners' progress through a variety of methods suitable to the intrinsic nature of the subjects and the learners' development levels, and
- 7) Analyse assessment results for remedial and development actions as well as improve their own teaching-learning methods and activities.

#### 4.2 Roles of learners

Learners should:

- 1) Set the goals of learning, make plans and take responsibility for their own learning;

- 2) Seek knowledge, make serious efforts to access learning resources, analyse and synthesise bodies of knowledge, raise questions and search for answers or problem solutions through various methods;
- 3) Take action, draw conclusions regarding what has been learnt, and apply the knowledge gained to various situations;
- 4) Interact, work and join in activities organised by their peers and their teachers; and
- 5) Continuously assess and improve their own learning process.

## Learning Media

Learning media serve as tools for promoting and supporting management of the learning process, enabling learners to efficiently acquire knowledge, skills, processes and characteristics as prescribed in the curriculum standards. There are several kinds of learning media, i.e., natural media, print media, technological media and various local learning networks. With a view to making judicious choices of learning media, attention should be paid to their suitability to the learners' different developmental levels and paces of learning.

For provision of learning media, learners and teachers can produce their own media or make judicious choices among the various media around them. Educational institutions should provide sufficient learning media to ensure proper learning. Schools, educational service areas, and relevant agencies responsible for provision of basic education are therefore advised to:

1. Provide learning sources, learning media centres, learning information systems and efficient learning networks both in schools and communities for the purposes of study, research and exchange of learning experiences among educational institutions, local areas, communities and the world community;
2. Produce learning media for study and research for learner and teachers and apply available materials in the local areas as learning media;
3. Choose learning media of high quality, which are suitable, diversified and consistent with the learning methods, the intrinsic nature of the learning areas and individual differences of the learners;

4. Systematically evaluate the quality of the selected learning media;
5. Study, explore and conduct research for development of learning media that are appropriate to the learners' learning process; and
6. Periodically and continuously supervise, monitor and assess the quality and efficiency of the learning media and their application.

In producing, selecting and evaluating the quality of learning media utilised in educational institutions, teachers should make sure that the media are in, e.g., harmony with the curriculum, the learning objectives, the design of learning activities; provision of experiences to learners; the accuracy and timeliness of contents that are not detrimental to national security or morality; the proper use of language; and the presentation models that are easily understood and interesting.

## Learning Assessment

Learning assessment must be based on two fundamental principles, i.e., evaluation for the purpose of developing the learners' capacity and for appraising their achievements. With a view to succeeding in developing the learners' learning quality, learners must be strengthened and assessed by the relevant indicators, so as to achieve the learning standards prescribed. Such evaluation also reflects the learners' major capacities and their desired characteristics, which are the main goals of measuring and evaluating the learning outcomes at all levels, i.e., classroom level, educational institution level, educational service area level, and national level. Learning assessment is a process of enhancing the learners' quality by using assessment results as data and information to show learners' progress and accomplishment. The data will also be useful for strengthening the learners, thus enabling them to learn to their highest potentiality.

As already mentioned, learning assessment can be divided into four levels, i.e., classroom level, educational institution level, educational service area level and national level, details of which are as follow.



### 1. Classroom assessment

Measurement and evaluation are parts of the learning process. Teachers regularly and continuously measure and evaluate learners' performance in teaching-learning activities by using diverse assessment techniques, e.g., asking questions, observing, examining homework, assessing projects, tasks/assignments and portfolios, and written tests, etc. Teachers will conduct evaluations themselves or provide learners with opportunities for self-evaluation, peer-to-peer evaluation, and evaluation by parents. Learners who do not succeed in meeting the standards prescribed in the indicators will need remedial learning.

Classroom assessment is aimed at verifying whether and to what extent learners have achieved in learning through the provided teaching-learning activities, and determining what must be improved and which areas must be strengthened. Furthermore, evaluation also provides teachers with necessary data for improving their own performance, which must be in accord with the established learning standards and indicators.

### 2. School assessment

This evaluation is conducted by the educational institution in order to appraise the learners' achievements on an annual/semester basis, based on assessment of reading, analytical thinking and writing, desired characteristics, and learner development activities. The aim is also to check whether education provided by the educational institution has enabled learners to reach their goals of learning, and what areas the learners need to learn more. The learning outcomes can also be compared with the national assessment and the local assessment criteria. Data and information from the evaluation will be used to feed back into the policy, the curriculum, the projects and teaching-learning methodology. Evaluation outcomes are also useful for preparation of quality development plan in accord with the educational quality assurance guidelines, and for the reports on each educational institution's achievement to its school board, the office of the educational service area, OBEC, parents and the community.

### 3. Local assessment

The evaluation is conducted in order to assess learners' quality at educational service area level, based on the learning standards prescribed in the Basic Education Core Curriculum provided by the educational service area as mandated. Evaluation of the learners' achievements can be conducted by availing of standard examination papers prepared and administrated by the educational service area or in cooperation with the parent agencies. Besides, assessment results are also obtained from verification and review of the data obtained from evaluation at educational institution level in the educational service area.

### 4. National tests

The evaluation is conducted in order to assess learners' quality at national level, based on the learning standards prescribed in the Basic Education Core Curriculum. Educational institutions are required to arrange for assessment of all learners in Grades 3, 6, 9 and 12. The evaluation results will provide relevant data for comparing educational quality at different levels, which will be useful for planning in order to raise the quality of education provided. The data obtained will also support decision-making at the national policy level.

The data from evaluation at the various levels mentioned above will be useful to educational institutions for checking, reviewing and developing learners' quality. It is incumbent upon the educational institutions to establish a system for providing necessary care and assistance, remedial measures, and encouragement and support in order to allow learners to develop themselves to their highest potentiality. Such development will be based on individual differences, their particular problems and needs. The various groups include grade-average learners, the gifted and talented learners, under grade-average learners, those with disciplinary and behavioural problems, those who refuse schooling, those with economic and social problems, and those with physical and intellectual disabilities, etc. The data obtained from the evaluation therefore will provide essential information to the educational institutions for providing timely assistance to learners, who are thus allowed to enjoy full development and learning achievement.

Being responsible for educational provision, educational institutions are required to prepare relevant rules and regulations for measurement and evaluation of the learning outcomes, harmonious and in accord with the criteria and guidelines prescribed in the Basic Education Core Curriculum, thus providing a common and standard practice for all concerned.

## Criteria for Learning Assessment

### 1. Judging, grading and reporting learning outcomes

#### 1.1 Judging learning outcomes

In judging the learning outcomes in all subject areas, reading, analytical thinking and writing, desired characteristics and learner development activities, teachers must base their judgement on learners' individual development. Teachers should regularly and continuously collect the learners' data in all respects for each semester, as well as provide remedial teaching to enable learners to fulfil their highest potentiality.

##### Primary education level

- (1) Learners must have an attendance record of not less than 80% of the total learning time requirement;
- (2) Learners must be assessed on all indicators and pass the criteria prescribed by the educational institutions;
- (3) Learners must be judged on the learning outcomes of each course; and
- (4) Learners must be evaluated and pass all the criteria prescribed by the educational institutions regarding reading, analytical thinking and writing, desired characteristics and learner development activities.

##### Secondary education level

- (1) Teachers will judge the learning outcomes of all courses. Learners must have an attendance record of not less than 80% of the total learning time required for the respective courses for each semester;
- (2) Learners must be assessed on all indicators and pass all the criteria prescribed by the educational institutions;
- (3) Learners must be judged on the learning outcomes of each course; and
- (4) Learners must be evaluated and pass all the criteria prescribed by the educational institutions regarding reading, analytical thinking and writing, desired characteristics and learner development activities.

Regarding transition to higher level for both primary and secondary levels, if learners have minor deficiencies which, in the view of the educational institutions, can be corrected and further developed with remedial measures, the educational institutions have the discretion to allow them to move to a higher level. If, however, the learners fail many courses, and are likely to face problems in proceeding to a higher level, the educational institutions can establish a committee to consider the possibility of re-learning, with particular attention paid to the learners' maturity, knowledge and capacity.

## **1.2 Grading learning outcomes**

### **Primary education level**

In judging the purpose of grading learning outcomes of each course, educational institutions can grade the level of learners' learning outcomes or the quality level of their performance by using numerical, alphabetical, and percentage systems or a system that uses key words to indicate the standard attained.

For assessment of reading, analytical thinking and writing, and desired characteristics, the grading levels are: Excellent, Good, Pass and Fail.

For assessment of learner development activities, the class attendance, the participation and the achievement of learners in accord with the criteria prescribed by the educational institutions is considered. The outcomes of the participation are graded as: Pass and Fail.

### **Secondary education level**

In judging the purpose of grading learning outcomes of each course, eight numbers are applied to indicate the level of the learning outcomes.

For assessment of reading, analytical thinking and writing, and desired characteristics, the grading levels are: Excellent, Good, Pass and Fail.

For assessment of learner development activities, the class attendance, the participation and the achievement of learners in accord with the criteria prescribed by the educational institutions is considered. The outcomes of the participation are graded as: Pass and Fail.

### 1.3 Reporting on learning outcomes

Reporting learning outcomes is a means of communicating to parents and learners the latter's progress of achievement. Educational institutions are required to summarise the assessment outcomes and prepare written reports for submission for the parents' information periodically or at least once every semester.

Reporting learning outcomes can indicate quality level of learners' performance, which reflects the standard of achievement for the various learning areas.

## 2. Criteria of graduation

The Basic Education Core Curriculum prescribes general criteria for graduation at three educational levels, i.e., primary, lower secondary, and upper secondary education levels.

### 2.1 Graduation criteria for primary education level

(1) Learners complete basic courses and supplementary courses/activities in accord with the learning time structure as prescribed in the Basic Education Core Curriculum;

(2) Learners' assessment outcomes for each basic course must meet the criteria prescribed by the respective educational institutions;

(3) Learners' assessment outcomes regarding reading, analytical thinking, and writing must meet the criteria prescribed by the respective educational institutions;

(4) Learners' assessment outcomes regarding desired characteristics must meet the criteria prescribed by the respective educational institutions; and

(5) Learners participate in learner development activities and the assessment outcomes of their participation must meet the criteria set by the respective educational institutions.

### 2.2 Graduation criteria for lower secondary education

(1) Learners attain not more than 81 credits for basic and supplementary courses, with a distribution of 66 credits for basic courses and a number of credits for supplementary courses as prescribed by the respective educational institutions;

(2) Learners attain not less than 77 credits for the entire curriculum with a distribution of 66 credits for basic courses and not less than 11 credits for supplementary courses;

(3) Learners' assessment outcomes regarding reading and analytical thinking and writing must meet the criteria prescribed by the respective educational institutions;

(4) Learners' assessment outcomes regarding desired characteristics must meet the criteria prescribed by the respective educational institutions; and

(5) Learners participate in learner development activities and the assessment outcomes of their participation must meet the criteria prescribed by the respective educational institutions.

### **2.3 Graduation criteria for upper secondary education**

(1) Learners attain not less than 81 credits, with a distribution of 41 credits for basic courses and a number of credits for supplementary courses as prescribed by the respective educational institutions;

(2) Learners attain not less than 77 credits for the entire curriculum, with a distribution of 41 credits for basic courses and not less than 36 credits for supplementary courses;

(3) Learners' assessment outcomes regarding reading and analytical thinking and writing must meet the criteria prescribed by the respective educational institutions;

(4) Learners' assessment outcomes regarding desired characteristics must meet the criteria prescribed by the respective educational institutions; and

(5) Learners participate in learner development activities and the assessment outcomes of their participation must meet the criteria prescribed by the respective educational institutions.

Regarding graduation criteria for education of special target groups, e.g., specialised education, education for the gifted and talented, alternative education, education for the disadvantaged, informal education, etc., school boards, educational service areas and those concerned will conduct measurement and evaluation of learning outcomes in accord with the criteria and guidelines prescribed in the Basic Education Core Curriculum for measurement and evaluation of special target groups.

## Documents Showing Evidence of Education

Documents showing evidence of education are highly important, as they record the learning outcomes, data and information on various aspects of learners' development. These documents are divided into two categories as follow.

### **1. Documents showing evidence of education prescribed by the Ministry of Education**

**1.1 Record of learning outcomes** shows and certifies learners' achievement, based on assessment outcomes of the various courses, reading, analytical thinking and writing and desired characteristics required by the educational institutions as well as learner development activities. Educational institutions are required to record relevant data and issue such documents to individual learners upon their graduation at primary education level (Grade 6), compulsory education level (Grade 9), and basic education level (Grade 12) or any other cases of school-leaving.

**1.2 Certificate** shows the learners' qualifications, certifying their achievements and rights. Educational institutions are responsible for issuing certificates to graduates of compulsory education and basic education as prescribed in the Basic Education Core Curriculum.

**1.3 Report on graduates** shows authorisation of graduation by recording the names and relevant data of graduates at primary education level (Grade 6), compulsory education level (Grade 9), and basic education level (Grade 12).

### **2. Documents showing evidence of education prescribed by educational institutions**

Educational institutions are required to prepare documents in order to keep record of learners' development, learning outcomes and essential data. These documents include a student's personal record, grade record for each course, cumulative record, learning outcome certificate and other documents required for specific purposes.

## Transfer of Learning Outcomes

Educational institutions can transfer learners' learning outcomes in various cases, e.g., moving to another educational institution, changing education type, transferring courses, dropping out and requesting for continuing in-country education. Besides, knowledge, skills and experiences attained from other learning sources can also be transferred e.g. enterprise, religious institution, occupational training institution, home school etc.

Transfer of learning outcomes should be made before the beginning of the first semester or during the first semester at educational institutions that admit the transferred learners. The latter are required to study at the educational institutions for at least one semester. These educational institutions should decide on the courses/number of credits to be transferred.

For the purpose of transferring, the following should be taken into consideration:

1. Certificates and other documents providing information on the learners' knowledge and capacity;
2. Learners' knowledge and capacity tested through various methods for assessment of both knowledge and capacity for practical work; and
3. Competence and performance in real situations.

Transfer of learning outcomes must follow the Ministry of Education's proclamations or guidelines. The transfer of learning outcomes at basic education level must follow the guidelines on transfer of learning outcomes at basic education level.



## Curriculum Implementation and Management

An education system that promotes decentralisation of authority to local areas and local educational institutions so as to participate in curriculum development, the relevant agencies at different educational levels, i.e., national, local and educational institution levels, play important roles, and have duties and responsibilities to develop, provide support and encourage efficient curriculum implementation. These measures will ensure the highest efficiency in preparation of the education institutions' curriculums as well as educational provision by these educational institutions, resulting in enhancing learners' quality so as to attain the learning standards prescribed at the national level.

At the local level, offices of the educational service areas and other parent agencies play important roles in improving quality of educational provision. They provide the connection between the Basic Education Core Curriculum prescribed at the national level and the local situations and needs, leading to preparation of the educational institutions' curriculums, the implementation of which will be strengthened to ensure success. Their main tasks are: setting the goals and areas of to develop learners' quality at the local level, and meet the national requirements; developing local learning contents; evaluating quality of education provided at the local level; increasing the quality of curriculum implementation through research and development, personnel development, support provision, promotion, evaluation monitoring, and analysis and reports on learners' quality.

Educational institutions play important roles in developing their own curriculums, planning curriculum implementation, increasing quality of curriculum implementation through research, improving the curriculum, and preparing regulations for measurement and evaluation. In preparing their own curriculums, educational institutions must attach prime importance to attuning to the Basic Education Core Curriculum and other details provided by educational service areas or other parent agencies at the local level. Respective educational institutions can also add various aspects of problems and concerns of the community and the society, local wisdom, and learners' needs, with participation and contribution of all sectors in the preparation of their curriculums.

# Learning Standards and Indicators

## Thai Language

### Why it is necessary to learn Thai language

Representing our national identity, Thai language is a cultural treasure leading to attainment of national unity and strengthening of Thai nationalism in the Thai people's character. It serves as a communication tool for creating mutual understanding and happy relationships among the people, who are able to pursue their livelihoods, as well as enjoy peaceful coexistence in a democratic society. Thai language provides a tool for seeking knowledge and experiences from various sources of data and information in order to acquire knowledge and engage in processes of analytical, critical and creative thinking, so as to be attuned to social change and scientific and technological progress. It also serves as a tool for occupational development for achieving economic security. Furthermore, it is our ancestors' wisdom regarding culture, tradition and aesthetics. Thai language is a treasure of the highest value. Thai people should conserve and transmit to succeeding generations as a permanent feature of the Thai nation.

### What is learned in Thai language

Thai language skill requires training for communication, effective learning and application in daily life.

- **Reading:** pronouncing words; reading, sentences, literature and different kinds of compositions; reading to oneself for comprehension and for acquiring thinking skills in analysing and synthesising knowledge from the readers in order to apply in daily life
- **Writing:** writing words in accord with rules of Thai orthography; writing various kinds of communications, compositions, synopses and reports based on study and research, as well as imaginative, analytical, critical, and creative writing
- **Listening, Viewing and Speaking:** critical listening and viewing; speaking to express opinions, feelings; speaking on various matters in logical sequence; speaking on various occasions, both formal and informal; and persuasive speaking
- **Principles of Usage of Thai Language:** studying nature and rules of Thai language; accurate linguistic usage appropriate to different occasions and persons; writing various kinds of works; and the influence of foreign languages on Thai language

- **Literature and Literary Works:** analyse literature and literary works for studying data, concepts and values of literary writings as well as for pleasure; learning and comprehension of chants, children's rhymes and folk songs representing valuable Thai wisdom - these have contributed to customs and traditions, social matters of the past as well as linguistic beauty, leading to appreciation and pride in our ancestors' legacies accumulated over the years and passed on to the present

## Learners' Quality

### Grade 3 graduates

- Be able to pronounce words accurately and fluently; read aloud alliterations, texts, short stories and simple verses; understand meanings of the words and texts read; pose logical questions; make a sequence of situations; surmise situations; summarise knowledge and insights from what has been read; follow instructions and explanations from their readings; understand meanings and data from diagrams, maps and charts; read regularly, and have good reading manners

- Write skilfully in regular script by using full space between the lines; write descriptions, diaries, letters to teachers requesting leaves of absence; write stories about their experiences; write stories from imagination, and have good writing manners

- Describe details and present the essentials; pose questions, answer questions as well as verbally express thoughts and feelings about what they have heard and viewed; speak in order to communicate; describe experiences, and verbally provide advice or persuade others to comply, and have good listening, viewing and speaking manners

- Spell words and understand their meanings; recognise differences between words and syllables; understand functions of words in sentences; skilful in using dictionaries to look up meanings of words; construct simple sentences; compose alliterations, mottoes, and choose standard Thai language and dialects appropriately to the occasion

- Understand and summarise insights from reading of literature and literary works for application in daily life; express views from the literature and literary works read; know folk songs, lullabies representing local culture; sing popular rhymes for local children; memorise recitations and valuable verses in line with their interests

## Grade 6 graduates

- Read aloud accurately poetry and literature in prose and in verse presented in stylised melody; explain explicit and implicit meanings of words, sentences, texts, idioms; ornate phrases from their readings; understand suggestions and explanations in various manuals; distinguish between opinions and facts; get the main idea of what they read then apply it for solving problems in life; have good reading manners and have acquired a reading habit, as well as appreciate the readers
- Write skilfully in regular script by using full and half spaces between the lines; write the spellings of words; write sentences and write paragraphs using appropriate words; use outlines and mind-maps to refine writings; write compositions, synopses, personal letters; fill in various forms; write to express feelings and perceptions; write creatively from imagination; and have good writing manners
- Verbally express knowledge, and thoughts, summarise or draw conclusions from what they have heard and viewed; pose questions, answer questions; logically evaluate reliability from listening to and viewing advertisements; clearly present proper sequences of various matters; verbally report on subjects or issues of study and research from listening, viewing, conversation; speak persuasively and logically, as well as have good listening, viewing and speaking manners
- Spell and understand meanings of words, idioms, popular sayings and proverbs; know and understand kinds and functions of words from dialects or foreign words in Thai language; use royal and polite words appropriately; write sentences; compose various types of Thai verses, e.g., Four-Stanza Verse, Yani 11 Verse etc.
- Understand and appreciate value of the literature and literary works read; narrate folk tales; sing local folk songs; apply the main thoughts from the readings to real life, and memorise prescribed recitations

## Grade 9 graduates

- Read poetry and literature in stylised melody; understand explicit and implicit meanings; get the essentials and details of what has been read; express opinions and disagreements about their readings, and write conceptual frameworks, mind-maps, synopses; write reports on their readings; logically present analyses and syntheses; present proper sequence and probability of their readings; assess accuracy of the supporting data from their readings

- Write to communicate in simple clear handwriting; use words appropriate to language levels; in writing slogans, dictums, congratulatory messages on various occasions, advertisements, mottoes, speeches, biographies, autobiographies and experiential accounts, synopses, business letters, and employment application forms; write to logically analyse, criticise and express feelings or disagreements; write reports on study and research; write projects

- Verbally present opinions; analyse criticise and evaluate the issues identified from listening and viewing; apply what they have heard and viewed in daily life; present verbal reports on issues identified from systematic study and research; master the art of speaking; speak on various occasions, and be able to speak persuasively, logically and convincingly; have good listening, viewing and speaking manners

- Understand and use royal words, Pali and Sanskrit words, words from dialects, foreign words, transliterations and terms coined in Thai language; analyse differences between spoken and written language; understand structures of compound and complex sentences; understand characteristics of formal, semi-formal and informal language; compose various types of Thai verses, e.g., Four-Stanza Verse, Yani 11 Verse, etc.

- Summarise the literature and literary works read; analyse main characters, Thai way of life and values obtained from literature, literary works and recitations, as well as summarise the knowledge and put it into practice

## Grade 12 graduates

- Read poetry and literature in stylised melody; understand, interpret, convey meaning and elaborate on what has been read; analyse and criticise their readings; logically express disagreements and present new ideas from the readings; write conceptual frameworks, mind-maps, notes, synopses and reports from their readings; synthesise, evaluate and apply knowledge and thoughts from their readings for self-development, educational and occupational development; apply knowledge and thoughts to life; have good reading manners, and have acquired a reading habit

- Use accurate language in writing; write synopses; write compositions reflecting creative thinking by using idioms and ornate phrases; write notes; write reports on study and research based on principles of academic writing; use data and information to make references; produce their own works in various forms, both documentaries and for entertainment purposes, as well as evaluate other people's works to refine their own writings

- Pose questions and express opinions about what is heard and viewed; have judgement in selecting materials to be heard and viewed; analyse objectives, line of thinking, use of language, and reliability of what is heard and viewed; evaluate what is heard and viewed; speak skilfully on various occasions, both formal and informal, by using accurate language; logically express opinions, disagreements, persuasive arguments and present new concepts, as well as have good listening, viewing and speaking manners

- Understand the nature, the influence and the characteristics of Thai language; use appropriate words, groups of words to make sentences; compose various types of Thai verses; use language suitable to the occasion and accurately use royal and polite vocabularies; analyse principles of coining words in Thai language; understand influences of dialects and foreign languages on Thai language and understand dialects; analyse and evaluate use of language from print and electronic media

- Analyse and criticise literature and literary works, based on basic principles of literary criticism; know and understand outstanding characteristics of literature, linguistic wisdom and folk literary works; link with historical learning and Thai way of life; assess literary value; and apply it to real life

**Strand 1: Reading**

Standard TH1.1: Application of reading process to build knowledge and thoughts for decision-making and problem-solving to life, and encouraging acquisition of reading habit

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
1. Read aloud words, alliterations and short paragraphs. 2. Tell meanings of words and paragraphs read. 3. Answer questions about what has been read. 4. Summarise what has been read. 5. Surmise on situations read. 6. Regularly read books with their interests and present what has been read.	1. Accurately read aloud words, alliterations, paragraphs and simple verses. 2. Explain meanings of words and paragraphs read. 3. Pose and answer questions about what has been read. 4. Identify the main ideas and details from what has been read. 5. Express opinions and surmise situations read.	1. Accurately and fluently read aloud words, paragraphs short stories and simple verses. 2. Explain meanings of words and paragraphs read. 3. Pose questions and give logical answers about what has been read. 4. Present a sequence of situations and surmise situations read providing reasons for justification.	1. Accurately read aloud prose and verse. 2. Explain meanings of words, sentences and idioms from what has been read. 3. Read short stories in prescribed time and answer the questions. 4. Differentiate between facts and opinions. 5. Surmise situations from what has been read providing reasons for justification.	1. Accurately read aloud prose and verse. 2. Explain meanings of words, sentences and narrative and descriptive paragraphs. 3. Infer the meaning of what has been read. 4. Differentiate between facts and opinions. 5. Analyse and express opinions on what has been read and apply it to life.	1. Accurately read aloud prose and verse. 2. Explain meanings of words, sentences and idiomatic expression. 3. Read short stories setting time limits and ask questions about what has been read. 4. Differentiate between facts and opinions. 5. Apply knowledge and thoughts from what has been read for decision-making to solve



Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<ol style="list-style-type: none"> <li>1. Accurately read aloud prose and verse.</li> <li>2. Capture the main ideas of what has been read.</li> <li>3. Specify causes and effects and differentiate between facts and opinions from what has been read.</li> <li>4. Identify and explain analogies and words with several meanings in various contexts.</li> <li>5. Interpret difficult terms in academic documents from the context.</li> <li>6. Specify remarks and validity of persuasive writings.</li> <li>7. Follow instructions in manuals on application of tools or appliances at more difficult level.</li> </ol>	<ol style="list-style-type: none"> <li>1. Accurately read aloud prose and verse.</li> <li>2. Capture the main ideas, summarise and explain details.</li> <li>3. Write mind-maps to show understanding of the various lessons read.</li> <li>4. Discuss to express opinions and disagreements.</li> <li>5. Analyse and distinguish between facts, supporting data and opinions in articles read.</li> <li>6. Specify remarks, propaganda, persuasion or validity of writings.</li> <li>7. Read various books, articles or writings, and assess value of concepts obtained from what has been read and apply it to life.</li> </ol>	<ol style="list-style-type: none"> <li>1. Accurately read aloud prose and verse.</li> <li>2. Differentiate words with explicit and implicit meanings.</li> <li>3. Specify the main ideas and details of supporting data.</li> <li>4. Read various stories and write conceptual frameworks, mind-maps, notes, synopses and reports.</li> <li>5. Analyse, criticise and evaluate what has been read by using comparative techniques for better understanding.</li> <li>6. Evaluate accuracy of supporting data.</li> <li>7. Criticise validity, sequencing and probability of what has been read.</li> <li>8. Analyse to express disagreements with.</li> </ol>	<ol style="list-style-type: none"> <li>1. Accurately and pleasantly read aloud prose and verse.</li> <li>2. Interpret, convey meaning and elaborate on what has been read.</li> <li>3. Logically analyse and criticise all aspects of what has been read.</li> <li>4. Surmise, evaluate and apply what has been read to life.</li> <li>5. Analyse, criticise and express disagreements on what has been read and present new concepts logically.</li> <li>6. Answer the questions about what has been read within time limit.</li> <li>7. Read various readers and write conceptual frameworks, mind-maps, notes, synopses and reports.</li> <li>8. Synthesise knowledge from reading newspapers, electronic media and various learning sources for self-development, educational and occupational development.</li> <li>9. Have good reading manners.</li> </ol>

**Strand 1: Reading**

Standard TH1.1: Application of reading process to build knowledge and thoughts for decision-making and problem-solving to life, and encouraging acquisition of reading habit

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
7. Tell meanings of important signs or symbols frequently seen in daily life. 8. Have good reading manners.	6. Regularly read books with interests and present their readings. 7. Read explanatory paragraphs and follow instructions or suggestions. 8. Have good reading manners.	5. Summarise knowledge from what has been read and apply it to daily life. 6. Regularly read books with interests and present their readings. 7. Read explanatory paragraphs and follow instructions or suggestions. 8. Explain meanings of data from diagrams, maps and charts. 9. Have good reading manners.	6. Summarise knowledge from what has been read and apply it to daily life. 7. Regularly read valuable books with interests and express opinions. 8. Have good reading manners.	6. Read explanatory paragraphs, instructions and suggestions and then follow. 7. Regularly read valuable books with interests and express opinions. 8. Have good reading manners.	problems in life. 6. Read explanatory paragraphs, instructions and suggestions and then follow. 7. Explain meanings of data from diagrams, maps, charts and graphs. 8. Regularly read valuable books with interests and explain benefits obtained from what has been read. 9. Have good reading manners.

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<p>8. Analyse values obtained from various readers and apply them to life.</p> <p>9. Have good reading manners.</p>	<p>8. Have good reading manners.</p>	<p>9. Interpret and assess value of concepts obtained from what has been read and apply it to life.</p> <p>10. Have good reading manners.</p>	

**Strand 2: Writing**

Standard TH2.1: Effective application of writing process for communications, compositions, synopses, stories in various forms, data and information reports, study reports and research reports

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
1. Write in regular script using full space between the lines. 2. Write to communicate using simple words and sentences. 3. Have good writing manners.	1. Write in regular script using full space between the lines. 2. Write short paragraphs about their experiences. 3. Write short paragraphs from imagination. 4. Have good writing manners.	1. Write in regular script using full space between the lines. 2. Write to describe things clearly. 3. Write diaries. 4. Write letters to teachers requesting leaves of absence. 5. Write paragraphs from imagination. 6. Have good writing manners.	1. Write in regular script using full and half spaces between the lines. 2. Write to communicate using accurate, clear and appropriate words. 3. Write the outlines and mind-maps for refining their writings. 4. Write synopses from short stories. 5. Write letters to friends and parents.	1. Write in regular script using full and half spaces between the lines. 2. Write to communicate using accurate, clear and appropriate words. 3. Write the outlines and mind-maps for refining their writings. 4. Write synopses from what has been read. 5. Write letters to parents and relatives.	1. Write in regular script using full and half spaces between the lines. 2. Write to communicate using accurate, clear and appropriate words. 3. Write the outlines and mind-maps for refining their writings. 4. Write compositions. 5. Write synopses from what has been read. 6. Write personal letters.

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<ol style="list-style-type: none"> <li>1. Write in regular script using half space between the lines.</li> <li>2. Write to communicate using accurate, clear, appropriate and refined words.</li> <li>3. Describe their experiences in writing by specifying the essentials and providing supporting data.</li> <li>4. Write compositions.</li> <li>5. Write synopses.</li> <li>6. Write their opinions about what is on media received.</li> <li>7. Write personal letters and business letters.</li> <li>8. Write reports on study, research and projects.</li> <li>9. Have good writing manners.</li> </ol>	<ol style="list-style-type: none"> <li>1. Write in regular script using half space between the lines.</li> <li>2. Write narrative and descriptive paragraphs.</li> <li>3. Write compositions.</li> <li>4. Write synopses.</li> <li>5. Write reports on study and research.</li> <li>6. Write business letters.</li> <li>7. Logically analyse, criticise and express knowledge, opinions or disagreements on what has been read.</li> <li>8. Have good writing manners.</li> </ol>	<ol style="list-style-type: none"> <li>1. Write in regular script using half space between the lines.</li> <li>2. Accurately write paragraphs using words appropriate to language levels.</li> <li>3. Write biographies or autobiographies, events, opinions and views on various matters.</li> <li>4. Write synopses.</li> <li>5. Write business letters.</li> <li>6. Write to explain, clarify, express opinions and disagreements.</li> <li>7. Write to analyse, criticise and express knowledge, opinions or disagreements on various matters.</li> <li>8. Fill in employment application forms and write to describe their knowledge and skills meeting the job requirement.</li> </ol>	<ol style="list-style-type: none"> <li>1. Write to communicate in various forms using accurate language, clear data and main ideas.</li> <li>2. Write compositions.</li> <li>3. Write synopses.</li> <li>4. Produce their own writings in various forms.</li> <li>5. Evaluate people's work to refine their own writings.</li> <li>6. Write reports on study and research, matters of interest, based on principles of academic writing, data and information.</li> <li>7. Regularly prepare notes on study and research for self-development.</li> <li>8. Have good writing manners.</li> </ol>

**Strand 2: Writing**

Standard TH2.1: Effective application of writing process for communications, compositions, synopses, stories in various forms, data and information reports, study reports and research reports

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
			6. Write notes and reports from study and research. 7. Write paragraphs from imagination. 8. Have good writing manners.	6. Write about their feelings and opinions with intentions. 7. Fill in various forms. 8. Write paragraphs from imagination. 9. Have good writing manners.	7. Fill in various forms. 8. Write paragraphs from imagination and creativity. 9. Have good writing manners.

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
		<p>9. Write reports on study and research and projects.</p> <p>10. Have good writing manners.</p>	

### Strand 3: Listening, Viewing and Speaking

Standard TH3.1: Competency in selective and critical listening and viewing, and in critical and creative expression of knowledge, thoughts and feelings on various occasions

#### Grade-level Indicators

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
<ol style="list-style-type: none"> <li>Follow the simple suggestions and intructions.</li> <li>Answer questions and verbally present about what they listen to and view, both for acquiring knowledge and for entertainment.</li> <li>Verbally express opinions and feelings from what they listen and view.</li> <li>Able to communicate.</li> <li>Have good listening, viewing and speaking manners.</li> </ol>	<ol style="list-style-type: none"> <li>Follow complicated suggestions and instructions.</li> <li>Verbally present about what they listen to and view, both for acquiring knowledge and for entertainment.</li> <li>State the main ideas of what they listen to and view.</li> <li>Pose questions and answer questions about what they listen to and view.</li> </ol>	<ol style="list-style-type: none"> <li>Give details of what they listen to and view, both for acquiring knowledge and for entertainment.</li> <li>Give the main ideas from what they listen to and view.</li> <li>Pose questions and answer questions about what they listen to and view.</li> <li>Verbally present opinions and feelings about what they listen to and view.</li> </ol>	<ol style="list-style-type: none"> <li>Distinguish between facts and opinions from what they listen to and view.</li> <li>Verbally present the main ideas from what they listen to and view.</li> <li>Verbally present knowledge, opinions and feelings about what they listen to and view.</li> </ol>	<ol style="list-style-type: none"> <li>Verbally present knowledge, opinions, and feelings about what they listen to and view.</li> <li>Pose questions and logically answer questions about what they listen to and view.</li> <li>Logically analyse reliability of what they listen to and view.</li> </ol>	<ol style="list-style-type: none"> <li>Verbally express knowledge and understanding of objectives of what they listen to and view.</li> <li>Pose questions and logically answer questions from what they listen to and view.</li> <li>Analyse reliability from logical listening and viewing the advertising media.</li> </ol>



Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<ol style="list-style-type: none"> <li>1. Verbally present the main ideas of what they listen to and view.</li> <li>2. Summary what they listen to and view.</li> <li>3. Express creative opinions about what they listen to and view.</li> <li>4. Evaluate reliability of media with persuasive contents.</li> <li>5. Verbally report on subjects or issues of study and research from listening, viewing and conversation.</li> <li>6. Have good listening, viewing and speaking manners.</li> </ol>	<ol style="list-style-type: none"> <li>1. Verbally present the main ideas of what they listen to and view.</li> <li>2. Analyse facts, opinions and reliability of information from various media.</li> <li>3. Logically analyse and criticise what they listen to and view and apply it to life.</li> <li>4. Make a speech on various occasions.</li> <li>5. Verbally report on subjects or issues of study and research from listening, viewing and conversation.</li> <li>6. Have good listening, viewing and speaking manners.</li> </ol>	<ol style="list-style-type: none"> <li>1. Express opinions and evaluate matters from listening and viewing.</li> <li>2. Analyse and criticise what they listen to and view and apply it to life.</li> <li>3. Verbally report on subjects or issues of study and research from listening, viewing and conversation.</li> <li>4. Make a speech on various occasions.</li> <li>5. Speak persuasively using logical and convincing evidence in proper sequence.</li> <li>6. Have good listening, viewing and speaking manners.</li> </ol>	<ol style="list-style-type: none"> <li>1. Summarise concepts and express opinions from what they listen to and view.</li> <li>2. Logically analyse concepts, use of language and reliability of what they listen to and view.</li> <li>3. Evaluate what they listen to and view and apply it to life.</li> <li>4. Able to select what to listen and view.</li> <li>5. Make a speech on various occasions, express views, disagreements and persuasive arguments, using accurate and appropriate language.</li> <li>6. Have good listening, viewing and speaking manners.</li> </ol>

### Strand 3: Listening, Viewing and Speaking

Standard TH3.1: Competency in selective and critical listening and viewing, and in critical and creative expression of knowledge, thoughts and feelings on various occasions

#### Grade-level Indicators

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
	5. Verbally present opinions and feelings about what they listen to and view. 6. Speak clearly to communicate. 7. Have good listening, viewing and speaking manners.	5. Speak clearly to communicate. 6. Have good listening, viewing and speaking manners.	4. Pose questions and logically answer questions from what they listen to and view. 5. Verbally report on subjects or issues of study and research from listening, viewing and conversation. 6. Have good listening, viewing and speaking manners.	4. Verbally report on subjects or issues of study and research from listening, viewing and conversation. 5. Have good listening, viewing and speaking manners.	4. Verbally report on subjects or issues of study and research from listening, viewing and conversation. 5. Speak persuasively, logically and convincingly. 6. Have good listening, viewing and speaking manners.

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12

### Strand 4: Principles of Thai Language Usage

Standard TH4.1: Understanding of the nature and the principles of Thai language, linguistic changes and power, linguistic wisdom and preservation of Thai language as national treasure

#### Grade-level Indicators

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
<ol style="list-style-type: none"> <li>1. Say and write consonants, vowels, intonations and Thai numerals.</li> <li>2. Write the spellings and tell the meanings of words.</li> <li>3. Arrange words into simple sentences.</li> <li>4. Make sequences of simple alliterations.</li> </ol>	<ol style="list-style-type: none"> <li>1. Say and write consonants, vowels, intonations and Thai numerals.</li> <li>2. Write the spellings and tell the meanings of words.</li> <li>3. Arrange words into sentences with communication objectives.</li> <li>4. Tell the characteristics of alliterations.</li> <li>5. Use standard Thai language and dialects appropriately to the occasions.</li> </ol>	<ol style="list-style-type: none"> <li>1. Write the spellings and tell the meanings of words.</li> <li>2. Specify types and functions of words in sentences.</li> <li>3. Use dictionaries to look up the meanings of words.</li> <li>4. Write simple sentences.</li> <li>5. Coin alliterations and mottoes.</li> <li>6. Use standard Thai language and dialects appropriately to the occasions.</li> </ol>	<ol style="list-style-type: none"> <li>1. Spell words and tell their meanings in various context.</li> <li>2. Specify types and functions of words in sentences.</li> <li>3. Use dictionaries to look up the meanings of words.</li> <li>4. Write sentences in accord with linguistic rules.</li> <li>5. Write verses and mottoes.</li> <li>6. Tell the meanings of idioms.</li> <li>7. Compare standard Thai language with dialects.</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify types and functions of words in sentences.</li> <li>2. Distinguish the components of sentences.</li> <li>3. Compare standard Thai language with dialects.</li> <li>4. Use royal vocabulary.</li> <li>5. Identify loanwords used.</li> <li>6. Write verses.</li> <li>7. Use idioms properly.</li> </ol>	<ol style="list-style-type: none"> <li>1. Analyse types and functions of words in sentences.</li> <li>2. Use words appropriately to the occasions and the audience.</li> <li>3. Collect and tell the meanings of loanwords.</li> <li>4. Identify the characteristics of sentences.</li> <li>5. Write verses.</li> <li>6. Analyse and compare sayings and proverbs as idioms.</li> </ol>

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<ol style="list-style-type: none"> <li>1. Tell the characteristics of sounds in Thai language.</li> <li>2. Coin words in Thai language.</li> <li>3. Analyse types and functions of words in sentences.</li> <li>4. Analyse differences between spoken and written language.</li> <li>5. Write verses.</li> <li>6. Distinguish and use sayings and proverbs as idioms.</li> </ol>	<ol style="list-style-type: none"> <li>1. Coin words in Thai language.</li> <li>2. Analyse the structures of simple, compound and complex sentences.</li> <li>3. Write verses.</li> <li>4. Use royal vocabulary.</li> <li>5. Collect and explain the meanings of loanwords.</li> </ol>	<ol style="list-style-type: none"> <li>1. Distinguish and use loanwords.</li> <li>2. Analyse the structures of complex sentences.</li> <li>3. Analyse the linguistic levels.</li> <li>4. Use transliterations and translated terms.</li> <li>5. Tell the meanings of academic and technical terms.</li> <li>6. Write verses.</li> </ol>	<ol style="list-style-type: none"> <li>1. Tell the nature, the power and characteristics of language.</li> <li>2. Use words and groups of words to make sentences.</li> <li>3. Use language appropriately to the occasion and audience, as well as use appropriate royal vocabulary.</li> <li>4. Write verses.</li> <li>5. Analyse the influences of foreign languages and dialects.</li> <li>6. Tell and analyse the principles of coining words in Thai language.</li> <li>7. Analyse and evaluate the use of language from print and electronic media.</li> </ol>

## Strand 5: Literature and Literary Works

Standard TH5.1: Understanding and expressing opinions; criticism of Thai literature and literary works through appreciative approach; and application to real life

### Grade-level Indicators

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
<ol style="list-style-type: none"> <li>1. Tell the ideas from reading or listening to literary works for children in prose and in verse.</li> <li>2. Memorise the recitations prescribed and the verses with their interests.</li> </ol>	<ol style="list-style-type: none"> <li>1. Specify the ideas from reading or listening to literary works for children and apply them to daily life.</li> <li>2. Sing local children rhymes.</li> <li>3. Memorise the recitations prescribed and the verses with their interests.</li> </ol>	<ol style="list-style-type: none"> <li>1. Specify the ideas from reading literary works and apply them to daily life.</li> <li>2. Appreciate folk songs and lullabies.</li> <li>3. Express opinions about the literature read.</li> <li>4. Memorise the recitations prescribed and the verses with their interests.</li> </ol>	<ol style="list-style-type: none"> <li>1. Specify the ideas from folk tales or moral tales.</li> <li>2. Apply the ideas from reading to real life.</li> <li>3. Sing folk songs.</li> <li>4. Memorise the recitations prescribed and the verses with their interests.</li> </ol>	<ol style="list-style-type: none"> <li>1. Summarise the literature or literary works read.</li> <li>2. Specify knowledge and the ideas from reading literature and literary works and apply them to real life.</li> <li>3. Tell the value of literature and literary works.</li> <li>4. Memorise the recitations prescribed and the verses with their interests.</li> </ol>	<ol style="list-style-type: none"> <li>1. Express opinions about the literature or literary works read.</li> <li>2. Tell folk tales of their local areas and those of other areas.</li> <li>3. Tell the value of literature and literary works read, and apply them to real life.</li> <li>4. Memorise the recitations prescribed and the verses with their interests.</li> </ol>

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<ol style="list-style-type: none"> <li>1. Summarise the content of the literature and literary works read.</li> <li>2. Analyse the literature and literary works read, and give reasons for justification.</li> <li>3. Tell the value of literature and literary works read.</li> <li>4. Summarise knowledge and the ideas from reading and apply them to real life.</li> <li>5. Memorise the recitations prescribed and the verses with their interests.</li> </ol>	<ol style="list-style-type: none"> <li>1. Summarise the content of the literature and literary works read at more difficult level.</li> <li>2. Analyse and criticise literature, literary works and local literary works read and give reasons for justification.</li> <li>3. Tell the value of literature and literary works read.</li> <li>4. Summarise knowledge and the ideas from reading and apply them to real life.</li> <li>5. Memorise the recitations prescribed and the verses with their interests.</li> </ol>	<ol style="list-style-type: none"> <li>1. Summarise the content of the literature, literary works and local literary works at even more difficult level.</li> <li>2. Analyse Thai way of life and values from the literature and literary works read.</li> <li>3. Summarise knowledge and the ideas from reading and apply them to real life.</li> <li>4. Memorise and tell the value of the recitations prescribed, and the verses with their interests and use them as references.</li> </ol>	<ol style="list-style-type: none"> <li>1. Analyse and criticise literature and literary works, based on basic principles of literary criticism.</li> <li>2. Analyse the outstanding characteristics of literature; link with historical learning and social way of life in the past.</li> <li>3. Analyse and evaluate the literary value of literature and literary works as national cultural legacies.</li> <li>4. Synthesise the ideas from literature and literary works and apply them to real life.</li> <li>5. Collect folk literary works and linguistic wisdom.</li> <li>6. Memorise and tell the value of the recitations prescribed and of the verses with their interests and use them as references.</li> </ol>

## Mathematics

### Why it is necessary to learn mathematics

Mathematics is highly important to develop human mind. It enables a person to think logically and systematically, to analyse various problems or situations, to anticipate, to plan, to make decisions, to solve problems and to apply mathematics to daily life. Mathematics serves as a tool for learning science, technology and other disciplines. It is therefore useful to life, enhancing quality of life and enabling people to live in harmony.

### What is learned in mathematics

The learning area of mathematics is aimed at enabling all learners to continuously learn mathematics in accord with their potentiality. The areas prescribed for all learners are as follow:

- **Numbers and Operations:** the numerical concepts and sense of perception; real number system; the properties of real numbers; the operation of numbers; ratio; percentage; problem-solving involving numbers; and the application of numbers for real life
- **Measurement:** length; distance; weight; area; volume and capacity; money and time; measuring units; estimation for measurement; trigonometric ratio; problem-solving regarding measurement; and application of measurement for various situations
- **Geometry:** the geometric figures and the properties of one-dimensional geometric figures; visualisation of geometric models; geometric theories; and geometric transformation through translation, reflection and rotation
- **Algebra:** pattern; relationship; function; sets and their operations; reasoning; expression; equation; equation system; inequality; graph; arithmetic order; geometric order; arithmetic series; and geometric series



- **Data Analysis and Probability:** determining an issue; writing questions; determining methods of study; data collection; systematisation and presentation; central tendency and data distribution; data analysis and interpretation; opinion polling; probability; application of statistical knowledge and probability; application of probability for explaining various situations as well as for facilitating decision-making for real life

- **Mathematical Skills and Processes:** problem-solving through diverse methods; reasoning; communication; presentation of mathematical concepts; linking mathematics with other disciplines; and attaining ability for creative thinking

## Learners' Quality

### Grade 3 graduates

- Have numerical knowledge, understanding and sense of cardinal numbers not more than 100,000, and zero as well as operation of numbers; solve problems involving addition, subtraction, multiplication and division; and be aware of validity of the answers

- Have knowledge and understanding of length, distance, weight, volume, capacity, time and money; measure correctly and appropriately; and apply knowledge of measurement for solving problems

- Have knowledge and understanding of triangle, quadrilateral, circle, ellipse, cuboid, sphere and cylinder as well as point, line segment and angle

- Have knowledge and understanding of pattern and explain relationship

- Collect and analyse relevant data and information about themselves and their surroundings; use pictograms and bar charts for discussing various issues

- Apply diverse methods for problem-solving; use mathematical knowledge, skills and processes appropriately for solving problems, suitably present reasoning for decision-making and appropriately present the conclusion, use mathematical language and symbols for communication, as well as accurate and appropriate presentation of mathematical concepts; link various bodies of mathematical knowledge; link mathematics with other disciplines; and attain for creative thinking

## Grade 6 graduates

- Have numerical knowledge, understanding, and sense of cardinal numbers and zero, fractions, decimals of not more than three places, percentages, operation of numbers and properties of numbers; solve problems involving addition, subtraction multiplication and division of cardinal numbers, fractions, decimals of not more than three places and percentages; be aware of validity of the answers; and find estimates of cardinal numbers and decimals of not more than three places

- Have knowledge and understanding of length, distance, weight, area, volume, capacity, time, money, direction, diagrams and size of angles; measure correctly and appropriately; and apply knowledge of measurement for solving problems

- Have knowledge and understanding of characteristics and properties of triangles, squares, circles, cuboids, cylinders, cones, prisms, pyramids angles and parallel lines

- Have knowledge and understanding of patterns and explain their relationships and solve problems involving patterns; analyse situations or problems and write them in the linear equations with an unknown and solve them.

- Collect and present data and information and discuss various issues from pictograms, bar charts, comparative bar charts, pie charts, line graphs and tables; and apply knowledge of basic probability for projecting various possible situations

- Apply diverse methods for problem-solving, using mathematical and technological knowledge, skills, and processes appropriately; suitably provide reasoning for decision-making and appropriately present the conclusions; use mathematical language and symbols for communication as well as accurate and appropriate presentation of mathematical concepts; link various bodies of mathematical knowledge and link mathematical knowledge with other disciplines; and attain ability for creative thinking

## Grade 9 graduates

- Understand concepts of numbers, ratio, proportion, percentage, real numbers expressed in exponential notation with integer indices, square root and cube root of real numbers; carry out operations involving integral numbers, fractions, decimals, exponents, square roots and cube roots of real numbers; apply numerical knowledge to real life
- Have knowledge and understanding of surface areas of prisms and cylinders, and volume of prisms, cylinders, pyramids, cones and spheres; appropriately choose units of the various systems of measuring length, area, and volume; and apply knowledge of measurement to real life
- Construct and explain stages of constructing two-dimensional geometric figures with compass and straight edge; explain characteristics and properties of three-dimensional geometric figures, i.e., prisms, pyramids, cylinders, cones and spheres
- Understand properties of congruence and similarities of triangles, parallels, Pythagoras' theorems and converse; apply these properties for reasoning and problem-solving; and understand geometric transformation through translation, reflection and rotation
- Visualise and explain characteristics of two-dimensional and three-dimensional geometric figures
- Analyse and explain relationships of patterns, situations or problems; and can use single-variable linear equations, two-variable linear equation systems, single-variable linear inequality, and graphs in problem-solving
- Determine an issue, write questions about a problem or a situation, determine methods of study and collect and present data by utilising pie charts or any other forms of presentation
- Understand concepts of the measures of central tendency, arithmetic mean, median, and mode of non-frequency distribution data, and apply them to statistical data and information
- Understand the concepts of random sampling and probability; apply knowledge of probability for projecting and for decision-making

- Apply diverse methods for problem-solving; avail mathematical and technological knowledge, skills and processes appropriately to solve problems; suitably provide reasoning for decision-making and appropriately present the conclusion; use mathematical language and symbols for communication; present mathematical concepts accurately and clearly; link various bodies of mathematical knowledge; link mathematical knowledge, principles and processes with other disciplines; and attain ability for creative thinking

### Grade 12 graduates

- Have concepts of the real number system, absolute values of real numbers and real numbers expressed in radicals and in exponential notation with rational indices; find estimates of real numbers expressed in radicals and exponents through appropriate calculation methods; and apply properties of real numbers

- Apply knowledge of trigonometric ratio for estimating distance and height, and solve measurement problems

- Have concept of sets and their operation; and apply knowledge of Venn-Euler diagrams for problem-solving and checking validity of reasoning

- Understand and apply reasoning through induction and deduction

- Have concepts of relation and function and apply it for problem-solving

- Understand concepts of arithmetic sequence, geometric sequence and find general terms; understand the concepts of the sums of the first  $n$  terms of arithmetic and geometric series, using formulas

- Know and understand the concept of solving equations and inequalities with one variable (degree not more than two); and use graphs of equations, inequalities or functions for problem-solving

- Understand simple methodology for opinion polling; choose central tendency suitable to data and objectives; find arithmetic mean, median, mode, standard deviation and percentile of data; analyse data and apply results of data analysis for facilitating decision-making

- Understand concepts of random sampling and probability; apply knowledge of probability for projection and for decision-making
- Apply diverse methods for problem-solving; avail of mathematical and technological knowledge, skills and processes for appropriately solving problems; suitably provide reasoning for decision-making and appropriately present the conclusions; use mathematical language and symbols for communication; present mathematical concepts accurately and clearly; link various bodies of mathematical knowledge, principles, and processes with other disciplines; and attain ability for creative thinking

**Strand 1: Numbers and Operations**

Standard MA1.1: Understanding of diverse methods of presenting numbers and their application for real life

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
1. Write and read Hindu-Arabic and Thai numerals showing quantity of objects or cardinal numbers not exceeding 100, and 0. 2. Compare and arrange sequence of cardinal numbers not exceeding 100, and 0.	1. Write and read Hindu-Arabic and Thai numerals and written forms showing quantity of objects or cardinal numbers not exceeding 1,000, and 0. 2. Compare and arrange sequence of cardinal numbers not exceeding 1,000, and 0.	1. Write and read Hindu-Arabic and Thai numerals and written forms showing quantity of objects or cardinal numbers not exceeding 100,000, and 0. 2. Compare and arrange sequence of cardinal numbers not exceeding 100,000, and 0.	1. Write and read Hindu-Arabic and Thai numerals and written forms showing cardinal numbers, 0, fractions, and one-place decimals. 2. Compare and arrange sequence of cardinal numbers and 0, fractions, and one-place decimals.	1. Write and read fractions, mixed numbers and decimals with not more than 2 places. 2. Compare and arrange sequence of fractions and decimals with not more than 2 places. 3. Write fractions in decimal form and percentages; write percentages in the forms of fractions and decimals, and write decimals in the forms of fractions and percentages.	1. Write and read decimals with not more than 3 places. 2. Compare and arrange sequence of fractions and decimals with not more than 3 places. 3. Write decimals in the form of fractions and write fraction in form of decimal.

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<ol style="list-style-type: none"> <li>1. Specify or give examples and compare added integral numbers, subtracted integral numbers, 0, fractions and decimals.</li> <li>2. Have concept of real numbers expressed in exponential notation with integer indices and write numbers in scientific notation.</li> </ol>	<ol style="list-style-type: none"> <li>1. Write fractions in the form of decimals and write circulating decimals in form of fractions.</li> <li>2. Distribute prescribed real numbers and give examples of rational and irrational numbers.</li> <li>3. Explain and specify square roots and cube roots of real numbers.</li> <li>4. Apply knowledge of ratio, fraction and percentage to solve problems.</li> </ol>	-	<ol style="list-style-type: none"> <li>1. Show relationships of various numbers in the real number system.</li> <li>2. Have concepts of absolute values of real numbers.</li> <li>3. Have concepts of real numbers expressed in exponential notation with rational indices, and real numbers expressed in radicals.</li> </ol>

**Strand 1: Numbers and Operations**

Standard MA1.2: Understanding of the results of operations of numbers, the relationships of operations, and the application of operations for problem-solving

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
1. Add, subtract and mix addition and subtraction of cardinal numbers not exceeding 100, and 0, as well as be aware of the validity of the answers. 2. Analyse and find answers to problems and mix-problems of cardinal numbers not exceeding 100, and 0, as well as be aware of the validity of the answers.	1. Add, subtract and mix addition and subtraction of cardinal numbers not exceeding 1,000, and 0, as well as be aware of the validity of the answers. 2. Analyse and find answers to problems and mix-problems of cardinal numbers not exceeding 1,000, and 0, as well as be aware of the validity of the answers.	1. Add, subtract and mix addition and subtraction of cardinal numbers not exceeding 100,000, and 0, as well as be aware of the validity of the answers. 2. Analyse and show method of finding answers to problems and mix-problems of cardinal numbers not exceeding 100,000, and 0, as well as be aware of the validity of the answers.	1. Add, subtract and mix addition, subtraction, multiplication and division of cardinal numbers and 0, as well as be aware of the validity of the answers. 2. Analyse and show method of finding answers to problems and mix-problems of cardinal numbers and 0, as well as be aware of validity of the answers, and be able to construct problems.	1. Add, subtract and mix addition and subtraction of fractions, as well as be aware of the validity of the answers. 2. Add, subtract and mix addition and subtraction of decimals with answers in decimals of not more than 2 places, as well as be aware of the validity of the answers. 3. Analyse and show method of finding answers to problems and mix-problems of cardinal numbers,	1. Add, subtract and mix addition, subtraction, multiplication and division of fractions, mixed numbers and decimals, as well as be aware of the validity of the answers. 2. Analyse and show method of finding answers to problems and mix-problems of cardinal numbers, fractions mixed numbers, decimals and percentages, as well as be aware of the validity of the answers,



Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<p>1. Add, subtract, multiply and divide integral numbers for the purpose of problem-solving; be aware of validity of the answers; explain the results obtained from the addition, subtraction, multiplication, and division, and explain the relationship between addition and subtraction, and between multiplication and division of integral numbers.</p> <p>2. Add, subtract, multiply and divide fractions and decimals for the purpose of problem-solving; be aware of the validity of the answers; explain the results of the addition, subtraction, multiplication and division; and explain</p>	<p>1. Find square root and cube root of integral numbers by separating factors for the purpose of problem-solving as well as be aware of the validity of the answers.</p> <p>2. Explain the results of finding square root and cube root of integral numbers, fractions and decimals, and express the relationship between exponents and roots of real numbers.</p>	-	<p>1. Understand concepts and find results of addition, subtraction, multiplication and division of real numbers; understand real numbers expressed in exponential notation with rational indices, and real numbers expressed in radicals.</p>

**Strand 1: Numbers and Operations**

Standard MA1.2: Understanding of the results of operations of numbers, the relationships of operations, and the application of operations for problem-solving

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
-	-	-	3. Add and subtract fractions with same denominator.	fractions, decimals and percentages, as well as be aware of the validity of the answers, and construct problems using cardinal numbers.	and construct problems using cardinal numbers.

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<p>relationships between addition and subtraction, and between multiplication and division of fractions and decimals.</p> <p>3. Explain the results of expression in exponential notation of integral numbers, ratios and decimals.</p> <p>4. Multiply and divide real numbers in the form of exponents with the same bases and integer indices.</p>			

**Strand 1: Numbers and Operations**

Standard MA1.3: Use of estimation in calculation and problem-solving

**Grade-level Indicators**

<b>Grade 1</b>	<b>Grade 2</b>	<b>Grade 3</b>	<b>Grade 4</b>	<b>Grade 5</b>	<b>Grade 6</b>
-	-	-	-	1. Make approximate estimates of integers of 10, 100 and 1,000 of cardinal numbers.	1. Make approximate estimates of various integers of cardinal numbers. 2. Make estimates of decimals of not more than 3 places.

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
1. Use estimation appropriately in various situations, as well as for considering the validity of answers.	1. Find estimates of square root and cube root of real numbers, which can be applied for problem-solving, as well as be aware of the validity of the answers.	-	1. Find estimates of real numbers expressed in radicals and real numbers expressed in exponents through appropriate methods.

**Strand 1: Numbers and Operations**

Standard MA1.4: Understanding of the numerical system and the application of numerical properties

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
-	-	-	-	-	1. Use communicative, associative and distributive properties in calculation. 2. Find highest common factor (H.C.F.) and lowest common multiples (L.C.M.) of cardinal numbers.

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
1. Apply the knowledge of properties of integers for problem-solving.	1. Explain the relationships between real numbers, rational numbers, and irrational numbers.	-	1. Understand the properties of real numbers relating to addition and multiplication, equality and inequality.

**Strand 2: Measurement**

Standard MA2.1: Understanding of the basics of measurement; ability to measure and to estimate the size of objects

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
1. Tell length, weight, volume, and capacity using non-standard units of measure. 2. Tell period of time, number and names of the days of the week.	1. Tell length in metres and centimetres, and compare length using the same unit. 2. Tell weight in kilograms and grammes, and compare weight using the same unit. 3. Tell volume and capacity in litres, and compare volume and capacity. 4. Tell total amount of money from coins and bank notes. 5. Tell the time on a clock dial (period of 5 minutes).	1. Tell length in metres, centimetres and millimetres using appropriate measuring tools, and compare length. 2. Tell weight in kilograms and grammes using appropriate weighing machine, and compare weights. 3. Tell volume and capacity in litres and millilitres using appropriate measuring tools, and compare weight and capacity	1. Tell the relationship between measuring units for length, weight, volume or capacity and time. 2. Find the area of a rectangle. 3. Tell the time on a clock dial; read and write the time using numerals; and tell length of time. 4. Estimate length, weight and volume or capacity.	1. Tell the relationship between measuring units for length, weight and volume or capacity. 2. Find the perimeter of quadrilaterals and triangles. 3. Find the area of rectangles and triangles. 4. Measure the size of angle. 5. Find volume or capacity of cuboids.	1. Explain a route or indicate positions of various objects by specifying direction and real distance from pictures, maps and diagrams. 2. Find the area of quadrilateral. 3. Find the circumference and the area of circles.



Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
-	<ol style="list-style-type: none"> <li>1. Compare measuring units for length and area of the same and different systems and choose appropriate measuring units.</li> <li>2. Appropriately estimate time, distance, area, volume and weight, and explain the method used for estimation.</li> <li>3. Appropriately choose estimation for measurement.</li> </ol>	<ol style="list-style-type: none"> <li>1. Find the surface area of prisms and cylinders.</li> <li>2. Find the volume of prisms, cylinders, pyramids, cones and spheres.</li> <li>3. Compare units for measuring volume or capacity of the same or different systems and choose appropriate units of measure.</li> <li>4. Appropriately use estimation for measurement.</li> </ol>	<ol style="list-style-type: none"> <li>1. Apply knowledge of trigonometric ratio of angles in estimating distance and height.</li> </ol>

**Strand 2: Measurement**

Standard MA2.1: Understanding of the basics of measurement; ability to measure and to estimate the size of objects

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
-	6. Tell the days, months and year from a calendar.	using the same units. 4. Tell the time on a clock dial (period of 5 minutes); read, write and tell the time using numerals. 5. Tell the relationship between measuring units for length, height and time. 6. Read and write amount of money using numerals.	-	-	-

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
-	-	-	-

**Strand 2: Measurement**

Standard MA2.2: Solving measurement problems

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
-	1. Solve problems of measurement of length, weight, volume and money.	1. Solve problems of measurement of length, weight, volume, money and time. 2. Read and keep record of income and expenses. 3. Read and keep record of activities or events, specifying the time.	1. Solve problems of measurement of length, weight, volume, money and time. 2. Read and keep record of income and expenses. 3. Read and keep record of activities or events, specifying the time.	1. Solve problems of the area and the perimeter of quadrilaterals and triangles.	1. Solve problems of the area and the perimeter of quadrilaterals and circles. 2. Solve problems of the volume and the capacity of cuboids. 3. Draw diagrams showing positions of objects and travel routes.

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
-	1. Apply knowledge of length and area for problem-solving.	1. Apply knowledge of length and area for problem-solving.	1. Solve problems on length and height using trigonometric ratio.

**Strand 3: Geometry**

Standard MA3.1: Ability to explain and analyse two-dimensional and three-dimensional geometric figures

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
1. Distinguish triangles, quadrilaterals, circles and ellipses.	1. Identify two-dimensional geometric figures in the form of triangles, quadrilaterals, circles or ellipses. 2. Identify three-dimensional figures in the form of cuboids, spheres or cylinders. 3. Distinguish between rectangles and cuboids, and between circles and spheres.	1. Identify two-dimensional geometric figures that are components of an object in the form of a three-dimensional geometric figure. 2. Identify two-dimensional geometric figures with axis of symmetry from a given figure. 3. Write linear points, straight lines, rays, parts of straight lines, angles and symbols.	1. Identify kinds, names and components of angles and write symbols. 2. Identify a parallel and use symbols to indicate kind of parallel. 3. Identify components of a circle. 4. Identify a rectangle, a square or a rectangle. 5. Identify two-dimensional geometric figures with axes of symmetry, and identify the number of axes.	1. Identify the characteristics of various kinds of three-dimensional geometric figures. 2. Identify the characteristics, the relationship and of various kinds of quadrilaterals. 3. Identify the characteristics, the components, the relationships of various kinds of triangles.	1. Identify kinds of two-dimensional geometric figures that are components of three-dimensional geometric figures. 2. Identify the characteristics of diagonals in various kinds of quadrilaterals. 3. Identify which pair of straight lines is parallel.

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<ol style="list-style-type: none"> <li>1. Draw and explain steps of basic geometric construction.</li> <li>2. Draw two-dimensional geometric figures by using basic geometric construction, and explain steps of construction without emphasising proof.</li> <li>3. Search, observe and project geometric properties.</li> <li>4. Explain the characteristics of three-dimensional geometric figures.</li> <li>5. Identify two-dimensional images from front view and side view of a given three-dimensional geometric figure.</li> </ol>	-	<ol style="list-style-type: none"> <li>1. Explain the characteristics and the properties of prisms, pyramids, cylinders, cones and spheres.</li> </ol>	-

Grade-level Indicators					
Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
-	-	-	-	-	-



Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
6. Draw or create a three-dimensional figure from a cube, when given two-dimensional image from front view, side view and top view.			

**Strand 3: Geometry**

Standard MA3.2: Ability in visualisation, spatial reasoning and application of geometric models for problem-solving

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
-	1. Draw two-dimensional geometric figures using geometric models.	1. Draw two-dimensional geometric figures given in various models. 2. Identify various geometric figures in the surroundings.	1. Use geometric figures in designing.	1. Draw angles using a protractor. 2. Draw rectangles, triangles, and circles. 3. Draw parallels using a set square.	1. Draw cuboids, cylinders, cones, prisms and pyramids from nets of three-dimensional geometric figures or two-dimensional geometric figures given. 2. Draw various kinds of quadrilaterals.

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
-	<ol style="list-style-type: none"> <li>1. Use properties of congruence of triangles and those of parallels for reasoning and problem-solving.</li> <li>2. Use Pythagoras' Theorem and converse for reasoning and problem-solving.</li> <li>3. Understand and apply geometric transformation through translation, reflection and rotation.</li> <li>4. Identify images from translation, reflection and rotation of models, and explain the method of obtaining the images when given certain models and images.</li> </ol>	<ol style="list-style-type: none"> <li>1. Use properties of similar triangles for reasoning and problem-solving.</li> </ol>	-

**Strand 4: Algebra**

Standard MA4.1: Understanding and ability to analyse patterns, relations and functions

**Grade-level Indicators**

<b>Grade 1</b>	<b>Grade 2</b>	<b>Grade 3</b>	<b>Grade 4</b>	<b>Grade 5</b>	<b>Grade 6</b>
1. Tell the numbers and relations in patterns of numbers that increases by 1s and 2s, and decreases by 1s. 2. Identify the forms and relations in patterns in which forms are related in one of the following respects: shape, size or colour.	1. Tell the numbers and relations in patterns of numbers that increases by 5s, 10s and 100s, and decreases by 2s, 10s and 100s. 2. Identify the forms and relations in patterns in which forms are related in one of the following respects: shape, size or colour.	1. Tell the numbers and relations in patterns of numbers that increases by 3s, 4s, 25s and 50s, and decreases by 3s, 4s, 5s, 25s and 50s and in repeated patterns. 2. Identify the forms and relations in patterns in which forms are related in two of the following respects: shape, size or colour.	1. Tell the numbers and the relations in patterns of number which increases or decreases in equal amount each time. 2. Identify the forms and relations in patterns of a given form.	1. Tell the numbers and relations in patterns of given numbers.	1. Solve problems of pattern.

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
1. Analyse and explain relations of a given pattern.	-	-	<ol style="list-style-type: none"> <li>1. Have concept of sets and their operation.</li> <li>2. Understand and use reasoning through induction and deduction.</li> <li>3. Have concept of relation and function, and show relation and function through various methods, e.g., tables, graphs and equations.</li> <li>4. Understand concept of sequence and express general terms of finite sequence.</li> <li>5. Understand concepts of arithmetic and geometric sequences, and express general terms of arithmetic and geometric sequences.</li> </ol>

**Strand 4: Algebra**

Standard MA4.2: Ability to apply and to interpret algebraic expressions, equations, inequalities, graphs and other mathematical models to represent various situations and to apply them for problem-solving

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
-	-	-	-	-	1. Write an equation based on a situation or problem, solve the equation and check the answer.

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<ol style="list-style-type: none"> <li>1. Solve simple linear equations with one variable.</li> <li>2. Write linear equations with one variable from simple situations or problems.</li> <li>3. Solve problems involving simple linear equations with one variable, and be aware of the validity of the answer.</li> <li>4. Draw a graph on the plane of the rectangular coordinate system showing the relationship of the two sets of quantities given.</li> <li>5. Read and interpret the meaning of the graph on the plane of the rectangular coordinate system given.</li> </ol>	<ol style="list-style-type: none"> <li>1. Solve problems of linear equations with one variable, and be aware of the validity of the answer.</li> <li>2. Find coordinates of points and explain the characteristics of geometric figures obtained from translation, reflection and rotation on the plane of the rectangular coordinate system.</li> </ol>	<ol style="list-style-type: none"> <li>1. Apply knowledge of linear inequalities with one variable for problem-solving, and be aware of the validity of the answer.</li> <li>2. Write a graph showing link of two sets of quantities with linear relationship.</li> <li>3. Draw graphs of linear equations with two variables.</li> <li>4. Read and interpret meaning of systems of linear equations with two variables and other graphs.</li> <li>5. Solve systems of linear equations with two variables, apply them for problem-solving, and be aware of the validity of the answer.</li> </ol>	<ol style="list-style-type: none"> <li>1. Draw Venn-Euler diagrams and apply for problem-solving.</li> <li>2. Check the validity of reasoning using Venn-Euler diagrams.</li> <li>3. Solve equations and inequalities with one variable (degree not more than two).</li> <li>4. Construct relations or functions from situations or problems and apply them for problem-solving.</li> <li>5. Apply graphs of equations, inequalities and functions for problem-solving.</li> <li>6. Understand the concepts of the sums of the first <math>n</math> terms of arithmetic series, and find the sums of arithmetic series using applicable formulas.</li> </ol>

**Strand 5: Data Analysis and Probability**

Standard MA5.1: Understanding and ability to apply statistical methodology for data analysis

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
-	-	1. Collect and categorise data about themselves and the surroundings in daily life. 2. Read data from simple pictograms and bar charts.	1. Collect and categorise data. 2. Read data from pictograms, bar charts and tables. 3. Draw pictograms and bar charts.	1. Draw bar charts with shortening of lines to represent numbers. 2. Read data from comparative bar charts.	1. Read data from line graphs and pie-charts. 2. Draw comparative bar charts and line graphs.



Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
-	1. Read and present data using pie-charts.	1. Set up an issue and write questions about it and set appropriate methods of study and of data collection. 2. Find arithmetic mean, median and mode of non-frequency distribution data, and make appropriate selection for utilisation. 3. Present data in appropriate forms. 4. Read, interpret and analyse the data obtained from presentations.	1. Understand simple methodology for opinion polling. 2. Find arithmetic mean, median, mode, standard deviation and percentile of data. 3. Select central tendency suitable to data and objectives.

**Strand 5: Data Analysis and Probability**

Standard MA5.2: Application of statistical methodology and knowledge of probability for valid estimation

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
-	-	-	-	1. Tell whether a described situation: <ul style="list-style-type: none"> <li>- definitely happens;</li> <li>- may or may not happen;</li> <li>- definitely not happens.</li> </ul>	1. Explain events by terms with similar meaning to: <ul style="list-style-type: none"> <li>- definitely happens;</li> <li>- may or may not happen;</li> <li>- definitely not happens.</li> </ul>

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
1. explain which, events described, are more likely to happen.	1. Explain events described: <ul style="list-style-type: none"> <li>- which definitely happens;</li> <li>- which definitely not happens;</li> <li>- which are more likely to happen.</li> </ul>	1. Find probability of events from random sampling with equal probability for each result, and apply knowledge of probability for valid projection of events.	1. Apply opinion poll results for projecting events that may happen in given situations. 2. Explain random sampling, events, probability of events, and apply results obtained for projecting events that may happen in given situations.

## Grade-level Indicators

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
-	-	-	-	-	-

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
-	-	<ol style="list-style-type: none"> <li>1. Apply knowledge of statistics and probability for decision-making.</li> <li>2. Discuss possible errors in presenting statistical data.</li> </ol>	<ol style="list-style-type: none"> <li>1. Apply data, information and statistics for decision-making and problem-solving.</li> <li>2. Apply knowledge of probability for decision-making and problem-solving.</li> </ol>

**Strand 6: Mathematical Skills and Processes**

Standard MA6.1: Ability in problem-solving, reasoning, communication and presentation of mathematical concept, linking various bodies of mathematical knowledge, and linking mathematics with other disciplines; and attaining ability for creative thinking

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
1. Apply diverse methods for problem-solving. 2. Appropriately apply mathematical knowledge, skills and processes for problem-solving. 3. Suitably provide reasoning for decision-making and appropriately present the conclusions.	1. Apply diverse methods for problem-solving. 2. Appropriately apply mathematical knowledge, skills and processes for problem-solving. 3. Suitably provide reasoning for decision-making and appropriately present the conclusions.	1. Apply diverse methods for problem-solving. 2. Appropriately apply mathematical knowledge, skills and processes for problem-solving. 3. Suitably provide reasoning for decision-making and appropriately present the conclusions.	1. Apply diverse methods for problem-solving. 2. Appropriately apply mathematical and technological knowledge, skills and processes for problem-solving. 3. Suitably provide reasoning for decision-making and appropriately present the conclusions.	1. Apply diverse methods for problem-solving. 2. Appropriately apply mathematical and technological knowledge, skills and processes for problem-solving. 3. Suitably provide reasoning for decision-making and appropriately present the conclusions.	1. Apply diverse methods for problem-solving. 2. Appropriately apply mathematical and technological knowledge, skills and processes for problem-solving. 3. Suitably provide reasoning for decision-making and appropriately present the conclusions.

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<ol style="list-style-type: none"> <li>1. Apply diverse methods for problem-solving.</li> <li>2. Appropriately apply mathematical and technological knowledge, skills and processes for problem-solving in various situations.</li> <li>3. Suitably provide reasoning for decision-making and appropriately present the conclusions.</li> <li>4. Accurately and succinctly use mathematical language and symbols for communication, communication of concepts and presentation.</li> </ol>	<ol style="list-style-type: none"> <li>1. Apply diverse methods for problem-solving.</li> <li>2. Appropriately apply mathematical and technological knowledge, skills and processes for problem-solving in various situations.</li> <li>3. Suitably provide reasoning for decision-making and appropriately present the conclusions.</li> <li>4. Accurately and succinctly use mathematical language and symbols for communication, communication of concepts and presentation.</li> </ol>	<ol style="list-style-type: none"> <li>1. Apply diverse methods for problem-solving.</li> <li>2. Appropriately apply mathematical and technological knowledge, skills and processes for problem-solving in various situations.</li> <li>3. Suitably provide reasoning for decision-making and appropriately present the conclusions.</li> <li>4. Accurately and succinctly use mathematical language and symbols for communication, communication of concepts and presentation.</li> </ol>	<ol style="list-style-type: none"> <li>1. Apply diverse methods for problem-solving.</li> <li>2. Appropriately apply mathematical and technological knowledge, skills and processes for problem-solving in various situations.</li> <li>3. Suitably provide reasoning for decision-making and appropriately present the conclusions.</li> <li>4. Accurately and succinctly use mathematical language and symbols for communication, communication of concepts and presentation.</li> <li>5. Link various bodies of mathematical knowledge and link mathematical knowledge, principles and processes with those of other disciplines.</li> <li>6. Attain ability for creative thinking.</li> </ol>

Standard MA6.1: Ability in problem-solving, reasoning, communication and presentation of mathematical concept, linking various bodies of mathematical knowledge and linking mathematics with other disciplines; and attaining ability for creative thinking

## Grade-level Indicators

[illegible]



Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<p>5. Link various bodies of mathematical knowledge, and link mathematical knowledge, principles and processes with those of other disciplines.</p> <p>6. Attain ability for creative thinking.</p>	<p>5. Link various bodies of mathematical knowledge, and link mathematical knowledge, principles and processes with those of other disciplines.</p> <p>6. Attain ability for creative thinking.</p>	<p>5. Link various bodies of mathematical knowledge, and link mathematical knowledge, principles and processes with those of other disciplines.</p> <p>6. Attain ability for creative thinking.</p>	

## Science

### Why it is necessary to learn science

Science plays an important role in our present and future world communities, as it relates to our everyday life and livelihoods. Science also involves technologies, devices and various products at our disposal, which facilitate our life and work. All this benefit is from our scientific knowledge, which is combined with creativity as well as other disciplines. Science enables us to develop our thinking skills in various respects - logical, creative, analytical and critical. It also enables us to acquire investigative skills for seeking knowledge, the ability of systematic problem-solving, and verifiable decision-making based on diverse data and evidences. Science is essential to the modern world, which is intrinsically a knowledge society. All of us therefore need to be provided with scientific knowledge so as to acquire knowledge and understanding of nature and man-made technologies and to apply them through logical, creative and moral approaches.

### What is learned in science

The learning area of science is aimed at enabling learners to link knowledge with processes, acquire essential skills for investigation, build up knowledge through investigative processes, seek knowledge and solve various problems. Learners are allowed to participate in all stages of learning, with activities organized through diverse practical work suitable to their levels. The main content areas are prescribed as follows:

- **Living Things and Processes of Life:** living things; basic units of living things; the structures and functions of various systems of living things and the processes of life; the biodiversity; genetic transmission; the functioning of various systems of living things, the evolution and diversity of living things and the biotechnology
- **Life and the Environment:** diverse living things in the environment; the relationship between living things and the environment; the relationships among living things in the eco-system; the importance of natural resources, utilization and management of natural resources at local, national and global levels; the factors affecting survival of living things in various environments

- **Substances and Properties of Substances:** the properties of materials and substances; binding forces between particles; changes in the state of substances; the solution formation and chemical reaction of substances, chemical equations and separation of substances

- **Forces and Motion:** the nature of electromagnetic, gravitational and nuclear forces; forces acting on objects; motion of objects; frictional forces; moment of variety of motions in daily life

- **Energy:** energy and life; energy transformation; the properties and phenomena of light, sound, electrical circuits, electromagnetic waves, radioactivity and nuclear reactions; the interrelationship between substances and energy; energy conservation; the effects of utilization of energy on life and the environment

- **Change Process of the Earth:** the structure and components of the Earth; geological resources; the physical properties of soil, rock, water and air; the properties of the earth surface and atmosphere; change processes of the earth's crust; the geological phenomena; the factors affecting atmospheric change

- **Astronomy and Space:** evolution of the solar system; galaxies; the universe; interrelationship and effects on living things on the earth; the relationship between the sun, the moon and the earth; the importance of space technology

- **Nature of Science and Technology:** the scientific processes; investigation for seeking knowledge, problem-solving, and scientific mind

## Learners' Quality

### Grade 3 graduates

- Understand the general characteristics of living things and the existence of diverse living things in the local environment
- Understand the phenomena and changes in materials in the surroundings; natural forces; forms of energy
- Understand the physical properties of soil, rock, water, air, the sun and stars
- Pose questions about living things, materials and objects as well as various phenomena in the surroundings; observe, explore and verify the use of simple instruments, and transfer what has been learned through story-telling, writing or drawing pictures
- Apply scientific knowledge and processes in life and search for additional knowledge; implement the projects or work assignments as prescribed or interested
- Show enthusiasm, interest in learning and appreciation of the environment around them; show kindness, care and concern for other living things
- Carry out assignments with determination, care, economy and honesty until successfully complete, and work happily with others

## Grade 6 graduates

- Understand the structure and function of various systems of living things and relationships among diverse living things in different environments
- Understand the properties and distribution of groups of materials; states of substances; properties of substances and causing changes in substances; substances in daily life; simple methods of separating substances
- Understand the effects of force acting on objects; pressure; basic principles of buoyancy; properties and basic phenomena of light, sound and electrical circuits
- Understand the characteristics, the components and properties of the earth surface and atmosphere; relationship between the sun, the earth and the moon, which affects natural phenomena
- Pose questions about what is to be learned; give estimates of several possible answers; plan, investigate and verify by applying tools and devices; analyse data and communicate knowledge obtained from investigation and verification
- Apply scientific knowledge and processes in life and search for additional knowledge; implement projects or tasks as prescribed or interests
- Show interest, determination, responsibility, care and honesty in seeking knowledge
- Be aware of the value of knowledge of science and technology; show appreciation, honour and respect of inventors' rights to their achievements
- Show recognition, care and concern as evident in conscientious behaviour for utilization, protection and conservation of natural resources and the environment
- Work constructively with others; be ready to express their opinions and listen to other opinions

## Grade 9 graduates

- Understand the characteristics and main components of cells of living things; relationship of function in various systems; genetic transmission; biotechnology; diversity of living things; living things' behaviour and responses to stimuli in the environment
- Understand the components and the properties of solutions; pure substances; transformation of substances through change of their state; solution forming and chemical reaction
- Understand the frictional forces; moment of forces; variety of motion in daily life; rules for energy conservation; energy transfer; heat equilibrium; reflection, refraction and density of light
- Understand the relationship between electrical quantities; principles of electrical domestic circuits; electrical energy and basic principles of electronic circuits
- Understand the change processes of the earth's crust; geological sources; factors affecting atmospheric change; the reactions within the solar system and effects on various things on the earth; the importance of space technology
- Understand the relationship between science and technology; the development and effects of development on quality of life and the environment
- Pose questions with prescription and control of variables; give estimates to several possible answers; plan, investigate, verify, analyse and evaluate data conformity and create bodies of knowledge
- Transfer thoughts and knowledge obtained from investigation and verification through verbal or written presentation, display, or application of information technology
- Apply scientific and technological knowledge and processes in life and seek additional knowledge; create projects or work pieces with their interests
- Show interest, determination, responsibility, care and honesty in investigating and seeking knowledge using reliable devices and methods

- Be aware of the value of scientific and technological knowledge applied in daily life and livelihood; show appreciation, honour and respect of inventors' rights to their achievements
- Show recognition, care and concern, and appreciate behaviour for utilization and conservation of natural resources and local environment
- Work constructively with others; be ready to express their opinions and listen to other opinions

### Grade 12 graduates

- Understand the maintenance of cell equilibrium and mechanisms for maintaining equilibrium of living things
- Understand the processes of genetic transmission, variation, mutation, evolution of living things and factors affecting their survival in various environments
- Understand the processes, importance and effects of biotechnology on human beings, living things and the environment
- Understand kinds of important particles that form components of atomic structures, sequencing of elements in the Periodic Table, chemical reactions and writing chemical equations, and factors affecting rates of chemical reaction
- Understand kinds of binding forces between particles and various properties of substances that are related to binding forces
- Understand the origin of petroleum, natural gas separation and fractional distillation of crude oil, the application of petroleum products for useful purposes and their effects on living things and the environment
- Understand kinds, properties and important reactions of polymers and biomolecular substances
- Understand the relationships between quantities involving various types of motion; the properties of mechanical waves; the quantities of sound and hearing; the properties, benefits and harms of electromagnetic waves, the radioactivity and nuclear energy

- Understand the change processes of the Earth and geological phenomena affecting living things and the environment
- Understand the origin and evolution of the solar system, galaxies, the universe, and the importance of space technology
- Understand how scientific knowledge results in development of various kinds of technologies, and how technological development results in discovery of advanced scientific knowledge, as well as the effects of technology on life, society and the environment
- Identify problems; pose questions for investigation and verification by prescribing the relationships between various variables; search for data from various sources; propose several possible hypotheses; decide to investigate feasible hypotheses
- Plan processes of investigation and verification for problem-solving or answering questions; analyse and link the relationships of various variables by applying mathematical equations or creating models from results or knowledge obtained from investigation and verification
- Transfer thoughts and knowledge obtained from investigation through verbal or written presentation, display or application of information technology
- Explain scientific knowledge and apply scientific processes for living and seeking additional knowledge; create projects or work pieces with their interests
- Show interest, dedication, responsibility, care and honesty in investigating and seeking knowledge by using accurate and reliable devices and methods
- Be aware of the value of scientific and technological knowledge applied in daily life and livelihood; show appreciation, pride, respect, and make references to achievements and accomplishments resulting from local wisdom and development of modern technology
- Show recognition, care and concern as well as appreciative behaviour for utilization and conservation of natural resources and the environment; volunteer to cooperate with the community to protect and take good care of natural resources and local environment



- Show satisfaction and appreciation of abilities to discover knowledge, find answers or solve problems
- Work constructively with others; express opinions based on reliable references and sound reasoning resulting from scientific and technological development and application, bearing in mind moral obligation to society and the environment; and be ready to listen to other opinions

**Strand 1: Living Things and Life Processes**

Standard SC1.1: Understanding of the basic units of living things; the relationship between structures and functions of various systems of living things which are interlinked; having investigative process for seeking knowledge; ability to transfer and put the knowledge into practice and care for living things

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
1. Compare the differences between living things and non-living things. 2. Observe and explain the characteristics and the functions of external structures of plants and animals. 3. Observe and explain the characteristics, the functions and the importance of external human organs as well as health care.	1. Experiment and explain the essential of water and light to plant life. 2. Explain the nutrients, water and air are essential factors for the growth of plants and animals, and put it into practice. 3. Explore and explain abilities of plants and animals to respond to light, temperature and touch.	-	1. Experiment and explain the functions of the bundles and stomas of plants. 2. Explain water, carbon dioxide, light and chlorophyll, essential factors for plants growth and photosynthesis. 3. Experiment and explain responses of plants to light, sound and touch.	1. Observe and specify the components of flowers and the structures related to reproduction of angiosperms. 2. Explain reproduction of flowers, plants, plant propagation, and put it into practice. 3. Explain life cycles of some kinds of angiosperms. 4. Explain animal reproduction and propagation.	1. Explain human growth from birth to adulthood. 2. Explain the interrelated functioning of digestive, respiratory and circulatory systems of human beings. 3. Analyse nutrients and discuss body requirements for nutrients in proportions with gender and age.

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<ol style="list-style-type: none"> <li>1. Observe and explain the forms and the characteristics of the cells of unicellular and multicellular organisms.</li> <li>2. Observe and compare the essential components of plant and animal cells.</li> <li>3. Experiment and explain the functions of essential components of plant and animal cells.</li> <li>4. Experiment and explain the processes of passing substances through cells by diffusion and osmosis.</li> <li>5. Experiment to find some factors essential for photosynthesis of plants, and explain that light, chlorophyll carbon dioxide and water essential for photosynthesis.</li> </ol>	<ol style="list-style-type: none"> <li>1. Explain the structures and the functions of digestive, circulatory, respiratory, excretory and reproductive systems of human beings and animals as well as nerve system of human beings.</li> <li>2. Explain the relationship of various systems of human beings and put it into practice.</li> <li>3. Observe and explain behaviour of human beings and animals responding to internal and external stimuli.</li> <li>4. Explain the principles and the effects of biotechnological application in propagation to improve breeding and increase productivity of</li> </ol>	-	<ol style="list-style-type: none"> <li>1. Experiment and explain the maintenance of cell equilibrium of living things.</li> <li>2. Experiment and explain the mechanisms for maintenance of water equilibrium in plants.</li> <li>3. Search for data and explain the mechanisms for controlling the equilibrium of water, minerals and temperature of human beings and animals, and put it into practice.</li> <li>4. Explain the body's immune system, and apply this acquired knowledge for health care.</li> </ol>

### Strand 1: Living Things and Life Processes

Standard SC1.1: Understanding of the basic units of living things; the relationship between the structures and functions of various systems of living things which are interlinked; having investigative process for seeking knowledge; ability to transfer and put the knowledge into practice and care for living things

#### Grade-level Indicators

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
	<p>4. Explore and explain the ability of the human body to respond to light, temperature and touch.</p> <p>5. Explain the factors essential for the life and growth of human beings.</p>		<p>4. Explain behaviour of animals responding to light, temperature and touch, and put it into practice.</p>	<p>5. Explain life cycles of some kinds of animals and put it into practice.</p>	

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<p>6. Experiment and explain the results of plant photosynthesis.</p> <p>7. Explain importance of the photosynthesis process of plants on living things and the environment.</p> <p>8. Experiment and explain the groups of cells involved in transportation of water in plants.</p> <p>9. Observe and explain the structures of the systems of water and nutrients transportation in plants.</p> <p>10. Experiment and explain the floral structures in plant reproduction.</p> <p>11. Explain the sexual and asexual reproduction processes of plants.</p>	<p>animals, and put it into practices.</p> <p>5. Experiment, analyse and explain nutrients in foods with energy quantity and proportion to gender and age.</p> <p>6. Discuss the effects of addictive substances on various systems of the body, and guidelines for self-protection from addictive substances.</p>		

**Strand 1: Living Things and Life Processes**

Standard SC1.1: Understanding of the basic units of living things; the relationship between the structures and functions of various systems of living things which are interlinked; having investigative process for seeking knowledge; ability to transfer and put the knowledge into practice and care for living things

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<p>12. Experiment and explain the responses of plants to light, water and touch.</p> <p>13. Explain the principles and the effects of biotechnological application for propagation, improved breeding and increased productivity of plants, and put it into practice.</p>			

**Strand 1: Living Things and Life Processes**

**Standard Sc1.2:** Understanding of the process and the importance of genetic transmission; the evolution of living things; the biodiversity; the application of biotechnology affecting humans and the environment; having investigative process for seeking knowledge and scientific reasoning; transferring and putting the knowledge into practice

**Grade-level Indicators**

<b>Grade 1</b>	<b>Grade 2</b>	<b>Grade 3</b>	<b>Grade 4</b>	<b>Grade 5</b>	<b>Grade 6</b>
1. Specify the characteristics of living things in local area, and categorise them using external characteristics as criteria.	1. Explain the benefits of plants and animals in local area.	1. Discuss various characteristics of living things in the immediate environment. 2. Compare and specify the similar characteristics of parents and children. 3. Explain the similar characteristics of parents and children originating from genetic transmission, and put it into practice. 4. Search for data and discuss about kinds of extinct living things and kinds that exist in the present time.	-	1. Explore, compare and specify their own characteristics and those of their family members. 2. Explain genetic the transmission of each generation of living things. 3. Distinguish between flowering and non-flowering plants. 4. Specify the characteristics of monocellular and multicellular plants using their external organs as criteria.	-



Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
-	-	<ol style="list-style-type: none"> <li>1. Observe and explain the characteristics of chromosomes with genetic units or genes in their nuclei.</li> <li>2. Explain the importance of genes or DNA and the process of transmitting genetic characteristics.</li> <li>3. Discuss the genetic diseases resulting from abnormality of genes and chromosomes, and put it into practice.</li> <li>4. Explore and explain the biodiversity in local area enabling living things to maintain the balance of life.</li> <li>5. Explain the effects of biodiversity on human beings animals, plants and the environment.</li> </ol>	<ol style="list-style-type: none"> <li>1. Explain the processes of genetic transmission, transformation, mutation and the origin of biodiversity.</li> <li>2. Search for data and discuss about the effects of biotechnology on human beings and the environment, and put it into practice.</li> <li>3. Search for data and discuss about the effects of biodiversity on human beings and the environment.</li> <li>4. Explain the natural selection processes and their effects on diversity of living things.</li> </ol>

**Strand 1: Living Things and Life Processes**

Standard SC1.2: Understanding of the process and the importance of genetic transmission; the evolution of living things; the biodiversity; the application of biotechnology affecting humans and the environment; having investigative process for seeking knowledge and scientific reasoning; transferring and putting the knowledge into practice

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
				5. Categorise animals into groups using external characteristics and some internal characteristics as criteria.	

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
		6. Explain the effects of biotechnology on living of human beings and the environment.	

**Strand 2: Life and the Environment**

Standard SC2.1: Understanding of the local environment; the relationship between the environment and living things; the relationship between living things in the eco-system; having investigative process for seeking knowledge and scientific reasoning; transferring and putting the knowledge into practice

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
-	-	1. Explore the environment in the local area and explain the relationship between living things and the environment.	-	-	1. Explore and discuss about the relationship of groups of living things in various habitats. 2. Explore the relationship of living things in terms of food chain and food web. 3. Search for data and explain the relationships between the lives of living things and the environment.

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
-	-	<ol style="list-style-type: none"> <li>1. Explore, various eco-systems in local area and explain the relationships of the components within the eco-systems.</li> <li>2. Analyse and explain the relationship of energy transmission in living things in terms of food chain and food web.</li> <li>3. Explain water and carbon cycles and their importance to the eco-system.</li> <li>4. Explain the factors affecting change in size of population in the eco-system.</li> </ol>	<ol style="list-style-type: none"> <li>1. Explain the equilibrium of the eco-system.</li> <li>2. Explain the processes of change and replacement of living things.</li> <li>3. Explain the importance of biodiversity and propose guidelines for providing care and preservation.</li> </ol>

## Strand 2: Life and the Environment

Standard SC2.2: Appreciating the importance of natural resources; the utilization of natural resources at local, national and global levels; and the application of knowledge for management of natural resources and local environment on a sustainable basis

### Grade-level Indicators

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
-	-	<ol style="list-style-type: none"> <li>1. Explore natural resources and discuss about utilization of local natural resources.</li> <li>2. Specify the utilization of natural resources causing environmental problems.</li> <li>3. Discuss and present ideas for economical and cost-effective utilization of natural resources and participate in the practice.</li> </ol>	-	-	<ol style="list-style-type: none"> <li>1. Search for data and discuss about sources of natural resources in each local area beneficial to life.</li> <li>2. Analyse the effects of population increase on the utilization of natural resources.</li> <li>3. Discuss about the effects on living things from environmental change due to nature and human beings.</li> </ol>

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
-	-	<ol style="list-style-type: none"> <li>1. Analyse the environment and natural resources problems in the local area, and propose guidelines for problem-solving.</li> <li>2. Explain the guidelines for preserving the balance of the eco-system.</li> <li>3. Discuss about the sustainable utilization of natural resources.</li> <li>4. Analyse and explain the utilization of natural resources in terms of the Sufficiency Economy Philosophy.</li> <li>5. Discuss about the environmental problems and propose relevant guidelines for problem-solving.</li> </ol>	<ol style="list-style-type: none"> <li>1. Analyse causes of the environment and natural resources problems at local, national and global levels.</li> <li>2. Discuss about guidelines for preventing and solving the environment and natural resources problems.</li> <li>3. Plan and observe, preserve and develop the environment and natural resources.</li> </ol>

**Strand 2: Life and the Environment**

Standard SC2.2: Appreciating the importance of natural resources; the utilization of natural resources at local, national and global levels; and the application of knowledge for management of natural resources and local environment on a sustainable basis

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
					<p>4. Discuss about guidelines for taking care of and preserving natural resources and the environment.</p> <p>5. Participate in providing care and preservation of natural resources in the local area.</p>



Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
		6. Discuss and participate in providing care and preserving the local environment on a sustainable basis.	

**Strand 3: Substances and Properties of Substances**

Standard SC3.1: Understanding of the properties of substances; the relationship between the properties of substances and the structures and binding forces between particles; having investigative process for seeking knowledge and scientific reasoning; transferring and putting the knowledge into practice

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
1. Observe and specify the apparent characteristics or the properties of materials for making toys or articles of everyday use. 2. Classify the materials for making toys or articles of everyday use and specify the criteria of the classification.	1. Specify and compare the properties of materials for making toys and articles of everyday use. 2. Choose and use appropriate and safe materials and articles.	1. Classify kinds and the properties of materials for making toys and articles of everyday use. 2. Explain the utilization of each kind of material.	-	1. Experiment and explain the properties of various kinds of materials e.g elasticity, hardness, toughness, heat conductivity and density. 2. Search for data and discuss about the application of materials in daily life.	1. Experiment and explain the properties of solids, liquids and gases. 2. Categorise substances into groups. 3. Experiment and explain the separation of materials through sifting, precipitation, filtering, sublimation and evaporation. 4. Explore and categorise various substances used in daily life using their properties and utilization as criteria.

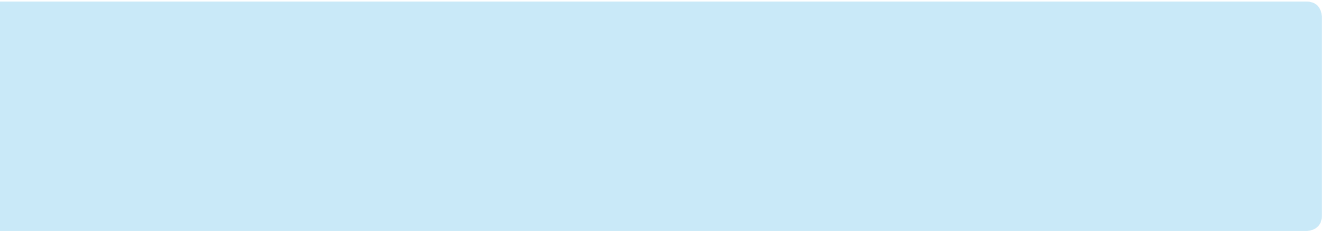
Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<ol style="list-style-type: none"> <li>1. Experiment and classify substances into groups using their texture or particle size as criteria and explain the properties of each group.</li> <li>2. Explain the properties and the transition of substances using particle arrangement models.</li> <li>3. Experiment and explain the acid-base properties of solutions.</li> <li>4. Verify pH value of solutions, and put the knowledge into practice.</li> </ol>	<ol style="list-style-type: none"> <li>1. Explore and explain the components and the properties of elements and compounds.</li> <li>2. Search for data and compare the properties of metallic, non-metallic, semi metallic and nuclear elements and put the knowledge into practice.</li> <li>3. Experiment and explain the principles of substance separation by methods of filtering, crystallisation, expunctions, distillation and chromatography, and put the knowledge into practice.</li> </ol>	-	<ol style="list-style-type: none"> <li>1. Search for data and explain the structure of atoms and nuclear symbols of elements.</li> <li>2. Analyse and explain the electronic configuration in atoms and the relationship between electrons in outermost energy-level with the properties of elements and the formation of reactions.</li> <li>3. Explain the sequencing of elements and predict the properties of elements in the Periodic Table.</li> <li>4. Analyse and explain formation of chemical bonds in crystal network and in molecules of substances.</li> <li>5. Search for data and explain the relationship between boiling point, melting point and state of substances with binding forces between particles of substances.</li> </ol>

**Strand 3: Substances and Properties of Substances**

Standard SC3.1: Understanding of the properties of substances; the relationship between the properties of substances and the structures and binding forces between particles; having investigative process for seeking knowledge and scientific reasoning; transferring and putting the knowledge into practice

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
					5. Discuss about the selection of correct and safe application of each kind of substance.



Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12

**Strand 3: Substances and Properties of Substances**

Standard SC3.2: Understanding of the principles and the nature of change in the state of substances; the solution formation; the chemical reaction; having investigative process for seeking knowledge and scientific reasoning; transferring and putting the knowledge into practice

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
-	-	1. Experiment and explain the effects of change in objects upon force acts or heating or cooling. 2. Discuss about the benefits and detriments that may arise due to changes in the objects.	-	-	1. Experiment and explain the properties of substances when dissolve and change their state. 2. Analyse and explain the changes resulting in transition of substances to new substances with different properties. 3. Explain the affects of the changes of substances on living things and the environment.

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<ol style="list-style-type: none"> <li>1. Experiment and explain the methods of preparing solutions with density in percentage, and discuss about putting the knowledge into practice.</li> <li>2. Experiment and explain the change of properties, mass and energy of substances when change state and dissolve.</li> <li>3. Experiment and explain the factors affecting state changes and the dissolution of substances.</li> </ol>	<ol style="list-style-type: none"> <li>1. Experiment and explain the changes in properties, mass and energy when substances have chemical reactions and explain factors affecting the chemical reactions.</li> <li>2. Experiment, explain and write chemical equations of reactions of various substances, and put it into practice.</li> <li>3. Search for data and discuss about the effects of chemical substances and chemical reactions on living things and the environment.</li> <li>4. Search for data and explain the safe application, ways of preventing and remedying dangers from chemical substances.</li> </ol>	-	<ol style="list-style-type: none"> <li>1. Experiment, explain and write equations of general chemical reactions found in daily life, the effects of chemical substances on living things and the environment.</li> <li>2. Experiment and explain the rates of chemical reactions and factors affecting chemical reactions and put it into practice.</li> <li>3. Search for data and explain the origin of petroleum, natural gas separation and the fractional distillation of crude oil.</li> <li>4. Search for data and discuss about the application of products from natural gas and fractional distillation of crude oil and the effects of these products on living things and the environment.</li> <li>5. Experiment and explain the origin of polymers and their properties.</li> </ol>

**Strand 3: Substances and Properties of Substances**

Standard SC3.2: Understanding of the principles and the nature of change in the state of substances; the solution formation; the chemical reaction; having investigative process for seeking knowledge and scientific reasoning; transferring and putting the knowledge into practice

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6



Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
			<p>6. Discuss about the utilization of polymers and the effects from production and the utilization of polymers on living things and the environment.</p> <p>7. Experiment and explain the components, benefits and some kinds of reactions of carbohydrates.</p> <p>8. Experiment and explain the benefits and some kinds of reactions of fat and oil.</p> <p>9. Experiment and explain the components, benefits and some kinds of reactions of proteins and nucleic acids.</p>

**Strand 4: Forces and Motion**

Standard SC4.1: Understanding of the nature of electromagnetic, the gravitational and nuclear forces; having investigative process for seeking knowledge; transferring and putting the knowledge into practice

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
1. Experiment and explain the act of pulling or pushing objects.	1. Experiment and explain the forces originating from a magnet. 2. Explain the application of magnets. 3. Experiment and explain the electrical forces resulting from rubbing some kinds of materials.	1. Experiment and explain the effects of forces acting on objects. 2. Experiment the falling of objects on the ground and explain the gravity.	-	1. Experiment and explain finding addition of two forces acting on objects. 2. Experiment and explain air pressure. 3. Experiment and explain liquid pressure. 4. Experiment and explain buoyant forces of liquid, floating and sinking of objects.	-

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<ol style="list-style-type: none"> <li>1. Search for data and explain scalar and vector quantities.</li> <li>2. Experiment and explain distance, speed, displacement and velocity of motion of objects.</li> </ol>	<ol style="list-style-type: none"> <li>1. Experiment and explain finding resultant force of several forces on the same plane acting on objects.</li> <li>2. Explain resultant forces acting on static objects or objects moving with constant velocity.</li> </ol>	<ol style="list-style-type: none"> <li>1. Explain the acceleration and the effects of resultant forces acting on objects.</li> <li>2. Experiment and explain the actionary and reactionary forces between objects, and put the knowledge into paractice.</li> <li>3. Experiment and explain buoyant forces acting on liquid.</li> </ol>	<ol style="list-style-type: none"> <li>1. Experiment and explain the relationship between forces and motion of objects in gravitational fields and put the knowledge into practice.</li> <li>2. Experiment and explain the relationship between forces and motion of particles in electrical fields, and put it into practice.</li> <li>3. Experiment and explain the relationship between forces and motion of particles in magnetic fields, and put it into practice.</li> <li>4. Analyse and explain the nuclear and electrical forces among particles in nuclei.</li> </ol>

**Strand 4: Forces and Motion**

Standard SC4.2: Understanding of the characteristics and various types of motion of natural objects; having investigative process for seeking knowledge and scientific reasoning; transferring and putting the knowledge into practice

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
-	-	-	-	1. Experiment and explain the frictional forces and put it into practice.	-

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
-	-	<ol style="list-style-type: none"> <li>1. Experiment and explain the differences between static, friction and forces, and put it into practice.</li> <li>2. Experiment and explain the moment of forces, and put it into practice.</li> <li>3. Observe and explain the motions of objects in a straight line and in curves.</li> </ol>	<ol style="list-style-type: none"> <li>1. Experiment and explain the relationship between displacement, time, velocity, acceleration of the motions in a straight line.</li> <li>2. Observe and explain the simple projectile, circular and harmonic motions.</li> <li>3. Discuss about the results of investigation and the benefits of simple projectile, circular and harmonic motions.</li> </ol>

**Strand 5: Energy**

Standard SC5.1: Understanding of the relationship between energy and living; the energy transformation; the interrelationship between substances and energy; the effects of energy utilization on life and the environment; having investigative process for seeking knowledge; transferring and putting the knowledge into practice

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
-	<ol style="list-style-type: none"> <li>1. Experiment and explain that electricity is a form of energy.</li> <li>2. Explore and give examples of electric appliances transforming electrical energy into other forms of energy.</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify natural energy sources producing electricity.</li> <li>2. Explain the importance of electrical energy and propose how to consume it safely and economically.</li> </ol>	<ol style="list-style-type: none"> <li>1. Experiment and explain the motion of light from its source.</li> <li>2. Experiment and explain the reflection of light on objects.</li> <li>3. Experiment and classify objects based on visualising from sources of light.</li> <li>4. Experiment and explain the refraction of light passing through two kinds of transparent mediums.</li> <li>5. Experiment and explain the transformation of light into electrical energy, and</li> </ol>	<ol style="list-style-type: none"> <li>1. Experiment and explain the origin and the propagation of sound.</li> <li>2. Experiment and explain the origin of high pitched and low-pitched sound.</li> <li>3. Experiment and explain loud and soft sound.</li> <li>4. Explore and discuss about the detrimental effects on listening to excessively loud sounds.</li> </ol>	<ol style="list-style-type: none"> <li>1. Experiment and explain how to connect a simple electrical circuit.</li> <li>2. Experiment and explain the electrical conductors and the insulators.</li> <li>3. Experiment and explain a series connection of cells, and put it into practice.</li> <li>4. Experiment and explain the connection of bulbs in both series and parallel circuits, and put it into practice.</li> </ol>

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<ol style="list-style-type: none"> <li>1. Experiment and explain the temperature and its measurement.</li> <li>2. Observe and explain the heat transmission, and put it into practice.</li> <li>3. Explain heat adsorption and emission through radiation, and put it into practice.</li> <li>4. Explain the thermal equilibrium and the effects of heat on substance expansion and put it into practice.</li> </ol>	<ol style="list-style-type: none"> <li>1. Experiment and explain the reflection and refraction of light, and put it into practice.</li> <li>2. Explain the effects of brightness on human beings and other living things.</li> <li>3. Experiment and explain the absorption of light, heat, seeing colours of objects, and put it into practice.</li> </ol>	<ol style="list-style-type: none"> <li>1. Explain the kinetic and gravitational potential energy, rules for conservation of energy and the relationship between these quantities, and put it into practice.</li> <li>2. Experiment and explain the relationship between potential difference, electrical current and resistance, and put it into practice.</li> <li>3. Calculate electrical energy of electric appliances, and put it into practice.</li> <li>4. Observe and discuss about correct, safe and economical connection of electrical circuits at home.</li> <li>5. Explain the resistors, diodes and transistors and experiment the connecting basic electronic circuits with transistors.</li> </ol>	<ol style="list-style-type: none"> <li>1. Experiment and explain the qualities of mechanical waves and explain the relationship between speed, frequency and wavelength.</li> <li>2. Explain the origin of sound waves, sound beats, sound intensity, level of sound intensity, hearing of sounds and sound quality, and put it into practice.</li> <li>3. Discuss about the results of searching for data on noise pollution affecting human health and propose ways to prevent from it.</li> <li>4. Explain the electromagnetic waves and their spectrums and present the results of searching for data on benefits and prevention of harm from electromagnetic waves.</li> <li>5. Explain nuclear reaction, fission, fusion and the relationship between man and energy.</li> <li>6. Search for data on energy originating from nuclear reactions and the effects on life and the environment.</li> </ol>

**Strand 5: Energy**

Standard SC5.1: Understanding of the relationship between energy and living; the energy transformation; the interrelationship between substances and energy; the effects of energy utilization on life and the environment; having investigative process for seeking knowledge; transferring and putting the knowledge into practice

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
			put it into practice. 6. Experiment and explain that white light comprises various coloured lights, and put it into practice.		5. Experiment and explain origin of a magnetic field produced when electric current is present in a wire, and put it into practice.



Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
			<p>7. Discuss about the results of nuclear power on plants and put it into practice.</p> <p>8. Explain the kinds and the properties of radiation from radioactive elements.</p> <p>9. Explain the origin of radioactivity and identify methods of checking radiation in the environment, their application, and the effects on living things and the environment.</p>

## Strand 6: Change Processes of the Earth

Standard SC6.1: Understanding of various processes on the earth surface and the interior; the relationship between various processes causing changes in climate, topography and form of the earth; having investigative process for seeking knowledge and scientific reasoning; transferring and putting the knowledge into practice

### Grade-level Indicators

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
1. Explore, experiment and explain the components and the physical properties of soil in the local area.	1. Explore and categorise soil using physical properties as criteria, and put it into practice.	1. Explore and explain the physical properties of water in the local area, and put it into practice. 2. Search for data and discuss about the components of air and the importance of air. 3. Experiment and explain the motion of air resulting from different temperature.	1. Explore and explain the soil formation. 2. Specify kinds and the properties of soil used for growing plants in the local area.	1. Explore, experiment and explain the formation of clouds, mist, dew, rain and hail. 2. Experiment and explain the formation of water cycle. 3. Design and make simple instruments for measuring temperature, humidity and air pressure. 4. Experiment and explain the formation of wind, and put it into practice.	1. Explain and classify rocks using their characteristics and properties as criteria, and put it into practice. 2. Explore and explain the changes of rocks. 3. Search for data and explain geological disasters affecting human beings and the environment in the local area.

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<ol style="list-style-type: none"> <li>1. Search for relevant information and explain the components and the division of atmospheric layers covering the earth surface.</li> <li>2. Experiment and explain the relationship between temperature, humidity and air pressure and climate-affecting phenomena.</li> <li>3. Observe, analyse and discuss about the formation of climate phenomena affecting human beings.</li> <li>4. Search for relevant information, analyse and interpret meanings of weather forecasts data.</li> <li>5. Search for, analyse and explain the effects of climate on living things and the environment.</li> </ol>	<ol style="list-style-type: none"> <li>1. Explore, experiment and explain the soil profile, the soil properties and the soil formation process.</li> <li>2. Explore, analyse and explain the utilization of soil and improvement of soil quality.</li> <li>3. Experiment geological process simulation models to explain the rock formation process and the characteristics of rock components.</li> <li>4. Test and observe the components and the properties of rocks for their classification, and put it into practice.</li> <li>5. Verify and explain the physical characteristics of minerals and put it into practice.</li> </ol>	-	<ol style="list-style-type: none"> <li>1. Search for relevant information and explain principles for dividing the earth structure.</li> <li>2. Experiment geological process simulation models and explain the earth geological change processes.</li> <li>3. Experiment simulation models and explain the processes that form mountains, faults, folds, earthquakes and volcanic eruptions.</li> <li>4. Search for relevant information and explain the importance of geological phenomena, earthquakes and volcanic eruptions affecting living things and the environment.</li> <li>5. Explore, analyse and explain the stratigraphy from rock layer orientation, fossils and geological structures to explain the origin and development of the local area.</li> </ol>

**Strand 6: Change Processes of the Earth**

Standard SC6.1: Understanding of various processes on the earth surface and the interior; the relationship between various processes causing changes in climate, topography and form of the earth; having investigative process for seeking knowledge and scientific reasoning; transferring and putting the knowledge into practice

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<p>6. Search for relevant information, analyse and explain the natural factors and man-mode actions affecting changes of the earth temperature, ozone holes and acid rain.</p> <p>7. Search for relevant information, analyse and explain the effects of global warming, ozone holes and acid rain on living things and the environment.</p>	<p>6. Search for relevant information and explain the formation process, the characteristics and the properties of petroleum, coal and oil shale, and put it into practice.</p> <p>7. Explore and explain the characteristics of natural water sources, utilization and conservation of local water sources.</p> <p>8. Experiment with simulation models and explain the formation process of ground water sources and underground water sources.</p>		<p>6. Search for relevant information, analyse and explain the benefits of geological data.</p>

**Strand 6: Change Processes of the Earth**

Standard SC6.1: Understanding of various processes on the earth surface and the interior; the relationship between various processes causing changes in climate, topography and form of the earth; having investigative process for seeking knowledge and scientific reasoning; transferring and putting the knowledge into practice.

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
	<p>9. Experiment the simulation models and explain the processes of weathering, erosion, sweeping away, piling up and crystallisation and the effects of these processes.</p> <p>10. Search for relevant information, make a model and explain the earth structure and components.</p>		

## Strand 7: Astronomy and Space

Standard SC7.1: Understanding of the evolution of the solar system, galaxies and the universe; the interrelationships within the solar system and their effects on living things on the earth; having investigative process for seeking knowledge and scientific reasoning; transferring and putting the knowledge into practice

### Grade-level Indicators

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
1. Specify that in the sky there are the sun, the moon and stars.	1. Search for and discuss the importance of the sun.	1. Observe and explain the rising and setting of the sun, the moon, causes days and nights and direction setting.	1. Make a model to explain the characteristics of the solar system.	1. Observe and explain the formation of directions (north, east, south, west) and the phenomena of the rising and falling of stars using star chart.	1. Make a model and explain the formation of seasons, waxing and waning of the moon, the solar eclipses and the lunar eclipses, and put it into practice.



Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
-	-	<ol style="list-style-type: none"> <li>1. Search for relevant information and explain the relationships between the sun, earth, the moon and other planets, and the effects on the environment and living things.</li> <li>2. Search for relevant information and explain the components of the universe, galaxies and the solar system.</li> <li>3. Specify position of constellations, and put it into practice.</li> </ol>	<ol style="list-style-type: none"> <li>1. Search for relevant information and explain the formation and the evolution of the solar system, galaxies and the universe.</li> <li>2. Search for relevant information and explain the nature and the evolution of fixed stars.</li> </ol>

### Strand 7: Astronomy and Space

Standard SC7.2: Understanding of the importance of space technology utilised for space exploration and natural resources for agriculture and communication; having investigative process for seeking knowledge and scientific reasoning; transferring and putting the knowledge into practice

#### Grade-level Indicators

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
-	-	-	-	-	1. Search for data and discuss about the progress and the benefits of space technology.

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
-	-	<ol style="list-style-type: none"> <li>1. Search for relevant information and discuss about the process of utilising space technology for exploration of space, objects in the sky, weather conditions, the natural resources for agriculture and communication.</li> </ol>	<ol style="list-style-type: none"> <li>1. Search for relevant information and explain the launching of satellites, and calculate the velocity of satellites revolving around the earth.</li> <li>2. Search for relevant information and explain the benefits of satellites in various respects.</li> <li>3. Search for relevant information and explain the launching of space ships, and space exploration utilising space ships and space stations.</li> </ol>

**Strand 8: Nature of Science and Technology**

Standard SC8.1: Application of the scientific process and scientific reasoning in investigation for seeking knowledge and problem-solving; knowing that most natural phenomena assume definite patterns which are explainable and verifiable within limitations of data and instruments available during particular periods of time; and understanding that science, technology, society and the environment are interrelated

**Grade-level Indicators**

<b>Grade 1</b>	<b>Grade 2</b>	<b>Grade 3</b>	<b>Grade 4</b>	<b>Grade 5</b>	<b>Grade 6</b>
<p>1. Pose questions about the study matters as prescribed or in accord with their interests.</p> <p>2. Plan for observation, exploration, verification, study and research using their own ideas and of their teachers.</p> <p>3. Use materials and instruments to explore and verify and record results using simple methods.</p>	<p>1. Pose questions about the study matters as prescribed or in accord with their interests.</p> <p>2. Plan for observation, exploration, verification, study and research using their own ideas and of their teachers.</p> <p>3. Use suitable materials, instruments and equipment to explore and verify, and record the data.</p>	<p>1. Pose questions about the study matters as prescribed and in accord with their interests.</p> <p>2. Plan for observation, propose methods of exploration, verification, study and research using their own ideas, of groups, and the expectations.</p>	<p>1. Pose questions about the study issues, matters or situations as prescribed and in accord with their interests.</p> <p>2. Plan for observation and propose methods of exploration, verification, study and research, and the expectations.</p>	<p>1. Pose questions about the study issues, matters or situations as prescribed and in accord with their interests.</p> <p>2. Plan for observation and propose methods of exploration, verification, study and research, and the expectations.</p>	<p>1. Pose questions about the study issues, matters or situations as prescribed and in accord with their interests.</p> <p>2. Plan for observation and propose methods for exploration, verification, study and research, and the expectations.</p>

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<ol style="list-style-type: none"> <li>1. Pose questions prescribing the issues or the important variables for exploration and verification or conduct comprehensive and reliable study and research on matters of their interest.</li> <li>2. Make verifiable hypotheses and plan several methods of exploration and verification.</li> <li>3. Select techniques and methods of quantitative and qualitative exploration and verification yielding accurate and safe results using appropriate materials and equipment.</li> </ol>	<ol style="list-style-type: none"> <li>1. Pose questions prescribing the issues or the important variables for exploration and verification or conduct comprehensive and reliable study and research on matters of their interest.</li> <li>2. Make verifiable hypotheses and plan several methods of exploration and verification.</li> <li>3. Select techniques and methods of quantitative and qualitative exploration and verification yielding accurate and safe results using appropriate materials and equipment.</li> </ol>	<ol style="list-style-type: none"> <li>1. Pose questions prescribing the issues or the important variables for exploration and verification and conduct comprehensive and reliable study and research on matters of their interest.</li> <li>2. Make verifiable hypotheses and plan several methods of exploration and verification.</li> <li>3. Select techniques and methods of quantitative and qualitative exploration and verification yielding accurate and safe results using appropriate materials and equipment.</li> </ol>	<ol style="list-style-type: none"> <li>1. Pose questions based on scientific knowledge and understanding or their interests or from current issues for comprehensive and reliable exploration and verification.</li> <li>2. Make hypotheses supported by theories, or the expectations, or make models or formats leading to exploration and verification.</li> <li>3. Search for and collect data requiring consideration of factors or important variables, factors affecting other factors, uncontrollable factors and the number of times to repeat the exploration and verification process to ensure reliable and sufficient data.</li> <li>4. Select materials, techniques, methods and instruments utilised in accurate observation, measurement, exploration and verification in width and in depth for quantitative and qualitative dimensions.</li> </ol>

## Strand 8: Nature of Science and Technology

Standard SC8.1: Application of the scientific process and scientific reasoning in investigation for seeking knowledge and problem-solving; knowing that most natural phenomena assume definite patterns which are explainable and verifiable within limitations of data and instruments available during particular periods of time; and understanding that science, technology, society and the environment are interrelated

### Grade-level Indicators

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
4. Put the data obtained from the exploration and the verification into groups and present the results. 5. Express the opinions of the exploration and the verification. 6. Record and explain results of the exploration and the verification in the form of pictures or short writing. 7. Verbally present their work clearly.	4. Put the data into groups, and compare and present the results. 5. Pose new questions arising from the results of the exploration and the verification. 6. Express the group opinions, and put it into a body of knowledge. 7. Record and clearly explain the results of the exploration and the verification in the form of pictures, diagrams or explanations.	3. Select suitable materials, instruments and equipment to explore and verify, and record the data. 4. Put the data into groups, compare it with the expectations and present the results. 5. Pose new questions arising from the results of exploration and verification. 6. Express the opinions and collect the data from groups leading to knowledge creation.	3. Select accurate and appropriate instruments for exploration and verification. 4. Record the quantitative data, and present the results. 5. Pose new questions for subsequent exploration and verification. 6. Express the opinions and the conclusions about what they learn.	3. Select accurate and appropriate instruments for exploration and verification in order to obtain reliable data. 4. Record the quantitative and qualitative data, verify the results with expectations, and present the results and the conclusions. 5. Pose new questions for subsequent exploration and verification.	3. Select accurate and appropriate instruments and methods for exploration and verification in order to obtain comprehensive and reliable data. 4. Record the quantitative and qualitative data, analyse and verify the results with expectations, and present the results and the conclusions.

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<p>4. Collect the data and process it quantitatively and qualitatively.</p> <p>5. Analyse and evaluate conformity of eye-witnesses with the conclusions both supporting and contradicting the hypotheses and data abnormality from exploration and verification.</p> <p>6. Create models or formats explaining or showing the results of exploration and verification.</p> <p>7. Pose questions leading to exploration and verification of relevant matters, and apply the knowledge gained in new situations or explain the concepts, processes and the results of the project or task clearly.</p>	<p>4. Collect the data and process it quantitatively and qualitatively.</p> <p>5. Analyse and evaluate conformity of eye-witnesses with the conclusions both supporting or contradicting the hypotheses and data abnormality from exploration and verification.</p> <p>6. Create models or formats explaining or showing the results of exploration and verification.</p> <p>7. Pose questions leading to exploration and verification of relevant matters, and apply the knowledge gained in new situations or explain the concepts, the processes and the results of the project or task clearly.</p>	<p>4. Collect the data and process it quantitatively and qualitatively.</p> <p>5. Analyse and evaluate conformity of eye-witnesses with the conclusions both supporting or contradicting the hypotheses and data abnormality from exploration and verification.</p> <p>6. Create models or formats explaining or showing the results of exploration and verification.</p> <p>7. Pose questions leading to exploration and verification of relevant matters, and apply the knowledge gained in new situations or explain the concepts, the processes and the results of the project or task clearly.</p>	<p>5. Collect the data and systematically and accurately record the results of exploration and verification addressing both quantity, and quality by verifying probability, appropriateness or errors in the data.</p> <p>6. Process the data by taking into consideration accurate quantitative reporting of the results, and present the data through appropriate techniques and methods.</p> <p>7. Analyse the data, interpret meanings of data and evaluate the conformity of the conclusions or main substance for verification with the hypotheses.</p> <p>8. Consider reliability of the methods and the results of the exploration and verification based on the principles of error of measurement and observation, and recommend improvement of the exploration and verification methods.</p>

**Strand 8: Nature of Science and Technology**

Standard SC8.1: Application of the scientific process and scientific reasoning in investigation for seeking knowledge and problem-solving; knowing that most natural phenomena assume definite patterns which are explainable and verifiable within limitations of data and instruments available during particular periods of time; and understanding that science, technology, society and the environment are interrelated

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
	8. Verbally present their work clearly.	7. Record and explain the authentic results of the exploration and verification, using diagrams. 8. Present and display work to show the processes and the results of their work clearly.	7. Record and clearly and directly explain the results of the exploration and the verification. 8. Present and display work to explain the processes and the results of their work clearly.	6. Freely express the opinions, the explanations and the conclusions about what they learn. 7. Record and explain the results of the exploration and verification based on real situations and references. 8. Present and display their work to explain the processes and results clearly.	5. Pose new questions for subsequent exploration and verification. 6. Freely express the opinions, provide the explanations, the agreements, and the conclusions about what they learn. 7. Record and explain the results of the exploration and verification based on real situations, with rationality and eye-witnesses for reference.



Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<p>8. Record and explain the results of the additional observation, exploration, verification and research from various sources and accept the changes with the new additional data, eye-witnesses or the contradictory data.</p> <p>9. Display their work, write the reports and/or explain the concepts, processes and results of the project or task clearly.</p>	<p>8. Record and explain the results of the additional observation, exploration, verification and research from various sources and accept the changes with the new additional data, eye-witnesses or the contradictory data.</p> <p>9. Display their work, write the reports and/or explain the concepts, processes and results of the project or task clearly.</p>	<p>8. Record and explain the results of the additional observation, exploration, verification and research from various sources and accept the changes with the new additional data, eye-witnesses or the contradictory data.</p> <p>9. Display their work, write the reports and/or explain the concepts, processes and results of the project or task clearly.</p>	<p>9. Apply the results obtained from the exploration and the verification, in regard to the methodology and the bodies of knowledge, pose new questions, and apply results to problem-solving to new situations and to real life.</p> <p>10. Realise the importance of the need to participate and to be responsible for explanation, agreeing on views and drawing the conclusions about the results of scientific learning presented to the public.</p> <p>11. Record and logically explain the results of the exploration and the verification; use evidence for reference or conduct additional research in order to find reliable evidence, and accept the new knowledge according to new and additional data and eye-witnesses.</p>

**Strand 8: Nature of Science and Technology**

Standard SC8.1: Application of the scientific process and scientific reasoning in investigation for seeking knowledge and problem-solving; knowing that most natural phenomena assume definite patterns which are explainable and verifiable within limitations of data and instruments available during particular periods of time; and understanding that science, technology, society and the environment are interrelated

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
					8. Present and display their work and explain the processes and results clearly.

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
			12. Display their work, write the reports and/or explain the concepts, processes and results of their project or task clearly.

## Social Studies, Religion and Culture

### Why it is necessary to learn social studies, religion and culture

The learning area of social studies, religion and culture enables learners to acquire knowledge and understand the lives of human beings as individuals and coexisting members of a society. The area addresses self-adjustment in accord with exigencies of environmental situations and management of limited resources. Learners acquire the understanding of development and changes in accord with exigencies of various periods, times and factors, leading to understanding of oneself and others. Learners also acquire patience, forbearance and acceptance of differences. They are endowed with morality and the ability to adjust knowledge gained for application in leading their lives as good citizens of the country and desired members of the world community.

### What is learned in social studies, religion and culture

The learning area of social studies, religion and culture focuses on coexistence in societies that are interlinked and that have many differences, enabling the learners to adjust themselves to various environment. They will thus become good, responsible citizens with knowledge, skills, morality and desired values. The main strands prescribed are as follow:

- **Religion, Morality and Ethics:** the fundamental concepts about religion, morality, ethics and the principles of Buddhism or those of learners' religions; the application of religions, the principles and teachings for self-development and peaceful and harmonious coexistence; the ability to do good deeds; acquisition of desired values; continuous self-development as well as provision of services for the community
- **Civics, Culture and Living:** political and administrative systems of the present society; the democratic form of government under a constitutional monarchy; the characteristics and the importance of good citizenship; cultural differences and diversity; values under a constitutional monarchy; rights, duties and freedoms to achieve a peaceful existence in Thai society and the world community

- **Economics:** the production, distribution and consumption of goods and services; management of limited resources available; a balanced lifestyle and the application of the principles of Sufficiency Economy in daily life

- **History:** the historical times and periods; the historical methodology; the development of mankind from the past to the present; the relationships and the changes of various events; the effects of important events in the past; the personalities that influenced various changes in the past; the historical development of the Thai nation; the culture and Thai wisdom; the origins of the important civilizations of the world

- **Geography:** the physical characteristics of the earth; the physical characteristics, resources and climate of Thailand and various other regions of the world; the utilization of maps and geographical instruments; the inter-relationship of various things in the natural system; the relationship between man and the natural environment and man-made objects; the presentation of geo-data and information; the preservation of the environment for sustainable development

## Learners' Quality

### Grade 3 graduates

- Know about themselves and those around them as well as the local environment, the places where they live, can link the experiences to the wider world

- Have skills, and necessary knowledge to develop morality, ethics, behaviour and practices in accord with the principles and teachings of their religions; be good citizens and have a sense of responsibility; live and work with others; participate in the classroom activities, and put decision-making into practice

- Know about themselves, and their families, schools and communities on an integrated basis; understand concepts about the present and the past; have fundamental economic knowledge; have been given ideas about family income and expenses understand the roles of producers and consumers; know basic saving and the methodology of Sufficiency Economy

- Know and understand the basic concepts of religion, morality, ethics, civics, economics, history and geography, so as to provide foundation for nigher understanding

## Grade 6 graduates

- Know about their own provinces, regions and the country regarding history, physical characteristics, societies, traditions and culture as well as politics, administration and economic situations, with emphasis on Thai nationhood
- Understand the religion, morality and ethics; observe the principles and teachings of their religions, as well as exhibit greater participation in the religious rites and ceremonies
- Conduct themselves well in accord with the status, roles, rights and duties as well as exhibit greater participation in their customs, traditions and culture activities
- Compare the information of provinces in Thailand with neighbouring countries; develop the sociological concepts regarding to religions, morality, ethics, civics, economics, history and geography in order to gain experiences and understanding of the eastern and western worlds regarding to religions, morality, ethics, values, beliefs, customs, traditions, culture and way of life; develop the concepts of organisation of social order and social change from the past to the present

## Grade 9 graduates

- Know about world affairs through comparative studies of Thailand and countries in various regions of the world in order to develop the concepts of peaceful coexistence
- Gain essential skills in order to become critical thinkers; develop the concepts and widened experiences in comparing Thailand with other countries i.e., Asia, Australia, Oceania, Africa, Europe, North America and South America, regarding religions, morality, ethics, values, beliefs, customs, traditions, culture, politics, administration, history and geography using historical and sociological methods
- Know and understand the concepts and future events analysing, and put it into practice

## Grade 12 graduates

- Have wider and more profound knowledge about the world affairs
- Be good citizens, morality and ethics; observe the principles of their religions as well as desired values; live happily with others in the society; have potentiality to further their education
- Know about This wisdom, pride in Thai nationalism, the history of the Thai nation; adhere to the way of life and the democratic form of government under a constitutional monarchy
- Have good consumption habits; appropriately choose and decide on consumption; be aware of and participate in preservation of Thai traditions, culture and the environment, love their local areas and the country; be dedicated to providing services and good things for the society
- Have knowledge and capability of managing their own learning; be able to guide themselves and seek knowledge from various learning sources lifelong

## Strand 1: Religion, Morality and Ethics

Standard SO1.1: Knowledge and understanding of the history, the importance, the Masters and the moral principles of Buddhism or those of one's faith and other religions; having the right faith; adherence to and observance of the moral principles for peaceful coexistence

### Grade-level Indicators

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
1. Recount in brief the life of the Buddha or the lives of the Masters of learners' own religions. 2. Appreciate and tell the models of living and the insights from the disciples, lives, the Buddha's previous lives, the tales and exemplary believers as prescribed.	1. Tell the importance of Buddhism or that of learners' own religions. 2. Summarise the life of the Buddha from birth to ordination or the lives of the Masters of learners' own religions as prescribed.	1. Explain the importance of Buddhism or that of learners' own religions as a significant foundation of Thai culture. 2. Summarise the life of the Buddha from the practice of self-mortification to the Great Decease or the lives of the Masters of learners' own religions as prescribed.	1. Explain the importance of Buddhism or that of learners' own religions as the spiritual focal point for believers. 2. Summarise the life of the Buddha from enlightenment to propagation or the lives of the Masters of learners' own religions as prescribed.	1. Analyse the importance of Buddhism or that of learners' own religions as cultural heritage and a pivot for developing the Thai nation. 2. Summarise the life of the Buddha from arrival at the town of Kapilavastu to his important deeds or the lives of the Masters of learners' own religions as prescribed.	1. Analyse the importance of Buddhism as the national religion or the importance of learners' own religions. 2. Summarise the life of the Buddha from the announcement of his coming death to the Four Holy Places of Buddhism or the lives of the Masters of learners' own religions as prescribed.



Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<ol style="list-style-type: none"> <li>1. Explain the dissemination of Buddhism or learners' own religions to Thailand.</li> <li>2. Analyse the importance of Buddhism or learners' own religions for the Thai social environment as well as self-development and family development.</li> <li>3. Analyse the life of the Buddha from birth to the practice of self-mortification or the lives of the Masters of learners' own religions as prescribed.</li> </ol>	<ol style="list-style-type: none"> <li>1. Explain the dissemination of Buddhism or learners' own religions to neighbouring countries.</li> <li>2. Analyse the importance of Buddhism or that of learners' own religions in contributing to mutual understanding with neighbouring countries.</li> <li>3. Analyse the importance of Buddhism or that of learners' own religions as a foundation of culture, national identity and national heritage.</li> </ol>	<ol style="list-style-type: none"> <li>1. Explain the dissemination of Buddhism or learners' own religions to various countries worldwide.</li> <li>2. Analyse the importance of Buddhism or that of learners' own religions in contributing to civilisation and world peace.</li> <li>3. Discuss the importance of Buddhism or that of learners' own religions and the principles of the Sufficiency Economy Philosophy and the sustainable development.</li> </ol>	<ol style="list-style-type: none"> <li>1. Analyse Indian society and religious beliefs before the period of the Buddha or the past societies of the Masters of learners' own religions.</li> <li>2. Analyse the Buddha as a human being with high self-training in enlightenment, founding, teaching methods and dissemination of Buddhism or analyse lives of the Masters of learners' own religions as prescribed.</li> <li>3. Analyse the life of the Buddha regarding religious administration or analyse the lives of the Masters of their religions as prescribed.</li> <li>4. Analyse the practices of the Middle Path in Buddhism or the concepts of learners' own religions as prescribed.</li> <li>5. Analyse the development of proper faith and wisdom in Buddhism or the concepts of learners' own religions as prescribed.</li> </ol>

## Strand 1: Religion, Morality and Ethics

Standard SO1.1: Knowledge and understanding of the history, the importance, the Masters and the moral principles of Buddhism or those of one's faith and other religions; having the right faith; adherence to and observance of the moral principles for peaceful coexistence

### Grade-level Indicators

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
<p>3. Tell the meaning and respect the Triple Gems, observe the principles of the Three Admonitions of the Buddha, or the moral principles of learners' own religions as prescribed.</p> <p>4. Appreciate and pray to extend loving-kindness to all and be conscious or the spiritual development in accord with the guidelines of learners' own religions as prescribed.</p>	<p>3. Appreciate and tell the models of living and the insights from the the disciples' lives, the Buddha's previous lives, the tales and exemplary believers as prescribed.</p> <p>4. Tell the meaning, the importance and respect the Triple Gems and observe the principles of the Three Admonitions in Buddhism, or the moral principles of learners' own religions as prescribed.</p>	<p>3. Appreciate and tell the models of living and the insights from the the disciples' lives the Buddha's previous lives, the tales and exemplary believers.</p> <p>4. Tell the meaning and the importance of the Tipitaka (the three divisions of the Buddhist Canon) or the scriptures of learners' own religions.</p>	<p>3. Appreciate and conduct themselves in accord with the models of living and the insights from the the disciples' live, the Buddha's previous lives, the tales and exemplary believers as prescribed.</p> <p>4. Pay respect to the Triple Gems, observe the principles of the Threefold Learning and the Three Admonitions in Buddhism, or the moral principles of learners' own religions as prescribed.</p>	<p>3. Appreciate and conduct themselves in accord with the models of living and the insights from the the disciples' live, the Buddha's previous lives, the tales and exemplary believers as prescribed.</p> <p>4. Explain the components and the importance of the Tipitaka (the three divisions of the Buddhist Canon) or the scriptures of learners' own religions.</p>	<p>3. Appreciate and conduct themselves in accord with the models of living and the insights from the the disciples' live, the Buddha's previous lives, the tales and exemplary believers as prescribed.</p> <p>4. Analyse the importance and respect the Triple Gems, observe the principles of the Threefold Learning and the Three Admonitions of the Buddha or the principles</p>

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<p>4. Analyse and conduct themselves in accord with the models of living and the insights from the disciples' lives, the Buddha's previous lives, the tales and exemplary believers as prescribed.</p> <p>5. Explain the Buddha's virtues and the important teachings within the framework of the Four Noble Truths or explain the principles of learners' own religions as prescribed; appreciate and apply the teaching for solving their own problems and those of their families.</p>	<p>4. Analyse the importance of Buddhism or that of learners' own religions for community development and for organising social order.</p> <p>5. Analyse the life of the Buddha or the lives of the Masters of learners' own religions as prescribed.</p> <p>6. Analyse and conduct themselves in accord with the models of living and the insights from the disciples' lives, the Buddha's previous lives, the tales and exemplary believers as prescribed.</p>	<p>4. Analyse the life of the Buddha from various poses of Buddha images or analyse the lives of the Masters of learners' own religions as prescribed.</p> <p>5. Analyse and conduct themselves in accord with the models of living and the insights from the disciples' lives, the Buddha's previous lives, the tales and exemplary believers as prescribed.</p> <p>6. Explain the virtues of the Sangha and the important teachings within the framework of the Four Noble Truths or the moral principles of learners' own religions as prescribed.</p>	<p>6. Analyse the democratic characteristics in Buddhism or the democratic concepts in learners' own religions as prescribed.</p> <p>7. Analyse the Buddhist principles and the scientific principles or the concepts of learners' own religions as prescribed.</p> <p>8. Analyse self-training and self-development, self-reliance and determination to attain liberation in Buddhism or similar concepts in the learners' own religions as prescribed.</p> <p>9. Analyse Buddhism as the science of education that emphasises the relationship between the causes and problem-solving methods or similar concepts in learners' own religions as prescribed.</p> <p>10. Analyse Buddhism regarding self-training to avoid heedlessness; aim to achieve the benefits and the personal, social and world peace or the concepts of learners' own religions as prescribed.</p>

## Strand 1: Religion, Morality and Ethics

Standard SO1.1: Knowledge and understanding of the history, the importance, the Masters and the moral principles of Buddhism or those of one's faith and other religions; having the right faith; adherence to and observance of the moral principles for peaceful coexistence

### Grade-level Indicators

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
	5. Appreciate the family members' and other people's good deeds in accord with the religious principles. 6. Appreciate and pray to extend loving-kindness to all, and be conscious or spiritual development in accord with the guidelines of learners' own religions as prescribed.	5. Pay respect to the Triple Gems and observe the principles of the Three Admonitions in Buddhism, or the moral principles of learners' own religions as prescribed. 6. Appreciate and pray to extend loving-kindness to all, and be conscious or spiritual development in accord with the guidelines of learners' own religions as prescribed.	5. Appreciate family members' and other people's good deeds in accord with the religious principles, as well as tell the guidelines for living. 6. Appreciate and pray to extend loving-kindness to all, and be conscious or spiritual development in accord with the guidelines of learners' own religions as prescribed.	5. Pay respect to the Triple Gems and observe the principles of the Threefold Learning and the Three Admonitions in Buddhism, or the moral principles of learners' own religions as prescribed. 6. Appreciate and pray to extend loving-kindness to all, and be conscious or spiritual development in accord with the guidelines of learners' own religions as prescribed.	of learners' own religion as prescribed. 5. Appreciate their countrymen's good deeds in accord with the religious principles and put it into practice. 6. Appreciate and pray to extend loving-kindness to all, train their spirit and acquire wisdom; be conscious or spiritual development in accord with the guidelines of learners' own religions as prescribed.

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<p>6. Appreciate the values of spiritual development for learning and living by adopting the Yonisonamasikara way of thinking, i.e., through the approach of true-false values, benefits-harms and solutions, or spiritual development in accord with the guidelines of learners' own religions.</p> <p>7. Pray to extend loving-kindness to all, train their spirit and acquire wisdom through conscious breathing or in accord with the guidelines of learners' own religions as prescribed.</p>	<p>7. Explain in brief the structure and the areas of the Tipitaka (the three divisions of the Buddhist Canon) or the scriptures of learners' own religions.</p> <p>8. Explain the Buddha's virtues and the important teachings within the framework of the Four Noble Truths, or explain the principles of learners' own religions as prescribed; appreciate and put it into practice.</p>	<p>7. Appreciate and analyse self-conduct in accord with the moral principles of self-development to prepare themselves for work and for family life.</p> <p>8. Appreciate the values of spiritual development for learning and living by adopting the Yonisonamasikara way of thinking, i.e., through the approach of the Four Noble Truths and through investigation for root causes, or the spiritual development in accord with guidelines of learners' own religions.</p>	<p>11. Analyse Buddhism and Sufficiency Economy Philosophy and the national sustainable development or the concepts of learners' own religions as prescribed.</p> <p>12. Analyse the importance of Buddhism regarding the perfect education, politics and peace or the concepts of learners' own religions as prescribed.</p> <p>13. Analyse the principles within the framework of the Four Noble Truths or the principles of the teachings of learners' own religions.</p> <p>14. Analyse the insights and the models of living from the disciples' lives, the Buddha's previous lives, the tales and exemplary believers as prescribed.</p> <p>15. Analyse the values and the importance of settling questions of doctrine and fixing the text of the Tipitaka (the three divisions of the Buddhist Canon) or the scriptures of learners' own religions and dissemination of doctrine.</p>

**Strand 1: Religion, Morality and Ethics**

Standard SO1.1: Knowledge and understanding of the history, the importance, the Masters and the moral principles of Buddhism or those of one's faith and other religions; having the right faith; adherence to and observance of the moral principles for peaceful coexistence

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
	7. Tell the names of the religions, the Masters and the importance of the scriptures of learners' own religions and those of other religions.	7. Tell the names and the importance of, and behave appropriately towards the religious objects, places and people of learners' own religions.	7. Observe the moral principles of learners' own religions for harmonious coexistence in the nation. 8. Explain in brief the lives of the Masters of other religions.	7. Observe the principles of learners' own religions to develop themselves and the environment.	7. Observe the moral principles of learners' own religions to solve problems of the evil paths and addictive substances. 8. Explain in brief the important principles of other religions. 9. Explain the important characteristics of religious rites and ceremonies of other religions and conduct themselves appropriately when participating in such rites and ceremonies.

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<p>8. Analyse and observe the moral principles of learners' own religions based on the principles of Sufficiency Economy, and care for and protect the environment for peaceful coexistence.</p> <p>9. Analyse the reasons using to learn other religions.</p> <p>10. Treat other religion believers appropriately.</p> <p>11. Analyse actions of the exemplary figures in religious relations and present guidelines for their own actions.</p>	<p>9. Appreciate the values of spiritual development for learning and living by adopting the Yonisonamasikara way of thinking, i.e., through the means of stimulating morality and the relationships of spiritual teachings, or spiritual development in accord with the guidelines of learners' own religions.</p> <p>10. Pray to extend loving-kindness to all, train their spirit and acquire wisdom through conscious breathing or in accord with the guidelines of learners' own religions.</p>	<p>9. Pray to extend loving-kindness to all, train their spirit and acquire wisdom through conscious breathing or in accord with the guidelines of learners' own religions.</p> <p>10. Analyse the differences and accept the ways of life of other religion believers.</p>	<p>16. Firmly believe in the effects of doing good deeds and evil; analyse situations and decide to take action or conduct themselves reasonably and appropriately in accord with the moral and ethical principles, and set goals and roles in life for peaceful coexistence and harmonious coexistence in the nation.</p> <p>17. Explain in brief the lives of the Masters of other religions.</p> <p>18. Appreciate and realise the importance of ethical values that determine the different beliefs and behaviours of believers of various religions for eliminating conflicts and for peaceful coexistence in society.</p>

**Strand 1: Religion, Morality and Ethics**

Standard SO1.1: Knowledge and understanding of the history, the importance, the Masters and the moral principles of Buddhism or those of one's faith and other religions; having the right faith; adherence to and observance of the moral principles for peaceful coexistence

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6



Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
	<p>11. Analyse self-conduct in accord with the moral principles of learners' own religions for appropriate behaviour amidst the tide of global change and for peaceful coexistence.</p>		<p>19. Appreciate the values of, firmly believe and show determination for personal improvement through the spiritual and learning development by adopting the Yonisonamasikara way of thinking, or the spiritual development in accord with the guidelines of learners' own religions.</p> <p>20. Pray to extend loving-kindness to all, train their spirit and acquire wisdom in accord with the principles of the foundations of consciousness or the guidelines of their religions.</p> <p>21. Analyse the major moral principles for peaceful coexistence of other religions, persuade, encourage and provide support others to recognise the importance of mutually doing good deeds.</p> <p>22. Propose the guidelines to organise cooperative activities of all religions for problem-solving and social development.</p>

**Strand 1: Religion, Morality and Ethics**

Standard SO1.2: Understanding, awareness and personal conduct of devout believers; and furtherance of Buddhism or one's faith

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
1. Provide services to temples or places of worship of their religions. 2. Profess themselves as Buddhists or believers of their religions. 3. Conduct themselves correctly in religious rites and ceremonies and on important religious days as prescribed.	1. Conduct themselves appropriately and correctly towards the disciples of their religions as prescribed. 2. Conduct themselves correctly in religious rites and ceremonies as prescribed.	1. Conduct themselves appropriately and correctly towards the disciples, places of worship, and religious objects of their religions as prescribed. 2. Appreciate the values of and conduct themselves correctly in religious rites and ceremonies and on important religious days as prescribed. 3. Profess themselves as Buddhists or believers of their religions.	1. Discuss about the importance of and participate in maintaining places of worship of their religions. 2. Have the manners of good believers as prescribed. 3. Conduct themselves correctly in religious rites and ceremonies and on important religious days as prescribed.	1. Organise simple and useful ceremonies of their religions and conduct themselves correctly. 2. Conduct themselves in religious rites and ceremonies and on important religious days as prescribed, and discuss the benefits obtained from participation in these activities. 3. Have the manners of good believers as prescribed.	1. Explain their knowledge of various parts of places of worship and conduct themselves appropriately. 2. Have the manners of good believers as prescribed. 3. Explain the benefits obtained from participation in religious rites and ceremonies and activities on important religious days as prescribed, and conduct themselves correctly. 4. Profess themselves as Buddhists or believers of their religions.

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<ol style="list-style-type: none"> <li>1. Provide services to places of worship of their religions.</li> <li>2. Explain the disciples' behaviour so as to serve as a model for personal conduct, and treat the disciples of their religions appropriately.</li> <li>3. Treat other people appropriately in accord with the principles of their religions as prescribed.</li> <li>4. Organise religious ceremonies and conduct themselves correctly in religious rites and ceremonies.</li> <li>5. Explain the history and the importance of the religious days as prescribed, and conduct themselves correctly.</li> </ol>	<ol style="list-style-type: none"> <li>1. Treat other people appropriately in accord with the principles of their religions as prescribed.</li> <li>2. Have the manners of good believers as prescribed.</li> <li>3. Analyse the values of religious rites and conduct themselves correctly.</li> <li>4. Explain the teachings related to important religious days and conduct themselves correctly.</li> <li>5. Explain the differences of religious rites and ceremonies in accord with the practices of other religions with a view to attaining mutual acceptance and understanding.</li> </ol>	<ol style="list-style-type: none"> <li>1. Analyse the disciples' duties and roles and treat the disciples correctly as prescribed.</li> <li>2. Treat other people appropriately in accord with the religious principles as prescribed.</li> <li>3. Do the duties of good believers.</li> <li>4. Conduct themselves correctly in religious rites and ceremonies.</li> <li>5. Explain the history of important religious days as prescribed, and conduct themselves correctly.</li> <li>6. Profess themselves as Buddhists or believers of their religions.</li> <li>7. Present the guidelines to the uphold their religions.</li> </ol>	<ol style="list-style-type: none"> <li>1. Treat the disciples, family members and those around them appropriately.</li> <li>2. Conduct themselves correctly in religious rites and ceremonies in accord with the principles of their religions.</li> <li>3. Profess themselves as Buddhists or believers of their religions.</li> <li>4. Analyse the moral principles and doctrines related to the important days and the festivals of their religions, and conduct themselves correctly.</li> <li>5. Organise the seminars and propose the guidelines to uphold their religions resulting the development of themselves, of the nation and of the world.</li> </ol>

## Strand 2: Civics, Culture and Living in Society

Standard SO2.1: Understanding and personal conduct in accord with the duties and the responsibilities of good citizens; observance and preservation of Thai tradition and culture; and enjoying peaceful coexistence in Thai society and the world community

### Grade-level Indicators

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
<ol style="list-style-type: none"> <li>1. Specify the advantages and be a good member of the family and the school.</li> <li>2. Cite examples of their own goodness and that of others and tell the effects of those goodnesses.</li> </ol>	<ol style="list-style-type: none"> <li>1. Observe the agreements, rules, regulations, orders and duties required in daily life.</li> <li>2. Observe Thai manners.</li> <li>3. Show behaviour of accepting different ideas, beliefs and practices without prejudice.</li> <li>4. Respect their own rights and those of others.</li> </ol>	<ol style="list-style-type: none"> <li>1. Summarise the benefits of and observe family and local traditions and culture.</li> <li>2. Tell their own way of life and that of others in diversified cultures.</li> <li>3. Explain the significance of the important official holidays.</li> <li>4. Cite examples of people whose achievements are beneficial to their communities.</li> </ol>	<ol style="list-style-type: none"> <li>1. Be good citizens and community members.</li> <li>2. Be good leaders and good followers.</li> <li>3. Analyse the children's fundamental rights provided by law.</li> <li>4. Explain the cultural differences of various groups of local people.</li> <li>5. Propose methods of peaceful coexistence in daily life.</li> </ol>	<ol style="list-style-type: none"> <li>1. Cite examples and conduct themselves in accord with the status, roles, rights, freedoms and duties of good citizens.</li> <li>2. Propose methods of protecting themselves and others from the violation of children rights.</li> <li>3. Appreciate the values of Thai culture that affect the way of life in Thai society.</li> </ol>	<ol style="list-style-type: none"> <li>1. Abide by the laws relating to the daily life of their families and communities.</li> <li>2. Analyse the cultural changes over time and preserve the fine culture.</li> <li>3. Show Thai manners appropriately.</li> <li>4. Explain the different cultural values of various groups of people in Thai society.</li> </ol>

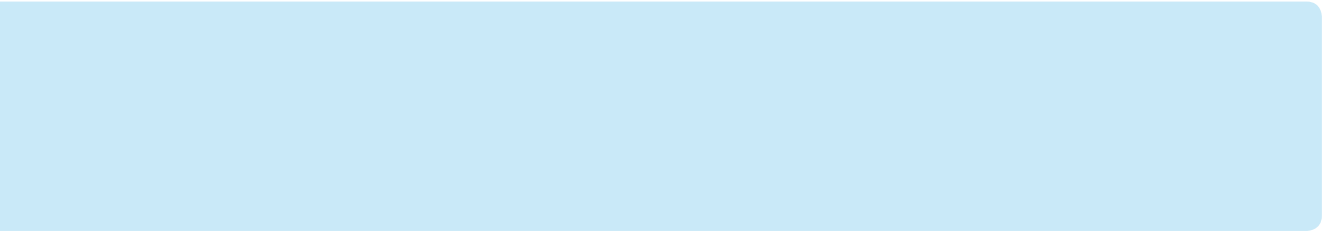
Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<ol style="list-style-type: none"> <li>1. Abide by the laws in protecting personal rights.</li> <li>2. Specify their own capacity of providing services to the society and the nation.</li> <li>3. Discuss about the cultural values which either are the factors of gaining good relationship or may lead to mutual misunderstanding.</li> <li>4. Show respect their own rights and freedoms and those of others.</li> </ol>	<ol style="list-style-type: none"> <li>1. Explain and abide by the laws relating to themselves, their families, communities and the country.</li> <li>2. Appreciate the values of self-conduct in accord with the status, roles, duties, freedoms and duties of good citizens along the democratic path.</li> <li>3. Analyse the roles, the importance and the relationships of social institutions.</li> <li>4. Explain the similarities and the differences between Thai culture and those of other countries in the Asian region in order to gain creating mutual understanding.</li> </ol>	<ol style="list-style-type: none"> <li>1. Explain the differences of committing misdeeds in criminal and civil cases.</li> <li>2. Participate in protecting others in accord with the principles of human rights.</li> <li>3. Preserve Thai culture and choose to absorb appropriate universal culture.</li> <li>4. Analyse the factors of conflicts in the country, and propose ideas to mitigate the conflicts.</li> <li>5. Propose the concepts of living happily in the country and in the world community.</li> </ol>	<ol style="list-style-type: none"> <li>1. Analyse and abide by the laws relating to themselves, their families, communities, the nation and the world community.</li> <li>2. Analyse the importance of social structure, social refinement and social changes.</li> <li>3. Conduct themselves and participate in encouraging others to conduct themselves so as to be good citizens of the nation and the world community.</li> <li>4. Evaluate the human rights situations in Thailand and propose the developmental guidelines.</li> <li>5. Analyse the necessity to improve, change and preserve Thai culture and choose to absorb universal culture.</li> </ol>

**Strand 2: Civics, Culture and Living in Society**

Standard SO2.1: Understanding and personal conduct in accord with the duties and the responsibilities of good citizens; observance and preservation of Thai tradition and culture; and enjoying peaceful coexistence in Thai society and the world community

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
				4. Participate in the preservation and dissemination of the local wisdom of their communities.	5. Follow various, information and events in daily life, and choose to receive and utilise the information appropriately.



Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12

**Strand 2: Civics, Culture and Living in Society**

Standard SO2.2: Understanding of the political and administrative systems of the present society; adherence to, faith in, and upholding of the democratic form of government under a constitutional monarchy

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
<ol style="list-style-type: none"> <li>1. Tell the structure, roles and duties of the family and the school members.</li> <li>2. Specify their own roles, rights and duties in the family and in the school.</li> <li>3. Participate in decision-making and take part in the family and the school activities through democratic processes.</li> </ol>	<ol style="list-style-type: none"> <li>1. Explain the relationship between themselves and the family members as part of the community.</li> <li>2. Specify those with the authority in decision-making in school and in community.</li> </ol>	<ol style="list-style-type: none"> <li>1. Specify the roles and duties of community members in participating in various activities through democratic processes.</li> <li>2. Analyse the differences of decision-making processes in class, school and community by means of direct voting and by electing representatives to vote.</li> <li>3. Cite examples of changes in classroom, school and community resulting from individual and group decisions.</li> </ol>	<ol style="list-style-type: none"> <li>1. Explain the sovereign power and the importance of the democratic system.</li> <li>2. Explain the people's roles and duties in the election process.</li> <li>3. Explain the importance of the monarchy in the democratic form of government under a constitutional monarchy.</li> </ol>	<ol style="list-style-type: none"> <li>1. Explain the structure, power, duties and importance of local administration.</li> <li>2. Specify the roles, duties and methods of assuming posts in local administrations.</li> <li>3. Analyse the community benefits received from the local administration organizations.</li> </ol>	<ol style="list-style-type: none"> <li>1. Compare the roles and duties of the local administrations and those of the central government.</li> <li>2. Participate in the democracy activities in local areas and in the country.</li> <li>3. Discuss about the roles and the importance of exercising electoral rights in the democratic system.</li> </ol>



Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<ol style="list-style-type: none"> <li>1. Explain in brief the principles, intents, structure and important substance of the current Constitution of the Kingdom of Thailand.</li> <li>2. Explain the roles of balancing sovereign powers in the current Constitution of the Kingdom of Thailand.</li> <li>3. Observe the provisions of the current Constitution of the Kingdom of Thailand concerning themselves.</li> </ol>	<ol style="list-style-type: none"> <li>1. Explain the legislative process.</li> <li>2. Analyse the political and administrative information affecting the present Thai society.</li> </ol>	<ol style="list-style-type: none"> <li>1. Explain various forms of government adopted at present time.</li> <li>2. Make a comparative analysis of Thailand's form of government and those of other countries with democratic systems of government.</li> <li>3. Analyse various provisions of the current Constitution relating to elections, participation and checking application of state power.</li> <li>4. Analyse problematic issues that hamper democratic development of Thailand and propose remedial guidelines.</li> </ol>	<ol style="list-style-type: none"> <li>1. Analyse the important political issues of various countries from various sources of information as well as propose remedial guidelines.</li> <li>2. Propose political and administrative guidelines leading to creating understanding and mutual benefits among countries.</li> <li>3. Analyse the importance and necessity to uphold the democratic form of government under a constitutional monarchy.</li> <li>4. Propose the guidelines and participate in checking application of state power.</li> </ol>

**Strand 3: Economics**

Standard SO3.1: Understanding and ability of managing resources for production and consumption; efficient and cost-effective utilization of limited resources available; and understanding the principles of Sufficiency Economy for leading a balanced life

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
1. Specify goods and services utilised in daily life. 2. Cite examples of daily economical expenses and appreciate the benefits of saving. 3. Cite examples of economical consumption resources in daily life.	1. Specify the resources utilised for producing goods and services in daily life. 2. Tell their own income and expenses sources and those of their families. 3. Keep records of their own income and expenses. 4. Specify the advantages of appropriate expenses to the income and those of saving.	1. Distinguish between desire and necessity in utilising goods and services. 2. Analyse their own expenses. 3. Explain the limited resources available affecting goods production, goods consumption and services.	1. Specify the factors affecting choices in buying goods and services. 2. Tell the consumers' fundamental rights and protect their own benefits as consumers. 3. Explain the principles of Sufficiency Economy and apply them in their own daily lives.	1. Explain the factors of producing goods and services. 2. Apply the concepts of the Sufficiency Economy Philosophy in organising various activities in the family, the school and the community. 3. Explain the main principles and the advantages of a cooperative.	1. Explain the roles of responsible producers. 2. Explain the roles of sharp consumers. 3. Tell the methods and benefits of sustainable utilization of resources.

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<ol style="list-style-type: none"> <li>1. Explain the meaning and the importance of economics.</li> <li>2. Analyse the values and the consuming behaviour of people in society affecting the economies of communities and the country.</li> <li>3. Explain the historical development, the principles and the importance of the Sufficiency Economy Philosophy for Thai society.</li> </ol>	<ol style="list-style-type: none"> <li>1. Analyse the factors affecting the investment and the saving.</li> <li>2. Explain the factors of goods production and services and the influencing factors of goods production and services.</li> <li>3. Propose the guidelines to develop local production along the lines of the Sufficiency Economy.</li> <li>4. Discuss about the guidelines to protect their own rights as consumers.</li> </ol>	<ol style="list-style-type: none"> <li>1. Explain the price mechanism in the economic system.</li> <li>2. Participate in problem-solving and in local development along the lines of Sufficiency Economy.</li> <li>3. Analyse the relationship between the concepts of Sufficiency Economy and those of the cooperative system.</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss about fixing of prices and wages in the economic system.</li> <li>2. Realise the importance of the Sufficiency Economy Philosophy to the socio-economic system of the country.</li> <li>3. Realise the importance of the cooperative system to economic development at community and national levels.</li> <li>4. Analyse economic problems of the community and propose the remedial guidelines.</li> </ol>

**Strand 3: Economics**

Standard SO3.2: Understanding of various economic systems and institutions; the economic relations; and the necessity for economic cooperation in the world community

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
1. Explain the reasons and the necessity to work legally.	1. Explain various ways of exchanging goods and services. 2. Tell the relationship between buyers and sellers.	1. Identify the goods and services procured by the state for people. 2. Identify the importance of taxes and the people's roles in paying taxes. 3. Explain the reasons in trade competition resulting the reduction of goods prices.	1. Explain the economic relationships of people in the community. 2. Explain the basic functions of money.	1. Explain the basic roles and the functions of banks. 2. Identify the advantages and the disadvantages of taking out loans.	1. Explain the relationships between the producers, the consumers, the banks and the government. 2. Cite examples of economic grouping in the local area.

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<ol style="list-style-type: none"> <li>1. Analyse the roles, the functions and the differences of types of financial institutions and the central bank.</li> <li>2. Cite examples of economic dependence and the competition in the country.</li> <li>3. Specify the factors influencing determination of demand and supply.</li> <li>4. Discuss about the effects of intellectual property laws.</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss about various economic systems.</li> <li>2. Cite examples of the economic dependence and the competition in the Asian region.</li> <li>3. Analyse the distribution of resources in the world affecting the international economic relations.</li> <li>4. Analyse the internal and the external trade competition affecting the production quality, and quantity and the prices of goods.</li> </ol>	<ol style="list-style-type: none"> <li>1. Explain the government's roles and functions in the economic system.</li> <li>2. Express the opinions about the government's economic policies and activities affecting individuals, groups of people and the nation.</li> <li>3. Discuss about the roles and the importance of international economic groupings.</li> <li>4. Discuss the effects of inflation and the liquidity shortage.</li> <li>5. Analyse the disadvantages of unemployment and the guidelines to solve unemployment problems.</li> <li>6. Analyse the causes and methods of international trade discrimination.</li> </ol>	<ol style="list-style-type: none"> <li>1. Explain the government's roles concerning financial and local policies in the national economic development.</li> <li>2. Analyse the effects of economic liberalisation affecting Thai society.</li> <li>3. Analyse the advantages and the disadvantages of the international economic cooperation in various forms.</li> </ol>

**Strand 4: History**

Standard SO4.1: Understanding of the meaning and the significance of historical times and periods; and ability to use historical methodology for systematic analysis of various events

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
<ol style="list-style-type: none"> <li>1. Tell the days, months, year and the counting of time period, based on the calendar used in daily life.</li> <li>2. Make a sequence of the events in daily life, based on the day and time of the events.</li> <li>3. Tell their own origins and those of their families by asking those concerned.</li> </ol>	<ol style="list-style-type: none"> <li>1. Use specific terms for the times of events in the past, present and future.</li> <li>2. Make sequences of the events in their families or in their own lives using relevant evidence.</li> </ol>	<ol style="list-style-type: none"> <li>1. Compare the important eras, based on the calendar used in daily life.</li> <li>2. Make sequences of the important events in school and in community using relevant evidence and data sources.</li> </ol>	<ol style="list-style-type: none"> <li>1. Count the time period by decade, century and millennium.</li> <li>2. Explain the ages in studying the brief history of mankind.</li> <li>3. Categorise the evidence used in studying historical development of the local area.</li> </ol>	<ol style="list-style-type: none"> <li>1. Investigate historical development of the local area using a variety of evidence.</li> <li>2. Collect data from various sources in order to reasonably answer the historical questions.</li> <li>3. Explain the differences between truths and facts concerning the history of the local area.</li> </ol>	<ol style="list-style-type: none"> <li>1. Explain the importance of historical methodology in making a simple study of historical events.</li> <li>2. Present data from a variety of evidence in order to understand events of the past.</li> </ol>

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<ol style="list-style-type: none"> <li>1. Analyse the importance of time in studying history.</li> <li>2. Compare the eras used in the various systems for studying history.</li> <li>3. Apply the historical methodology to study historical events.</li> </ol>	<ol style="list-style-type: none"> <li>1. Evaluate the reliability of historical evidence in various forms.</li> <li>2. Analyse the differences between truths and facts of historical events.</li> <li>3. Recognise the importance of interpreting the reliable historical evidence.</li> </ol>	<ol style="list-style-type: none"> <li>1. Reasonably analyse the historical matters and the important events using historical methodology.</li> <li>2. Apply historical methodology to study various matters of their interests.</li> </ol>	<ol style="list-style-type: none"> <li>1. Be aware of the importance of the historical times and the periods indicating the changes in the development of mankind.</li> <li>2. Create new bodies of historical knowledge through the systematic application of historical methodology.</li> </ol>

**Strand 4: History**

Standard SO4.2: Understanding of the development of mankind from the past to the present; realising the importance of the relationships and the continuous changes of events, and ability to analyse their effects

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
1. Tell the changes in environmental conditions, objects, utensils and lifestyles between their own time and the times of their parents and grandparents. 2. Tell the events of the past affecting themselves at present.	1. Search for the changes in the ways of daily life of their community members from the past to the present. 2. Explain the effects of the changes on the community members' ways of life.	1. Specify the factors influencing the settling and development of the community. 2. Summarise the important characteristics of the customs, traditions and culture of the community. 3. Compare the cultural similarities and differences of their own community and other communities.	1. Explain in brief the settling and the development of human beings in the pre-historic and historic ages. 2. Cite examples of the historical evidence found in the local area that show mankind development.	1. Explain in brief the influence of Indian and Chinese civilisations on Thailand and on Southeast Asia. 2. Discuss in brief the influence of foreign cultures on the present Thai society.	1. Explain the present social, economic and political situations of Thailand and neighbouring countries. 2. Tell in brief the relationship of the ASEAN Group.



Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<ol style="list-style-type: none"> <li>1. Explain the social, economic and political development of the countries in the Southeast Asian region.</li> <li>2. Specify the importance of the origins of the civilisations in the Southeast Asian region.</li> </ol>	<ol style="list-style-type: none"> <li>1. Explain the social, economic and political development of the Asian region.</li> <li>2. Specify the importance of the origins of the ancient civilisations in the Asian region.</li> </ol>	<ol style="list-style-type: none"> <li>1. Explain in brief the social, economic and political development of the various regions of the world.</li> <li>2. Analyse the effects of change leading to cooperation and conflicts in the 20<sup>th</sup> century as well as the attempts to solve these problems.</li> </ol>	<ol style="list-style-type: none"> <li>1. Analyse the importance of the ancient civilisations and the communication between the Eastern and Western worlds affecting the development and the changes in the world.</li> <li>2. Analyse various important events affecting social, economic and political changes leading to the present world.</li> <li>3. Analyse the effects of expansion of influence of European countries to the continents of America, Africa and Asia.</li> <li>4. Analyse the 21<sup>st</sup> century world situation.</li> </ol>

**Strand 4: History**

Standard SO4.3: Knowledge of the historical development of Thailand as a nation; culture; Thai wisdom; cherishing, pride in and preservation of Thai nationalism

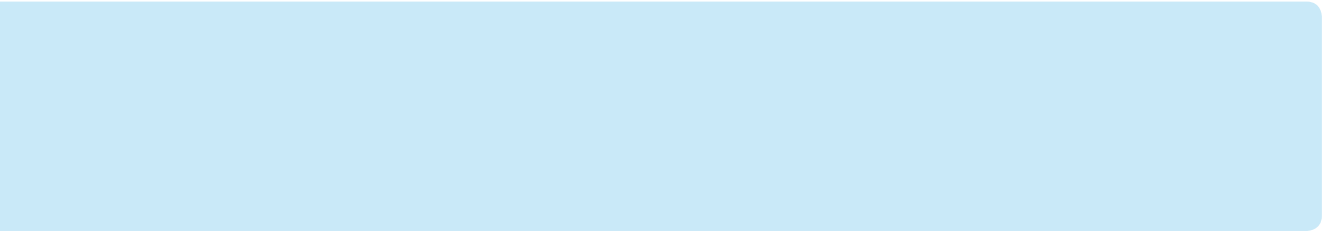
**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
1. Explain the meaning and the significance of the important symbols of Thai nation and conduct themselves well. 2. Tell the important cultural places in the community. 3. Specify what in the local area they cherish and be proud of.	1. Specify the benefactors of the local area or the nation. 2. Cite examples of culture, tradition and Thai wisdom that should be preserved.	1. Specify the names and brief the achievements of the Thai kings who founded the Kingdom of Thailand. 2. Explain in brief the life and the achievements of the current king. 3. Relate heroic deeds of the Thai ancestors who participated in defending the nation.	1. Explain in brief the development of the Sukhothai kingdom. 2. Tell the lives and the achievements of the important people of the Sukhothai period. 3. Explain important Thai wisdom of the Sukhothai period that should be preserved.	1. Explain in brief the development of the Ayutthaya and Thonburi kingdoms. 2. Explain the factors contributing to economic prosperity and the administrative achievements of the Ayutthaya kingdom. 3. Tell the lives and the achievements of the important people of the Ayutthaya and the Thonburi periods.	1. Explain in brief Thailand's development during the Rattanakosin period. 2. Explain the factors contributing to Thailand's economic prosperity and the administrative achievements during the Rattanakosin period. 3. Cite examples of achievements of the important people in various respects during the Rattanakosin period.

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<ol style="list-style-type: none"> <li>1. Explain in brief the historical development of the Thai territory during the pre-Sukhothai period.</li> <li>2. Analyse various aspects of development of the Sukhothai kingdom.</li> <li>3. Analyse the influence of culture and Thai wisdom of the Sukhothai period and of the present Thai society.</li> </ol>	<ol style="list-style-type: none"> <li>1. Explain various aspects of development of the Ayutthaya and the Thonburi kingdoms.</li> <li>2. Analyse the factors contributing to security and prosperity of the Ayutthaya kingdom.</li> <li>3. Specify Thai wisdom and culture of the Ayutthaya and the Thonburi periods and the influence of such wisdom on the development of the Thai nation in the subsequent period.</li> </ol>	<ol style="list-style-type: none"> <li>1. Analyse various aspects of Thailand's development during the Rattanakosin period.</li> <li>2. Analyse the factors contributing to Thailand security and prosperity during the Rattanakosin period.</li> <li>3. Analyse Thai wisdom and culture of the Rattanakosin period and their influence on the development of the Thai nation.</li> <li>4. Analyse the roles of Thailand in the period of democracy.</li> </ol>	<ol style="list-style-type: none"> <li>1. Analyse the important issues of Thai history.</li> <li>2. Analyse the importance of the monarchy to the Thai nation.</li> <li>3. Analyse the factors conducive to creation of Thai wisdom and Thai culture that affect the present Thai society.</li> <li>4. Analyse the achievements of the important people, both Thai and foreign, who have contributed to creating Thai culture and Thai history.</li> <li>5. Plan, set guidelines and participate in preservation of Thai wisdom and Thai culture.</li> </ol>

Standard SO4.3: Knowledge of the historical development of Thailand as a nation; culture; Thai wisdom; cherishing, pride in and preservation of Thai nationalism

Grade-level Indicators					
Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
				4. Explain the important Thai wisdom of the Ayutthaya and the Thonburi periods that should be preserved.	4. Explain the importance of Thai wisdom of the Rattanakosin period that should be preserved.



Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12

## Strand 5: Geography

Standard SO5.1: Understanding of the physical characteristics of the earth and the inter-relationship of various things in the natural system which affect one another; the utilization of maps and geographical instruments for searching, analysing, drawing conclusions and efficient utilization of geo-data and information

### Grade-level Indicators

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
<ol style="list-style-type: none"> <li>1. Differentiate various things in the surroundings, both natural and man-made.</li> <li>2. Specify the relationships of position, distance and direction of various things in the surroundings.</li> <li>3. Specify the main directions and positions of various things.</li> <li>4. Use simple diagrams to show positions of various things in the classroom.</li> <li>5. Observe and tell the changes of weather in a day.</li> </ol>	<ol style="list-style-type: none"> <li>1. Specify various natural and man-made things seen at home and at school.</li> <li>2. Specify the simple positions and the physical characteristics of various things on the globe, maps, diagrams and photographs.</li> <li>3. Explain the relationships of phenomena between the earth, the sun and the moon.</li> </ol>	<ol style="list-style-type: none"> <li>1. Use maps, diagrams and photographs in efficiently searching for geo-data in the community.</li> <li>2. Draw simple diagrams to show locations of the important places in school and in community areas.</li> <li>3. Tell the relationships of the physical and the social characteristics of the community.</li> </ol>	<ol style="list-style-type: none"> <li>1. Use maps and photographs; specify the important physical characteristics of their own province.</li> <li>2. Specify sources of resources and various things in their own province using maps.</li> <li>3. Use maps to explain the relationships of various things in the province.</li> </ol>	<ol style="list-style-type: none"> <li>1. Know the positions (geographical specifications, latitude, longitude), distance and direction of their own region.</li> <li>2. Specify the important marks and the geographical characteristics of their own region on a map.</li> <li>3. Explain the relationships of the physical and the social characteristics of their own region.</li> </ol>	<ol style="list-style-type: none"> <li>1. Use geographical instruments (various kinds of maps, photographs) to specify the important physical and social characteristics of the country.</li> <li>2. Explain the relationships between the physical characteristics and the natural phenomena of the country.</li> </ol>

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<ol style="list-style-type: none"> <li>1. Select geographical instruments (globe, maps, graphs, charts) in searching for data to analyse the physical and the social characteristics of Thailand, Asia, Australia and Oceania.</li> <li>2. Explain the international date line and compare the days and the times of Thailand with those of other continents.</li> <li>3. Analyse the causes of the natural disasters and link the guidelines for preventing the natural disasters and the disaster warning in Thailand, Asia, Australia and Oceania.</li> </ol>	<ol style="list-style-type: none"> <li>1. Use geographical instruments to collect, analyse and present data on the physical and social characteristics of Europe and Africa.</li> <li>2. Analyse the relationships between the physical and social characteristics of Europe and Africa.</li> </ol>	<ol style="list-style-type: none"> <li>1. Use geographical instruments to collect, analyse and present the physical and social characteristics of North and South America.</li> <li>2. Analyse the relationships between the physical and social characteristics of North and South America.</li> </ol>	<ol style="list-style-type: none"> <li>1. Use geographical instruments to collect, analyse and efficiently present geo-data and information.</li> <li>2. Analyse the influence of geographical conditions causing the physical problems or natural disasters in Thailand and other regions of the world.</li> <li>3. Analyse the changes in the area influenced by the geographical factors in Thailand and in various continents.</li> <li>4. Analyse whether the natural changes in the world result from human or natural actions.</li> </ol>

**Strand 5: Geography**

Standard SO5.2: Understanding of the interrelationship between man and the physical environment leading to cultural creativity; the awareness of and the participation in conservation of resources and the environment for sustainable development

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
1. Tell various things of natural origin affecting human life. 2. Observe and compare the environmental changes in the surroundings. 3. Participate in organising environmental order of their house and classroom.	1. Explain the importance and the value of natural and social environments. 2. Distinguish and cost-effectively use the depleting and the non-depleting natural resources. 3. Explain the relationship of seasons and human life. 4. Participate in rehabilitating and improving the environment of school and of the community.	1. Compare the environmental changes in the community from the past to the present. 2. Explain the dependence on the environment and the natural resources in meeting the basic needs and livelihood of human beings. 3. Explain about pollution caused by man. 4. Explain the differences between urban and rural areas. 5. Be aware of the environmental changes in the community.	1. Explain the physical environment of the community affecting the people in the province. 2. Explain the environmental changes in the province and the results of such changes. 3. Participate in conservation of the environment in the province.	1. Analyse the physical environment influencing the characteristics of the settling and the migration of people in the region. 2. Explain the influence of natural environment leading to lifestyles and cultural creativity in the region. 3. Present examples reflecting the results of conservation and destruction of the environment, and propose the concepts for environment conservation in the region.	1. Analyse the relationship between the natural and the social environments in the country. 2. Explain the natural transformation in Thailand from the past to the present and the results of such changes. 3. Plan to use utilising the natural resources in the community.



Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<ol style="list-style-type: none"> <li>1. Explain the effects of natural changes in Asia, Australia and Oceania.</li> <li>2. Analyse the cooperation between various countries affecting natural resources in Asia, Australia and Oceania.</li> <li>3. Explore and explain the locations of economic and social activities in Asia, Australia and Oceania using a variety of data sources.</li> <li>4. Analyse the physical and the social factors affecting the flow of thoughts, technologies, goods and populations in Asia, Australia and Oceania.</li> </ol>	<ol style="list-style-type: none"> <li>1. Analyse the formation of the new social environment resulting from the natural and the social changes of Europe and Africa.</li> <li>2. Specify the guidelines for conservation of the natural resources and the environment in Europe and Africa.</li> <li>3. Explore and discuss about the environmental issues and problems in North and South America.</li> <li>4. Analyse the causes and the effects on Thailand from the environmental changes in Europe and Africa.</li> </ol>	<ol style="list-style-type: none"> <li>1. Analyse the formation of the new social environment resulting from the natural and the social changes of North and South America.</li> <li>2. Specify the guidelines for conservation of the natural resources and the environment in North and South America.</li> <li>3. Explore and discuss about the environmental issues and the problems in North and South America.</li> <li>4. Analyse the causes and the continuing effects of the environmental changes in North and South America on Thailand.</li> </ol>	<ol style="list-style-type: none"> <li>1. Analyse the situations and the crisis relating to the natural resources and the environment of Thailand and of the world.</li> <li>2. Specify preventive and problem-solving measures, roles of organisations and coordinating internal and external cooperation relating to laws on environment and management of natural resources and environment.</li> <li>3. Specify the guidelines for conservation of the natural resources and the environment in various regions of the world.</li> <li>4. Explain the utilization of the environment for cultural creativity representing local identities both in Thailand and around the world.</li> <li>5. Participate in problem-solving and leading lives along the line of conservation of the resources and the environment for sustainable development.</li> </ol>

## Health and Physical Education

### Why it is necessary to learn health and physical education

Health or state of health means the human condition with full development in all respects - physical, mental, social and intellectual or spiritual. Health or state of health is therefore important, as it is linked to all dimensions of life. All should learn about health for acquisition of knowledge, accurate understanding with proper attitude, morality and appropriate values, as well as practical skills in health for acquiring hygienic habits, resulting in the achievement of a society of quality.

### What is learned in health and physical education

Health and physical education is to study about health with the aims of maintaining and strengthening health and sustainable development of quality of life of individuals, families and communities.

**Health Education** places emphasis on enabling learners to concurrently develop behaviours regarding knowledge, attitude, morality, values and health practices.

**Physical Education** places emphasis on enabling learners to participate in kinesthetic activities, physical exercises, playing games and sports. It serves as an instrument in holistic development in all respects - physical, mental, emotional, social and intellectual, as well as imparting capacities for health and sports.

The learning area of health and physical education includes the following bodies of knowledge:

- **Human Growth and Development:** the nature of human growth and development; the factors affecting growth; the relationships and the linkages in the functioning of various body systems as well as self-conduct for attaining growth and development in accord with learners' age

- **Life and Family:** the learners' values and those of their families; self-adjustment to the changes in various respects - physical, mental, emotional, sexual; creating and maintaining the relationships with others; the sexual hygiene practices and life skills

- **Movement, Doing Physical Exercises, Playing Games, Thai and International Sports:** various forms of movement; the participation in a variety of physical activities and sports, both as individuals and in teams, and both Thai and international sports; the observance of rules, regulations, orders, agreements for participation in physical activities and sports, and having sporting spirit

- **Strengthening of Health, Capacity and Disease Prevention:** the principles and the methods of selecting food, the health products and services; the capacity-strengthening for health and the prevention of communicable and non-communicable diseases

- **Safety in Life:** self-protection from various risk behaviours, i.e., health risks, accidents, violence, harm from medicines and addictive substances as well as the guidelines for promoting safety in life

## Learners' Quality

### Grade 3 graduates

- Have knowledge and understanding of human growth and development, the factors affecting growth and development, the methods of establishing the relationships in family and in groups of friends
- Have good health habits in eating, rest and sleep, cleanliness of all parts of the body, playing games and doing physical exercises
- Protect themselves from addictive substances, sexual harassment and know how to refuse improper affairs
- Be able to control their own movements in accord with development of each age range; be skilful in basic movements and participate in physical activities; engage in games and activities for physical capacity-strengthening for health with enjoyment and safety
- Be skilful in selecting food, toys, utensils beneficial to health; be able to avoid and protect themselves from accidents
- Be able to conduct themselves properly when face with emotional and health problems
- Follow rules, orders, agreements, advice and steps, and willingly cooperate with others until achieving the goal
- Observe their own rights and respect those of others in the team

## Grade 6 graduates

- Understand the relationships and the linkages in the functioning of various systems of the body and know how to take care of important parts of such systems
- Understand the nature of changes in various respects - physical, mental, emotional, social, and sexual urge of men and women; when entering the age of puberty and adolescence, be able to appropriately adjust and manage themselves
- Understand and appreciate the value of having a warm and happy life and family
- Be proud of and appreciate the value of their gender; be able to correctly and appropriately observe sexual practices
- Protect and avoid risk factors and risk behaviours detrimental to health or conducive to contracting diseases, accidents, violence, addiction and sexual harassment
- Be skilful in basic movements and self-control in coordinated movement
- Know the principles of movement and be able to choose to participate in physical activities, games, folk games, Thai sports and international sports with safety and enjoyment; have sporting spirit by observing rules, regulations, their own rights and duties until achieving the goal
- Plan and regularly participate in physical activities and activities for physical capacity-strengthening for health as appropriate and required
- Be able to appropriately manage emotions, stress and health problems
- Be skilful in seeking knowledge and information to strengthen health

## Grade 9 graduates

- Understand and recognise the importance of factors affecting growth and development in various age ranges
- Understand, accept and be able to adjust themselves to the changes in various respects - physical, mental, emotional; sexual feelings; gender equality; establish and maintain the relationship with others; make decisions and solve life problems appropriately
- Choose to consume appropriate food in suitable portions beneficial to growth and development in accord with their ages
- Be skilful in assessing the influences of sex, friends, family, community and culture on their attitudes and the values of health and life, and be able to appropriately manage such influences
- Protect themselves from and avoid the risk factors or the risk behaviours detrimental to health and conducive to contracting diseases, accidents, misuse of medicine, addiction and violence; know how to strengthen safety for themselves, family and community
- Participate in physical, sports and recreational activities as well as activities for physical capacity-strengthening for health by applying the principles of mechanical skills with safety and enjoyment, and regularly engage in such activities in accord with their aptitudes and interests
- Show realisation of the relationship between health behaviours, disease prevention, health maintenance, emotion, and stress management; do physical exercises, play sports and enjoy healthy lifestyles
- Realise their own self-worth, potential and independence
- Observe rules, regulations, duties and responsibilities; respect their own rights and those of others; cooperate in sport competitions and systematic teamworking with self-determination and sporting spirit until achieving the goals with delight and enjoyment

## Grade 12 graduates

- Through the systematic planning, be able to efficiently take care of their health, strengthen health, protect themselves from diseases, and avoid risk factors and risk behaviours detrimental to health and conducive to accidents, misuse of medicine, addiction and violence
- Show love, care, concern to others and understanding of the influences of family, friends, society and culture on sex behaviours, the way of life and healthy lifestyles
- Do physical exercises, play sports, participate in the recreational activities, engage in activities for strengthening capacity for health by accurately and regularly applying skills and mechanisms with delight and enjoyment
- Show responsibility; cooperate and observe rules, regulations, rights and safety principles while participating in physical activities, and play sports until achieving their goals and those of their teams
- Show good manners in watching, playing and competing with sporting spirit and always practise good manners to infuse with good personality
- Analyse and assess their personal health to determine strategies to reduce risks and strengthen and maintain health; disease prevention, and ability to accurately and appropriately manage emotions and stress
- Apply the processes of civil society to strengthen community safety and desired lifestyles

## Strand 1: Human Growth and Development

Standard HP1.1: Understanding of the nature of human growth and development

### Grade-level Indicators

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
<ol style="list-style-type: none"> <li>1. Explain the characteristics and the functions of the external organs.</li> <li>2. Explain the methods of taking care of the external organs.</li> </ol>	<ol style="list-style-type: none"> <li>1. Explain the characteristics and the functions of the internal organs.</li> <li>2. Explain the methods of taking care of the internal organs.</li> <li>3. Explain the nature of human life.</li> </ol>	<ol style="list-style-type: none"> <li>1. Explain the characteristics and the growth of the human body.</li> <li>2. Compare their growth with standard criteria.</li> <li>3. Specify the factors affecting the growth.</li> </ol>	<ol style="list-style-type: none"> <li>1. Explain the physical and the mental growth and the development in accord with their ages.</li> <li>2. Explain the importance of muscles, bones and joints affecting health, growth and development.</li> <li>3. Explain the methods of taking care of muscles, bones and joints for efficient functioning.</li> </ol>	<ol style="list-style-type: none"> <li>1. Explain the importance of the digestive and the excretory systems on health, growth and development.</li> <li>2. Explain the methods of taking care of the digestive and the excretory systems for normal functioning.</li> </ol>	<ol style="list-style-type: none"> <li>1. Explain the importance of the reproductive and the circulatory systems affecting health, growth and development.</li> <li>2. Explain the methods of taking care of the reproductive, the circulatory and the respiratory systems for normal functioning.</li> </ol>



Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<ol style="list-style-type: none"> <li>1. Explain the importance of the nerve and the ductless gland systems affecting health, growth and development of teenagers.</li> <li>2. Explain the methods of taking care of the nerve and the ductless gland systems for normal functioning.</li> <li>3. Analyse the conditions of their own physical growth with standard criteria.</li> <li>4. Search for the guidelines for self-development to attain growth in accord with their ages.</li> </ol>	<ol style="list-style-type: none"> <li>1. Explain the changes in physical, mental, emotional, social and intellectual respects of teenagers.</li> <li>2. Specify the factors affecting growth and development in physical, mental, emotional, social and intellectual respects of teenagers.</li> </ol>	<ol style="list-style-type: none"> <li>1. Compare the changes in physical, mental, emotional, social and intellectual respects at each stage of life.</li> <li>2. Analyse the social influences and the expectations on the changes of teenagers.</li> <li>3. Analyse the advertising media influencing growth and development of teenagers.</li> </ol>	<ol style="list-style-type: none"> <li>1. Explain the processes of strengthening and maintaining efficient functioning of various organ systems.</li> <li>2. Plan for health care in accord with conditions of their own growth and development and those of their family members.</li> </ol>

**Strand 2: Life and Family**

Standard HP2.1: Understanding and appreciation of oneself; family; sex education; and having life skills

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
1. Specify family members, love and bonds among family members. 2. Tell what they delight in and are proud of themselves. 3. Tell the characteristics of the differences between males and females.	1. Specify their roles, duties and those of their family members. 2. Tell the importance of friends. 3. Specify the behaviours appropriate to sex. 4. Explain the pride in being female or male.	1. Explain the importance and the differences of the family to them. 2. Explain the methods to establish the relationships in the family and groups of friends. 3. Tell the methods of avoiding behaviours conducive to sexual harassment.	1. Explain the characteristics of friends and of good family members. 2. Exhibit their behaviours appropriate to their gender in accord with Thai culture. 3. Cite examples of the methods of refusing harmful and inappropriate actions in sexual affairs.	1. Explain the sexual changes and conduct themselves appropriately. 2. Explain the importance of a warm family in accord with Thai culture. 3. Specify the desired and undesired behaviours in resolving the conflicts in the family and groups of friends.	1. Explain the importance of establishing and maintaining the relationships with others. 2. Analyse the risk behaviours conducive to sexual intercourse, contracting AIDS and premature pregnancy.

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<ol style="list-style-type: none"> <li>1. Explain the appropriate methods for self-adjustment to physical, mental and emotional changes and sexual development.</li> <li>2. Show the skills in refusing sexual harassment.</li> </ol>	<ol style="list-style-type: none"> <li>1. Analyse the factors influencing attitudes about sexual affairs.</li> <li>2. Analyse the problems and the effects of having sexual intercourse at school age.</li> <li>3. Explain the methods of self-protection and avoid sexually transmitted diseases, AIDS and unwanted pregnancy.</li> <li>4. Explain the importance of gender equality and conduct themselves appropriately.</li> </ol>	<ol style="list-style-type: none"> <li>1. Explain mother-and-child health, family planning and the appropriate method for self-conduct.</li> <li>2. Analyse the factors affecting pregnancy.</li> <li>3. Analyse the causes and propose the guidelines to prevent and solve family conflicts.</li> </ol>	<ol style="list-style-type: none"> <li>1. Analyse the influences of family, friends, society and culture on sexual behaviour and their lifestyle.</li> <li>2. Analyse the values of sex in accord with Thai and other cultures.</li> <li>3. Select appropriate skills in preventing and reducing conflicts and solving problems concerning sexual affairs and family affairs.</li> <li>4. Analyse the causes and the effects of possible conflicts among the learners or the youths in the community and propose the guidelines to solve the problems.</li> </ol>

**Strand 3: Movement, Physical Exercise, Games, Thai and International Sports**

Standard HP3.1: Understanding and having skills in movement; physical activities; playing games and sports

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
1. Move body while standing still, moving and using equipment. 2. Play miscellaneous games and participate in physical activities requiring natural movement.	1. Control body movements while standing still, moving and using equipment. 2. Play miscellaneous games and participate in physical activities requiring movements while standing still, moving and using equipment.	1. Control body movements while standing still, moving and using equipment. 2. Move body using the kinesthetic skills in playing miscellaneous games.	1. Control themselves using integrated kinesthetic skills while standing still, moving and using equipment. 2. Practise free-hand physical exercises in accord with the rhythm. 3. Play imitating games and activities in relays. 4. Play at least one kind of basic sports.	1. Arrange the patterns of integrated movements and control themselves using kinesthetic skills in accord with the patterns prescribed. 2. Play games leading to sports chosen and the kinesthetic activities in relays. 3. Control movements regarding accepting and using forces and balance.	1. Show the kinesthetic skills with others in relays and in integration while standing still, moving and using equipment and the movements attuned to songs. 2. Classify the kinesthetic principles regarding accepting and using forces and the balance of body movements in playing games and sports, and apply the results to improve their practices and those of others.

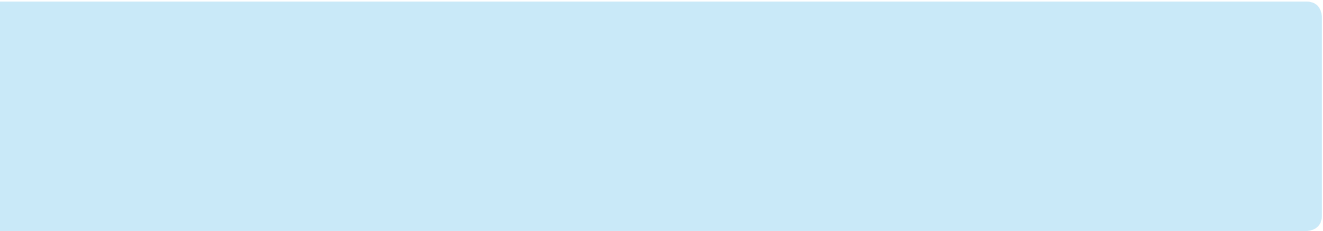
Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<ol style="list-style-type: none"> <li>1. Increase their own capacities in line with the kinesthetic principles that use the mechanical and the basic principles leading to playing sports skills.</li> <li>2. Play one kind of Thai and international sports in individuals and in teams using the basic skills of the sports.</li> <li>3. Participate at least one recreational activity and apply it into learning other learning areas.</li> </ol>	<ol style="list-style-type: none"> <li>1. Apply the results of self-conduct regarding the mechanical and the kinesthetic skills in playing sports from a variety of data sources into the conclusion of their own contexts.</li> <li>2. Play one kind of Thai and international sports in individuals and in teams.</li> <li>3. Compare the efficiency of patterns of movements affecting playing sports and activities in daily life.</li> <li>4. Participate in at least one recreational activity and apply the knowledge and the principles gained into their daily lives.</li> </ol>	<ol style="list-style-type: none"> <li>1. Play one kind of Thai and international sports, using their own techniques.</li> <li>2. Apply the principles, the knowledge and the kinesthetic skills, the physical activities, the games and sports to strengthen their health continuously.</li> <li>3. Participate in at least one recreational activity and transfer the knowledge and the methodology to others.</li> </ol>	<ol style="list-style-type: none"> <li>1. Analyse the concepts of various patterns of movements in playing sports.</li> <li>2. Use their capacities for increasing team potential, bearing in mind the effects on others and on the society.</li> <li>3. Play one kind of Thai sports, international sports in singles/doubles and in team.</li> <li>4. Perform the movements creatively.</li> <li>5. Participate in the out-of-school recreational activities, and apply the principles and the concepts into improving and developing their own quality of life and of the society.</li> </ol>

**Strand 3: Movement, Physical Exercise, Games, Thai and International Sports.**

Standard HP3.1: Understanding and having skills in movement; physical activities; playing games and sports

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
				4. Perform the mechanical skills in participating in physical activities and playing sports. 5. Play one kind of Thai and international sports in individuals and in teams. 6. Explain the principles and participate in at least one recreational activity.	3. Play one kind of Thai and international sports in individuals and in teams. 4. Use the mechanical skills to improve and increase their own capacities and those of others in playing sports. 5. Participate in at least one recreational activity, and apply the knowledge or the principles obtained into studying and seeking other learning areas.



Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12

**Strand 3: Movement, Physical Exercise, Games, Thai and International Sports**

Standard HP3.2: Favour of physical exercise, playing games and sports with regular practices; self-discipline; observance of rights, rules and regulations; having sporting spirit; having true competitive spirit; and appreciation of the aesthetics of sports

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
1. Enjoy doing physical exercise and playing games as advised. 2. Observe the rules, regulations and agreements in playing games as advised.	1. Enjoy doing physical exercise and playing games by themselves. 2. Observe the rules, regulations and agreements of games played in teams.	1. Select physical exercises, folk games and games suitable to their own strengths, weaknesses and limitations. 2. Observe the rules, regulations and agreements of physical exercises, games and folk games by themselves.	1. Do physical exercises and play games and sports they like; analyse their own developmental effects following the examples and the practices of others. 2. Observe the rules and regulations of basic sports they play.	1. Do physical exercises by following the patterns, and play games requiring thinking skills and decision-making. 2. Regularly play their favourite sports with a variety of alternatives for their own practice, and have sporting spirit. 3. Observe the rules and regulations of playing games, Thai sports and international sports they play.	1. Explain the benefits and the principles of doing physical exercise to health, to physical capacity and to the personality-strengthening. 2. Play games requiring planning skills, and increase skills for physical exercises and movements on a systematic basis. 3. Play their favourite sports and regularly assess their own playing skills.



Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<ol style="list-style-type: none"> <li>1. Explain the importance of doing physical exercise and playing sports.</li> <li>2. Do physical exercises and choose to participate in sports in accord with their aptitudes and interests to their highest potential, as well as assess their own performance and that of others.</li> <li>3. Observe the rules, regulations and agreements stipulated for the sports chosen.</li> <li>4. Plan offensive and defensive strategies of playing sports chosen and systematically apply them in their playing.</li> <li>5. Cooperate in playing team sports and in team-working with enjoyment.</li> </ol>	<ol style="list-style-type: none"> <li>1. Explain the causes of the changes in the physical, the mental, the emotional, the social and the intellectual respects resulting from regularly doing physical exercise and playing sports.</li> <li>2. Choose to participate in doing physical exercises and playing sports in accord with their aptitudes and interests as well as analyse the individual differences to provide the guidelines for self-development.</li> <li>3. Have discipline, observe the rules, regulations and agreements in playing the sports chosen.</li> </ol>	<ol style="list-style-type: none"> <li>1. Have good manners in playing and watching sports with the sporting spirit.</li> <li>2. Do physical exercises and play sports regularly and proudly apply the concepts and the principles to develop their quality of life.</li> <li>3. Observe the rules, regulations and agreements of playing the sports chosen, and apply the concepts into developing their quality of life in the society.</li> <li>4. Distinguish the offensive and the defensive strategies and apply them into practice.</li> </ol>	<ol style="list-style-type: none"> <li>1. Do physical exercises and play sports suitable to themselves regularly and use their capacities to increase the potential of the team, to decrease egoism, and bear in mind the effects on the society.</li> <li>2. Explain and observe the rights, rules, regulations and various strategies while playing and competing in sports and apply them into concluding the practical guidelines and continuously apply them into daily life.</li> <li>3. Perform good manners in watching, playing and competing in sports with the sporting spirit and always apply them into practice of good personality.</li> <li>4. Participate in the physical activities and play sports happily; appreciate the values and the aesthetics of sports.</li> </ol>

**Strand 3: Movement, Physical Exercise, Games, Thai and International Sports**

Standard HP3.2: Favour of physical exercise, playing games and sports with regular practices; self-discipline; observance of rights, rules and regulations; having sporting spirit; having true competitive spirit; and appreciation of the aesthetics of sports

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
				4. Observe their own rights, do not infringe on those of others and accept the individual differences in playing games, Thai sports and international sports.	4. Observe the rules and regulations of the sports they play, bear in mind their own safety and that of others. 5. Distinguish the offensive and the defensive strategies and apply them into playing sports. 6. Play games and sports as a unity and have sporting spirit.

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
6. Make a comparative analysis and accept the differences between their own methods of playing sports and those of others.	4. Plan the offensive and the defensive strategies to play the sports chosen, and apply them into practice. 5. Apply the results of playing sports into their own practice.	5. Present the results of their own health development from doing physical exercise and playing sports regularly.	

### Strand 4: Health-Strengthening Capacities and Disease Prevention

Standard HP4.1: Appreciation and having skills in health-strengthening; maintaining their health; disease prevention and strengthening capacity for health

#### Grade-level Indicators

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
<ol style="list-style-type: none"> <li>1. Observe the principles of the National Health Regulations as advised.</li> <li>2. Tell the symptoms of their own illness.</li> <li>3. Follow advice when being ill.</li> </ol>	<ol style="list-style-type: none"> <li>1. Tell the characteristics of good health.</li> <li>2. Take nutritious food.</li> <li>3. Specify the utensils and toys detrimental to health.</li> <li>4. Explain the symptoms and the ways to protect themselves from illnesses and injuries.</li> <li>5. Follow the advice when being ill.</li> </ol>	<ol style="list-style-type: none"> <li>1. Explain the transmission and the methods of self-protection from the diseases.</li> <li>2. Classify the 5 groups of essential nutrients.</li> <li>3. Take a diet with all the 5 groups of essential nutrients in appropriate proportion.</li> <li>4. Perform the correct method of brushing teeth.</li> <li>5. Strengthen physical capacities as advised.</li> </ol>	<ol style="list-style-type: none"> <li>1. Explain the relationship between the environment and health.</li> <li>2. Explain the states of emotions and feelings affecting health.</li> <li>3. Analyse the information on the labels of food and health products to make consumption choices.</li> <li>4. Test and improve physical capacities from the results of physical fitness test.</li> </ol>	<ol style="list-style-type: none"> <li>1. Recognise the importance of observing the National Health Regulations.</li> <li>2. Search for the information for health-strengthening.</li> <li>3. Analyse the advertising media to inform decision-making when buying food and health products.</li> <li>4. Observe the requirements of self-protection from the diseases frequently found in daily life.</li> <li>5. Test and improve the physical capacity from the results of physical fitness test.</li> </ol>	<ol style="list-style-type: none"> <li>1. Explain how to prevent and solve the environmental problems affecting health.</li> <li>2. Analyse the effects of the spread of diseases and propose the guidelines to prevent the infectious diseases found in Thailand.</li> <li>3. Perform the responsibility for the health of the public.</li> <li>4. Continuously strengthen and improve their physical capacity.</li> </ol>

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<ol style="list-style-type: none"> <li>1. Choose to consume food suitable to their ages.</li> <li>2. Analyse the problems arising from the nutritional status affecting health.</li> <li>3. Control their own weight to the norm.</li> <li>4. Strengthen and improve their physical capacity from the test results.</li> </ol>	<ol style="list-style-type: none"> <li>1. Choose to take the health services with proper reasons.</li> <li>2. Analyse the effects of technological applications on health.</li> <li>3. Analyse the medical advancement affecting health.</li> <li>4. Analyse the relationship of the balance between physical and mental health.</li> <li>5. Explain the basic characteristics and the symptoms of those who have mental health problems.</li> <li>6. Recommend the self-conduct methods to manage emotions and stress.</li> <li>7. Develop their own physical capacities to meet the criteria prescribed.</li> </ol>	<ol style="list-style-type: none"> <li>1. Set the menus suitable to various ages, bear in mind the cost-effectiveness and the nutritional value.</li> <li>2. Propose the guidelines to prevent diseases that are the main causes of illness and death of the Thai people.</li> <li>3. Collect the data and propose the guidelines to solve health problems in the community.</li> <li>4. Plan and allocate time to do physical exercise, rest and strengthen their physical capacity.</li> <li>5. Test their physical capacity and develop in accord with the individual differences.</li> </ol>	<ol style="list-style-type: none"> <li>1. Analyse the roles and the responsibilities of individuals for health-strengthening and disease prevention in the community.</li> <li>2. Analyse the influences of advertising media on health to make choices of consumption.</li> <li>3. Observe the consumers' rights.</li> <li>4. Analyse the causes and propose the guidelines to protect themselves from illnesses and death of the Thai people.</li> <li>5. Plan and implement the health development plans for themselves and their families.</li> <li>6. Participate in strengthening and developing community health.</li> <li>7. Devise and follow the plans of developing physical and mechanical capacities.</li> </ol>

**Strand 5: Safety in Life**

Standard HP5.1: Prevention and avoidance of the risk factors; the behaviours detrimental to health; accidents; taking medicines; addictive substances; and violences

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
<ol style="list-style-type: none"> <li>1. Specify harmful things at home and at school, and the methods of prevention.</li> <li>2. Tell the causes and the way to prevent harm resulting from playing.</li> <li>3. Express words or gestures to ask for help when facing dangerous incidents at home and at school.</li> </ol>	<ol style="list-style-type: none"> <li>1. Know how to protect themselves from the accidents in water and on land.</li> <li>2. Tell the names of the conventional medicines and take them as advised.</li> <li>3. Specify the dangers of addictive substances and the dangerous substances around them, and the methods to protect themselves.</li> </ol>	<ol style="list-style-type: none"> <li>1. Know how to protect themselves from accidents at home, at school and while travelling.</li> <li>2. Perform the methods of asking for help when facing dangerous incidents or accidents.</li> <li>3. Perform the methods of the first aid treatment.</li> </ol>	<ol style="list-style-type: none"> <li>1. Explain the importance of medicines and the proper methods of taking medicines.</li> <li>2. Perform the methods of the first aid treatment when taking the wrong medicines, the chemicals, the insect and animal bites, and the injuries from playing sports.</li> </ol>	<ol style="list-style-type: none"> <li>1. Analyse the factors influencing the addiction of addictive substances.</li> <li>2. Analyse the effects of the taking of medicines and of addictive substances on the body, the mind, the emotions, the society and the brain.</li> <li>3. Know how to protect themselves from taking wrong medicines and addictive substances.</li> </ol>	<ol style="list-style-type: none"> <li>1. Analyse the effects of the violence from the natural disasters on the body, the mind and the society.</li> <li>2. Specify the self-conduct to protect themselves from the natural disasters.</li> <li>3. Analyse the causes of drug addiction and persuade others to avoid the addictive substances.</li> </ol>

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<ol style="list-style-type: none"> <li>1. Perform the methods of the first aid treatment and safe transfer of the patients.</li> <li>2. Tell the characteristics and the symptoms of drug addiction and the prevention of drug addiction.</li> <li>3. Explain the relationship of taking drugs with the contracting disease and the accidents.</li> <li>4. Perform how to persuade others to lessen, abandon and stop taking drugs.</li> </ol>	<ol style="list-style-type: none"> <li>1. Specify the methods, the factors and the sources of assistance and rehabilitation for drug addicts.</li> <li>2. Explain the methods of avoiding the risk behaviours and the risk situations.</li> <li>3. Apply life skills to protect themselves and to avoid dangerous situation.</li> </ol>	<ol style="list-style-type: none"> <li>1. Analyse the risk factors and the risk behaviours affecting health and the methods of prevention.</li> <li>2. Avoid resorting to violence and persuade friends to avoid resorting to violence for problem-solving.</li> <li>3. Analyse the influence of the media on behaviours related to health or violence.</li> <li>4. Analyse the effects of consuming alcoholic drinks on health and causing of the accidents.</li> <li>5. Perform the proper methods of resuscitation.</li> </ol>	<ol style="list-style-type: none"> <li>1. Participate in protection themselves from the medicines, the addictive substances and the violence for their own health, family and society.</li> <li>2. Analyse the effects from possession, taking and sale of the addictive substances.</li> <li>3. Analyse the factors affecting health and violence of the Thai people and propose the guidelines of prevention.</li> <li>4. Plan and set the guidelines to decrease the accidents and to strengthen safety in the community.</li> <li>5. Participate in safety strengthening in the community.</li> <li>6. Apply the problem-solving skills in the risk and violent situation.</li> <li>7. Perform the proper methods of resuscitation.</li> </ol>

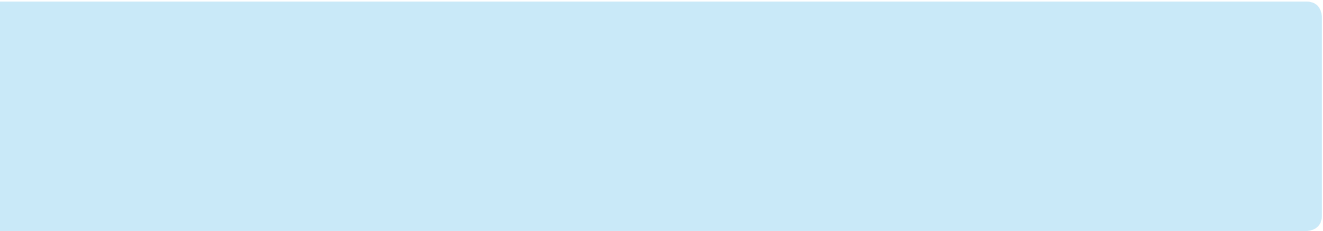
**Strand 5: Safety in Life**

Standard HP5.1: Prevention and avoidance of the risk factors; the behaviours detrimental to health; accidents; taking medicines; addictive substances; and violences

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
	<p>4. Observe the symbols or the warning signs of harmful objects or places.</p> <p>5. Explain the causes and the dangers of fires, and explain the methods of fire prevention as well as perform the fire escape routes.</p>		<p>3. Analyse the damages from cigarette smoking and alcoholic drinks on health and analyse methods of prevention.</p>	<p>4. Analyse the influence of media on health behaviours.</p> <p>5. Know how to protect themselves from harm or from playing sports.</p>	





Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12

## Art

### Why it is necessary to learn art

The learning area of art helps learners to develop creativity, artistic imagination, beauty appreciation, aesthetics and worthiness, which affect the quality of human lives. Artistic activities help learners to develop in various respects - physical, mental, intellectual, emotional and social, as well as the environmental development. Artistic activities also strengthen self-confidence in learners, thus providing a foundation for future education or livelihood.

### What is learned in art

The learning area of art is aimed at developing knowledge and understanding in learners, enabling them to acquire artistic skills and techniques, and to appreciate artistic values. This provides them with opportunities to freely express themselves in various branches of art. The main contents include:

- **Visual Arts:** knowledge and understanding of composition of art, visual elements; ability to create and present works of visual arts from imagination using appropriate instruments as well as artistic techniques and methods ability to analyse and criticise the values of visual art works; understanding of the relationship between visual arts, history and culture; appreciation of the values of art works representing the cultural heritage, local wisdom, Thai and universal wisdom; art appreciation and application in daily life

- **Music:** knowledge and understanding of the composition of music; ability to express themselves freely through music, analyse and criticise the values of music and convey feelings freely through music; music appreciation and application in daily life; appreciation of the relationship between music, history and culture; appreciation of music representing the cultural heritage, local wisdom, Thai and universal wisdom; ability to sing and play various music instruments express the idea about musical sounds, express aesthetic feelings about music and understand the relationship between music, tradition, culture and historical events

- **Dramatic Arts:** knowledge and understanding of the composition of dramatic arts; ability to creatively express themselves through dramatic arts, use basic vocabulary of dramatic arts, analyse and criticise the values of dramatic arts, convey feelings and thoughts freely, create various forms of movement and apply dramatic arts in daily life; understanding of the relationship between dramatic arts, history and culture; appreciation of the values of dramatic arts representing the cultural heritage, local wisdom, Thai and universal wisdom

## Learners' Quality

### Grade 3 graduates

- Know and understand about shapes, forms and distinguish visual elements of various things in, the natural environment and in the visual art works; have basic skills in using materials and instruments to create painting using lines, shapes, forms, colours and surfaces; be able to create collages, sculptures and simple mobiles; convey thoughts and feelings from stories, incidents and real life; create art works in accord with their predilection; be able to perform the reasons and the methods of improving their own work

- Know and understand the importance of visual art works in daily life, the sources of visual art works in the local area as well as know how to use materials, instruments and the methods of creating visual art works in the local area

- Know and understand the origins of sound and the properties of sound; know and understand roles, functions, meanings and the importance of the songs heard around them; be able to recite verses, sing songs, beat time and attune body movements to songs; read, write and use symbols instead of sounds and beat time; express opinions about music and their own singing; participate in musical activities in daily life

- Know and understand the unique characteristics of local music; appreciate and recognise the importance and the benefits of music in the lifestyles of the local people

- Create various forms of movement; be able to perform musical callisthenics based on styles of dramatic art; have good manners in viewing the performances; know the roles of the performers and the audience; know the benefits of the performance of dramatic arts in daily life; participate in the performances suitable to their age

- Know and understand Thai children's games and local dramatic arts; appreciate and take a pride in folk games; be able to link what they see in folk games with the Thai way of life; be able to tell the outstanding features and the unique characteristics of Thai dramatic arts as well as the importance of the performance of Thai dramatic arts

### Grade 6 graduates

- Know and understand the utilization of visual elements, shapes, forms, light and shadow; have basic skills in utilising materials and instruments, conveying thoughts, emotions and feelings; able to apply the principles of arranging size, proportion, balance, weight, light and shadow as well as complementary colours suitable for creating two-dimensional and three-dimensional works of visual arts, e.g., works of mixed media, paintings, sculptures and lithographs, be able to draw diagrams, layout and illustrations for portraying thoughts and imagination of various incidents, and be able to compare the differences of materials, instruments and methods of works; understand the problems of arranging artistic elements, the principles of subtraction and addition in sculptures, conveying meaning of their own visual art works; know the methods of improving their works and appreciate the values of visual art works effecting people's lives in the society

- Know and understand the roles of visual art works reflecting life and society, and the influences of religious belief, faith and culture affecting creation of visual art works in the area

- Know and understand about musical sounds, singing voices and the musical instruments, and their roles and duties; know the up and down movements of melodies, the composition of music, the musical terms in songs, the lines and the emotions of the songs heard; sing and play a musical instrument; do simple improvisations; use and maintain the musical instruments properly; read and write Thai and international music scores in various forms; know the characteristics of good musicians; express the opinions about the musical elements; convey feelings of the songs heard; be able to integrate music to the activities relating to dramatic arts and story-telling

- Know and understand the relationship between music and the way of life, tradition, Thai and other cultures, music in the past and the influences of culture on music; appreciate the values of music from different cultures; recognise the importance of conservation

- Know and understand the composition of dramatic arts; be able to present the laban notations and the basic dance vocabulary; create simple movements and performances of dramatic art and theatrical work; convey styles or emotions and be able to design simple costumes or props; understand the relationship between dramatic arts and theatrical work and what they encounter in daily life; express opinions upon viewing the performances and describe their own feelings about the dramatic art works

- Know and understand the relationship and the benefits of dramatic arts and theatrical work; be able to compare various kinds of Thai performances in each local area and things that reflect culture and tradition; appreciate the values of conservation and transmission of the performances of Thai dramatic art

### Grade 9 graduates

- Know and understand the visual elements and the principles of design and diverse techniques for creating two-dimensional and three-dimensional of visual art works to communicate meaning clearly analyse forms and contents, and evaluate the values of their own visual art works and those of others; be able to choose visual art works by applying appropriately set criteria; able to design pictures, symbols and graphics for presenting data; have knowledge and necessary professional skills relevant to visual art works

- Know and understand the changes and the development of national and local visual art works in different periods; appreciate the values of visual art works that reflect culture and be able to compare visual art works from various periods and cultures

- Know and understand the differences of sounds, elements, emotions and feelings of songs from various cultures; be skilful in singing and playing musical instruments, both solo and in the orchestra; be skilful in composing simple songs; be able to read and write scores on a scale with basic musical notation; know and understand the factors affecting forms of musical works, elements of musical works and those of other branches of art; express opinions and describe emotions and feelings about songs; be able to present songs of their predilection with proper reasons; be skilful in assessing quality of songs and musical performances; know various professions related to music and the roles of music in the entertainment business; understand the influence of music on individuals and on the society

- Know and understand the origins, the relationships, the influences and the roles of music of different cultures in various periods; analyse the factors leading to the acceptance of musical works
- Know and understand the meaning of dance vocabulary or of the theatre vocabulary for interpretation and communication through the performance as well as develop forms of performances; be able to apply simple criteria in evaluating the quality of the performances; make a comparative criticism of dramatic art works through the application of knowledge of composition of dramatic arts; participate in organising the performances; apply the concepts of the performances, duly adjusted, to daily life
- Know and understand types of Thai plays in each period; know and understand the factors affecting the changes in Thai dramatic arts, folk dramatic arts, Thai plays and folk plays; compare the special characteristics of the performances of dramatic arts from various cultures, as well as be able to describe and create props and costumes for performance of dramatic arts and plays; understand the importance and the roles of dramatic arts and plays in daily life

## Grade 12 graduates

- Know and understand the visual elements and the principles of design for communicating meaning; know the meaning of visual arts vocabulary; explain the objectives and the contents of visual art works; have skills and techniques in utilising materials, instruments and higher processes in creating visual art works; analyse the contents and the concepts, the techniques and the methods of expression of Thai and international artists, as well as apply various technologies for designing and creating works appropriately, express opinions about social situations through caricatures and cartoons, and assess and criticise visual art works based on the principles of art criticism theories
- Make a comparative analysis of visual art works of Eastern and Western styles; understand the influences of the cultural heritage and the international wisdom affecting the creation of visual art works in the society

- Know and understand the forms of various types of songs and orchestras, and distinguish the forms of both Thai and international orchestras; understand the influence of culture on creating music; compare emotions and feelings inspired from music of different cultures; read and write Thai and international music scores with various beats and rhythms; be skilful in singing or playing musical instruments, both solo and in orchestra, set criteria for appropriately assessing quality of their own and others' music compositions; be able to apply music to other activities

- Make a comparative analysis of the forms and the outstanding characteristics of Thai and international music in various cultures; understand the roles of music in reflecting the concepts and the values of people in the society and the social status of musicians in various cultures; establish the guidelines and participate in promoting and conserving music

- Be skilful in performances of diverse forms; have initiative in performances of dramatic arts in duos and in groups; create short plays in the form of their predilection; be able to analyse the essence of performances of dramatic arts and plays intended to communicate meaning; analyse the influences of costumes, light, colour, sound, scenery, instruments and places affecting performances; criticise the performances of dramatic arts and plays; develop and apply assessment criteria for evaluating performances, and be able to analyse the gestures and the movements of people in daily life and apply them to performances

- Understand the evolution of dramatic arts and the performance of Thai plays, and the roles of the important personalities of Thailand's world of dramatic arts and plays in various periods; be able to compare the presentations of performances on various occasions, and propose the concepts for conservation of Thai dramatic arts

**Strand 1: Visual Arts**

**Standard AR1.1:** Creation of visual art works through imagination and creativity; analysis and criticism on the values of the visual art works through free expression of feelings and thoughts; appreciation and application of visual arts in daily life

**Grade-level Indicators**

<b>Grade 1</b>	<b>Grade 2</b>	<b>Grade 3</b>	<b>Grade 4</b>	<b>Grade 5</b>	<b>Grade 6</b>
<ol style="list-style-type: none"> <li>1. Discuss about forms, characteristics and sizes of man-made products and things around them in nature.</li> <li>2. Express the feelings about the nature and their surroundings.</li> <li>3. Have basic skills in using materials and instruments to create visual art works.</li> <li>4. Create visual art works experimenting with the use of colours through simple techniques.</li> </ol>	<ol style="list-style-type: none"> <li>1. Describe forms and shapes found in the nature and the environment.</li> <li>2. Specify the visual elements in the environment and visual art works using lines, colours, forms and shapes.</li> <li>3. Create various visual art works using lines and forms.</li> <li>4. Have basic skills in using materials and instruments to create three-dimensional visual art works.</li> </ol>	<ol style="list-style-type: none"> <li>1. Describe forms and shapes in nature, the environment and the visual art works.</li> <li>2. Specify the materials and the instruments utilised in the works when viewing them.</li> <li>3. Distinguish the visual elements of various things in the nature, the environment and visual art works using lines, colours, forms, shapes and surfaces.</li> </ol>	<ol style="list-style-type: none"> <li>1. Compare the characteristics of forms and shapes in the nature, the environment and the visual art works.</li> <li>2. Discuss about the influences of warm hues and cool hues on human emotions.</li> <li>3. Distinguish the visual elements of various things in the nature, the environment and visual art works using lines, colours, forms, shapes, surfaces and blank space.</li> </ol>	<ol style="list-style-type: none"> <li>1. Describe the rhythms and the positions of various things seen in the environment and the visual art works.</li> <li>2. Compare the differences between visual art works created with different materials, instruments and methods.</li> <li>3. Paint pictures by applying techniques of light and shadow, weight and hues.</li> </ol>	<ol style="list-style-type: none"> <li>1. Specify the complementary colours and discuss about using complementary colours to convey thoughts and feelings.</li> <li>2. Explain the principles of arranging size, proportion and balance in the visual art works.</li> <li>3. Create visual art works with two dimensions to three dimensions by applying the principles of light and shadow and weight.</li> </ol>



Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<ol style="list-style-type: none"> <li>1. Describe the differences and the similarities of visual art works and the environment by applying the knowledge of visual elements.</li> <li>2. Specify and describe the principles of designing visual art works emphasising on unity, harmony and balance.</li> <li>3. Draw a picture of landscapes showing short and long distances in three dimensions.</li> <li>4. Collect the sculptures or works of mixed media to create three-dimensional stories emphasising on unity, harmony and conveying the stories of the works.</li> <li>5. Design pictures, symbols or other graphics to present thoughts and data.</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss about the visual elements regarding forms and concepts of the visual art works chosen.</li> <li>2. Describe the differences and the similarities of forms and methods of utilising materials and instruments in particular artists' works.</li> <li>3. Draw pictures with diverse techniques to communicate the meaning and the stories.</li> <li>4. Set evaluation criteria and criticise visual art works.</li> <li>5. Apply results of such criticism for improving and developing the works.</li> <li>6. Draw pictures showing the personality and the characteristics of the play characters.</li> </ol>	<ol style="list-style-type: none"> <li>1. Describe the environment and works of arts chosen by applying the knowledge of visual elements and the principles of design.</li> <li>2. Specify and describe the techniques and the methods of artists in creating visual art works.</li> <li>3. Analyse and describe the methods of using visual elements and the principles of design in creating their own visual art works.</li> <li>4. Be skilful in creating at least 3 visual art works.</li> <li>5. Be skilful in integrating various materials to create visual art works by applying the principles of design.</li> </ol>	<ol style="list-style-type: none"> <li>1. Analyse the application of visual elements and the principles of design in communicating meaning through various forms.</li> <li>2. Describe the objectives and the contents of art work using visual arts vocabulary.</li> <li>3. Analyse the choices of materials, instruments and techniques of artists in expressing themselves through visual arts.</li> <li>4. Have skills and techniques to utilise the materials, the instruments and the higher processes to create visual art works.</li> <li>5. Create visual art works using various technologies on with the principles of design and the arranging of artistic elements.</li> <li>6. Design visual art works appropriate to the occasions and places.</li> </ol>

**Strand 1: Visual Arts**

Standard AR1.1: Creation of visual art works through imagination and creativity; analysis and criticism on the values of the visual art works through free expression of feelings and thoughts; appreciation and application of visual arts in daily life

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
5. Draw and paint the landscapes from their own feelings.	5. Create the collages by cutting or tearing paper. 6. Draw the pictures to convey stories about their own families and those of their neighbours. 7. Collect the visual art works and describe what they see, including the contents and the relevant stories. 8. Create visual art works in the form of mobiles.	4. Draw and paint the pictures of objects around them. 5. Have the basic skills in utilising materials and instruments to create sculptures. 6. Draw the pictures to convey thoughts and feelings from incidents in real life using forms, shapes, colours and surfaces. 7. Describe the reasons and the methods of creating visual art works with techniques and materials.	4. Have the basic skills in utilising materials and instruments to create the sculptures. 5. Have the basic skills in utilising materials and instruments to create the paintings. 6. Describe the characteristics of the paintings with the arranging of distance, depth, weight and light and shadow in the paintings.	4. Create the sculptures from plasticine or clay with imagination. 5. Create the lithographs with the arranging positions of various objects in the pictures. 6. Specify the problems in arranging artistic elements and conveying meaning in their own visual art works, and the methods of the works improvement.	4. Create the sculptures by applying the principles of addition and subtraction. 5. Create visual art works by applying the principles of forms and blank space. 6. Create visual art works by using the complementary colours, and the principles of arranging size, proportion and balance.

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
6. Evaluate visual artworks and describe the methods of improving their own and others' works by using prescribed criteria.	7. Describe the methods of utilising visual art works in advertisement to entice and present examples.	6. Create both two-dimensional and three-dimensional art works to convey the experience and the imagination. 7. Create visual art works to communicate meaning through stories by applying visual elements and the principles of design. 8. Analyse and discuss the forms, contents and the values of their own visual art works and those of others or those of artists. 9. Create visual art works to describe various events by using the diverse techniques. 10. Specify the careers related to visual art works and the skills required to engage in such careers.	7. Analyse and explain the objectives of the artists in choosing the materials, the instruments, the techniques and the contents to create visual art works. 8. Evaluate and criticise visual art works by applying the art criticism theory. 9. Classify visual art works to reflect their own development and progress. 10. Create Thai and international visual art works by studying the concepts and the methods used by artists they admire. 11. Draw and paint pictures in the form of caricatures or cartoons to express the opinions about the present situation in the society.

**Strand 1: Visual Arts**

Standard AR1.1: Creation of visual art works through imagination and creativity; analysis and criticism on the values of visual art works through free expression of feelings and thoughts; appreciation and application of visual arts in daily life

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
		8. Specify what is admired and what should be improved in their own visual art works. 9. Specify and classify the pictures based on the visual elements highlighted particularly in visual art works. 10. Describe the characteristics, the forms and the shapes in designing various objects in their house and in their school.	7. Draw and paint the pictures using warm hues and cool hues to convey feelings and imagination. 8. Compare the thoughts and the feelings conveyed through their own and others' visual art works. 9. Choose to use hues to convey the emotions and the feelings in creating visual art works.	7. Describe the benefits and the values of visual art works to human life in the society.	7. Create visual art works in the form of diagrams, plans and illustrations to convey thoughts or various incidents.

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
		11. Choose the visual art works by applying appropriately prescribed criteria and mount the exhibitions.	

**Strand 1: Visual Arts**

Standard AR1.2: Understanding of the relationship between the visual arts, the history and the culture; appreciating visual art works that represent the cultural heritage, the local wisdom, and Thai and universal wisdom

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
1. Specify the visual art works in daily life.	1. Tell the importance of the visual art works seen in daily life. 2. Discuss about various types of visual art works in the local area with the methods of creating and the materials and instruments utilised.	1. Tell about the sources of the visual art works in the local area. 2. Explain the materials, the instruments and the methods of creating the visual art works in the local area.	1. Specify and discuss about the visual art works in the events and the celebrations of the local culture. 2. Describe the visual art works from various cultures.	1. Specify and describe the characteristics and the forms of visual art works in the learning resources or the art exhibitions. 2. Discuss about the visual art works reflecting the culture and the wisdom in the local area.	1. Describe the roles of visual art works reflecting life and society. 2. Discuss about the influences of the religious beliefs and the faiths on visual art works in the local area. 3. Specify and describe the local cultural influences on the creation of personal visual art works.

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<ol style="list-style-type: none"> <li>1. Specify and describe the characteristics and the forms of the national and the local visual art works from the past to the present time.</li> <li>2. Specify and compare the visual art works in various regions of Thailand.</li> <li>3. Compare the differences of the objectives in creating visual art works of Thai and universal cultures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Specify and describe various cultures reflecting the visual art works at present time.</li> <li>2. Describe the changes in Thai visual art works in each period with the concepts and the contents of the works.</li> <li>3. Compare the concepts in designing works of art of Thai and universal cultures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Study and discuss about the visual art works reflecting the cultural values.</li> <li>2. Compare the differences of visual art works in each period of Thai and universal cultures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Analyse and compare the visual art works in Eastern and Western styles.</li> <li>2. Specify the visual art works of the famous artists and describe about the outcomes of the social acceptance.</li> <li>3. Discuss about the influences of international cultures on visual art works in the society.</li> </ol>

**Strand 2: Music**

Standard AR2.1: Understanding of and ability in creative self-expression through music; analysis and criticism on the values of music; free conveyance of feelings and thoughts on music; appreciation and application of music in daily life

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
<ol style="list-style-type: none"> <li>1. Know different things produce different sounds.</li> <li>2. Tell the characteristics of loud and soft sounds and the pace of rhythm.</li> <li>3. Recite verses and sing simple songs.</li> <li>4. Participate in musical activities with enjoyment.</li> <li>5. Tell the relevance of songs used in daily life.</li> </ol>	<ol style="list-style-type: none"> <li>1. Distinguish the sources of sounds heard.</li> <li>2. Distinguish the properties of high-pitched and low-pitched, loud and soft and long and short sounds of music.</li> <li>3. Beat time or move their bodies in attunement to the lyrics of the songs.</li> <li>4. Sing simple songs suitable to their ages.</li> <li>5. Tell the meaning and the importance of songs heard.</li> </ol>	<ol style="list-style-type: none"> <li>1. Tell the forms and the characteristics of the musical instruments seen and heard in daily life.</li> <li>2. Utilise the pictures or the symbols to represent the sounds and the beat.</li> <li>3. Tell the roles and the functions of the songs heard.</li> <li>4. Sing and play simple music.</li> <li>5. Move their bodies in attunement to emotions of the songs heard.</li> </ol>	<ol style="list-style-type: none"> <li>1. Tell the simple lines of the songs.</li> <li>2. Distinguish the types of musical instruments played in the songs heard.</li> <li>3. Specify the directions of simple up-and-down movements of the tune, the form, the beat and the tempo of the songs heard.</li> <li>4. Read and write Thai and international music scores.</li> <li>5. Sing by using pitches suitable to their ages.</li> </ol>	<ol style="list-style-type: none"> <li>1. Specify the musical elements of songs utilised to convey emotions.</li> <li>2. Distinguish the characteristics of the singing sound and the instrument sound in various types of orchestras.</li> <li>3. Read and write 5 scales of Thai and international music scores.</li> <li>4. Use musical instruments to make rhythm and melody.</li> </ol>	<ol style="list-style-type: none"> <li>1. Describe the songs heard using the musical elements and the musical vocabulary.</li> <li>2. Distinguish the types, the roles and the functions of Thai musical instruments and the instruments of other cultures.</li> <li>3. Read and write Thai and international music scores of simple tunes.</li> <li>4. Play the musical instruments to accompany the singer on the singing with simple beats and tunes.</li> </ol>



Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<ol style="list-style-type: none"> <li>1. Read, write and sing Thai and international music scores.</li> <li>2. Compare the singing sounds and the musical instruments sounds from different cultures.</li> <li>3. Sing and play the musical instruments to accompany the singer on the singing in diverse forms.</li> <li>4. Classify the types of Thai orchestras and the orchestras of various cultures.</li> <li>5. Express the opinions about the emotions of the songs with the different tempos and the different volume.</li> <li>6. Compare the emotions and the feelings when listening to different types of music.</li> </ol>	<ol style="list-style-type: none"> <li>1. Compare the utilisation of musical elements from different cultures.</li> <li>2. Read, write and sing Thai and international music scores with the notations.</li> <li>3. Specify the important factors influencing the creation of the musical works.</li> <li>4. Sing and play the musical instruments in solo and in groups.</li> <li>5. Describe the emotions of the songs and the feelings towards the songs heard.</li> <li>6. Evaluate the development of their own musical skills after the practice.</li> <li>7. Specify various careers connected with music and the roles of music in the entertainment business.</li> </ol>	<ol style="list-style-type: none"> <li>1. Compare the elements utilised in the musical works and in other art works.</li> <li>2. Sing and play music in solo and in groups with the techniques of singing, playing, self-expression and sound.</li> <li>3. Compose short songs with simple beats.</li> <li>4. Explain the reasons for choosing the musical elements in creating their own musical works and in the works of others.</li> <li>5. Compare the differences of their own musical works and others' works.</li> <li>6. Explain the influences of music on people and on the society.</li> </ol>	<ol style="list-style-type: none"> <li>1. Compare the forms of the different types of songs and orchestras.</li> <li>2. Classify into types and forms of orchestras, both Thai and international.</li> <li>3. Explain the reasons for people from different cultures to create different musical works.</li> <li>4. Read and write Thai and international music scores with various tempos.</li> <li>5. Sing or play music in solo or in orchestra with the techniques of expression and the quality of the performance.</li> <li>6. Create criteria for appropriately evaluating the quality of their own and others' compositions and music performances.</li> <li>7. Compare the emotions and the feelings roused from musical works from different cultures.</li> <li>8. Apply music to other works.</li> </ol>

**Strand 2: Music**

Standard AR2.1: Understanding of and ability in creative self-expression through music; analysis and criticism on the values of music; free conveyance of feelings and thoughts on music; appreciation and application of music in daily life

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
		6. Express the opinions about their own music and singing and of others. 7. Apply music in daily life or other occasions appropriately.	6. Play and take care of the musical instruments in a correct and safe way. 7. Specify that music can be used for telling stories.	5. Sing Thai or international songs or modern Thai songs suitable to their ages. 6. Make simple improvisations using the lines of question-and-answer type. 7. Play music along with the activities in expressing their imagination.	5. Describe their feelings towards music. 6. Express the opinions about tune, beat, voice harmony and sound quality of the songs heard.

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<p>7. Present one of the songs they admire and discuss about the outstanding features that make the song delightful.</p> <p>8. Use criteria for evaluating the quality of the music or songs heard.</p> <p>9. Play and maintain the musical instruments with care and responsibility.</p>		<p>7. Present or organise the musical performances integrating with other learning strands in the area of art.</p>	

**Strand 2: Music**

Standard AR2.2: Understanding of the relationship between the music, the history and the culture; appreciating the musical works that represent the cultural heritage, the local wisdom, and Thai and universal wisdom

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
<ol style="list-style-type: none"> <li>1. Tell about the music of the local area.</li> <li>2. Specify what music they admire in their local area.</li> </ol>	<ol style="list-style-type: none"> <li>1. Tell the relationship of singing sound and those of musical instruments in local songs by using simple words.</li> <li>2. Perform and participate the musical activities in their local area.</li> </ol>	<ol style="list-style-type: none"> <li>1. Specify the outstanding characteristics and the unique features of music in their local area.</li> <li>2. Specify the importance and the benefits of music to the lives of the local people.</li> </ol>	<ol style="list-style-type: none"> <li>1. Tell the sources and the relationships of Thai way of life reflected in the local music and songs.</li> <li>2. Specify the importance of conserving and promoting the musical culture.</li> </ol>	<ol style="list-style-type: none"> <li>1. Explain the relationship between music and tradition in various cultures.</li> <li>2. Explain the values of music from different cultures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Explain the stories of Thai music in the past.</li> <li>2. Distinguish the music from the different periods.</li> <li>3. Discuss about the influences of culture on the local music.</li> </ol>

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<ol style="list-style-type: none"> <li>1. Explain the role, the relationship and the influences of music on Thai society.</li> <li>2. Specify the diversity of musical elements in different cultures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Describe the roles and the influences of music on the cultures of various countries.</li> <li>2. Describe the influences of culture and the historical events on the forms of music in Thailand.</li> </ol>	<ol style="list-style-type: none"> <li>1. Describe the evolution of music in various periods.</li> <li>2. Discuss about the outstanding characteristics leading to the acceptance of the musical works.</li> </ol>	<ol style="list-style-type: none"> <li>1. Analyse the forms of Thai and international music in various periods.</li> <li>2. Analyse the social status of the artists in various cultures.</li> <li>3. Compare the outstanding musical characteristics in various cultures.</li> <li>4. Explain the roles of music in reflecting the changes in the concepts and the values of people in the society.</li> <li>5. Propose the guidelines to promote and conserve the music as the national heritage.</li> </ol>

**Strand 3: Dramatic Arts**

Standard AR3.1: Understanding and creation of self-expression through dramatic arts; analysis and criticism on the values of dramatic arts; free expression of feelings and thoughts; appreciation and application of dramatic arts in daily life

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
1. Imitate the movements. 2. Show simple gestures to communicate the meanings instead of words. 3. Tell what they like from viewing or participating in the performances.	1. Move while remaining in the same place and while moving about. 2. Show the movements that freely reflect their own emotions. 3. Show gestures to communicate the meanings instead of words. 4. Creatively perform the calisthenics. 5. Specify the manners in viewing the performances.	1. Create various forms of movement in short situations. 2. Show the musical calisthenics based on the forms of dramatic arts. 3. Compare the roles and the duties of the performers and the audiences. 4. Participate in the activities of performances suitable to their ages. 5. Tell the benefits of the dramatic arts in daily life.	1. Specify the basic skills in the dramatic arts and the theatrical works communicating the meanings and the emotions. 2. Use the laba notation and the dance vocabulary or the simple theatre vocabulary in conveying the stories. 3. Show the movements in various beats based on their own thoughts. 4. Show the performances of the dramatic arts in duos or in groups.	1. Describe the elements of the dramatic arts. 2. Show the gestures in attunement to songs or the stories based on their own thoughts. 3. Perform the dramatic arts with the laba notation and the dance vocabulary in communicating the meaning and the self-expression. 4. Participate in writing the story lines or short plays.	1. Create the movements and the performances conveying the styles or the emotions. 2. Design simple costumes or props. 3. Show the simple dramatic arts and the theatrical works. 4. Describe their own creative feelings for the dramatic arts and the theatrical works. 5. Express the opinions in viewing the performances.

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<ol style="list-style-type: none"> <li>1. Explain the influences of famous performers who entice the emotions or the thoughts from the audience.</li> <li>2. Use the dance vocabulary or the theatre vocabulary in performances.</li> <li>3. Perform the dramatic arts and the theatrical works in simple forms.</li> <li>4. Use the collective skills in the process of producing performances.</li> <li>5. Apply the simple criteria prescribed in assessing the quality of the performances viewed, with the emphasis on the sounds, the gestures and the movement.</li> </ol>	<ol style="list-style-type: none"> <li>1. Explain the integration of other branches of arts with the performances.</li> <li>2. Create the performances using the elements of the dramatic arts and the theatrical works.</li> <li>3. Analyse their own and others' performances using the appropriate dance vocabulary or the theatre vocabulary.</li> <li>4. Propose the opinions for improving the performances.</li> <li>5. Link the learning area of the dramatic arts and the theatrical works with other learning areas.</li> </ol>	<ol style="list-style-type: none"> <li>1. Specify the structure of plays using the theatre vocabulary.</li> <li>2. Use the appropriate dance vocabulary or the theatre vocabulary to compare people's gestures in daily life and those in the performances.</li> <li>3. Have thinking skills in developing the forms of the performances.</li> <li>4. Have skills in interpreting and communicating through the performances.</li> <li>5. Make a comparative criticism of different dramatic art works using the knowledge of the elements of the dramatic arts.</li> <li>6. Participate in organising the performances, taking various roles and duties.</li> </ol>	<ol style="list-style-type: none"> <li>1. Have skills in various forms of the performances.</li> <li>2. Create short plays in the form of their predilection.</li> <li>3. Be initiative in the performances of dramatic arts in duos and in groups.</li> <li>4. Criticise the performances based on the principles of the dramatic arts and the theatrical works.</li> <li>5. Analyse the essence of dramatic art performances and the theatrical work intended to communicate meaning.</li> <li>6. Describe and analyse the influences of the costumes, lights, colours, sounds, props and sets affecting the performances.</li> <li>7. Develop and apply the evaluation criteria in assessing the performances.</li> <li>8. Analyse people's gestures and movements in daily life and apply them into the performances.</li> </ol>

**Strand 3: Dramatic Arts**

Standard AR3.1: Understanding and creation of self-expression through dramatic arts; analysis and criticism on the values of dramatic arts; free expression of feelings and thoughts; appreciation and application of dramatic arts in daily life

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
			5. Tell what performances they admire with the emphasis on the main points of the story and the outstanding features of the characters.	5. Compare the various dramatic art performances. 6. Tell the benefits obtained from viewing the performances.	6. Explain the relationship between the dramatic arts and the theatrical works in what they encounter in daily life.



Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
		7. Present the concepts from the contents of the performances that could be adjusted for application in daily life.	

### Strand 3: Dramatic Arts

Standard AR3.2: Understanding of the relationship between the dramatic arts, the history and the culture; appreciating dramatic art performances that represent the cultural heritage, the local wisdom, and Thai and universal wisdom

#### Grade-level Indicators

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
<ol style="list-style-type: none"> <li>1. Specify and play Thai children's games.</li> <li>2. Tell what they like in Thai dramatic art performances.</li> </ol>	<ol style="list-style-type: none"> <li>1. Specify and play folk games.</li> <li>2. Link what they see in folk games with what they see in the lifestyle of Thai people.</li> <li>3. Specify what they admire and are proud of in folk games.</li> </ol>	<ol style="list-style-type: none"> <li>1. Tell about the dramatic art performances they viewed in the local area.</li> <li>2. Specify the outstanding characteristics and the unique features of dramatic art performances.</li> <li>3. Explain the importance of dramatic arts performances.</li> </ol>	<ol style="list-style-type: none"> <li>1. Explain the history of dramatic arts or the simple performances.</li> <li>2. Compare the dramatic art performances with those from other cultures.</li> <li>3. Explain the importance of paying respect in learning and performing the dramatic arts.</li> <li>4. Specify the reasons for conserving and transmitting the dramatic art performances.</li> </ol>	<ol style="list-style-type: none"> <li>1. Compare various types of Thai performances in the local area.</li> <li>2. Specify or perform the dramatic arts and the folk dramatic arts reflecting culture and tradition.</li> </ol>	<ol style="list-style-type: none"> <li>1. Explain about the things important to the dramatic art performances and the theatrical work.</li> <li>2. Specify the benefits obtained from the performances or viewing the dramatic art performances and the plays.</li> </ol>

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<ol style="list-style-type: none"> <li>1. Specify the factors affecting the changes in the dramatic arts, the folk dramatic arts and Thai and folk theatrical works.</li> <li>2. Describe types of Thai plays in various periods.</li> </ol>	<ol style="list-style-type: none"> <li>1. Compare the special characteristics of the dramatic art performances from various cultures.</li> <li>2. Specify or perform the dramatic arts, folk dramatic arts, Thai and folk plays or other forms of entertainment favoured in the past.</li> <li>3. Explain the influences of culture on the content of the plays.</li> </ol>	<ol style="list-style-type: none"> <li>1. Design and create the instruments and the costumes for performing the dramatic arts and the plays from various cultures.</li> <li>2. Explain the importance and the roles of dramatic arts and the theatrical works in daily life.</li> <li>3. Express the opinions about the conservation of the dramatic arts.</li> </ol>	<ol style="list-style-type: none"> <li>1. Compare the presentation of the performances on various occasions.</li> <li>2. Discuss the roles of important personalities in the world of dramatic arts and the theatrical works in Thailand during the various periods.</li> <li>3. Describe the evolution of Thai dramatic arts and the theatrical works from the past to the present time.</li> <li>4. Present the concepts for conserving Thai dramatic arts.</li> </ol>

## Occupations and Technology

### Why it is necessary to learn occupations and technology

The learning area of occupations and technology contributes to the development of learners in acquiring knowledge and understanding the basic skills essential to their lives. Learners will thus be alert to the changes and able to apply the knowledge about living, occupations and technology into their work with creativity and competitiveness in Thai society and the world community. Learners will be able to see the prospects for their future careers, love working and have a favourable attitude towards work, as well as lead a happy life in the society, based on the principles of sufficiency.

### What is learned in occupations and technology

The learning area of occupations and technology is aimed at learners' holistic development with a view to enabling them to acquire the knowledge, the capacity and the essential skills required for work. Learners will thus efficiently see the prospects of their future careers and further education. The main contents include:

- **Life and Family:** work in daily life; ability to help themselves, their families and society under the guidance of the principles of sufficiency economy; intent not to destroy the environment; emphasis on the actual practice until the attainment of the confidence and the pride in their accomplishments in order to discover their own capacities, aptitudes and interests
- **Design and Technology:** creative development of human capacities by applying the knowledge with technological processes to create objects, utensils and methodologies, or to increase efficiency in life
- **Information and Communication Technology (ICT):** process of information technologies; communication; the search for data; application of data and information; solution of problems or creation of work; values and effects of ICT
- **Occupations:** skills essential to learners' occupations; recognition of the importance of morality, ethics and favourable attitude towards occupations; ability to use technologies appropriately; appreciation of values of honest occupations; and ability to see the prospects for future careers

## Learners' Quality

### Grade 3 graduates

- Understand the working methods to help themselves, their families and the public; use the materials and the equipment correctly as required for the type of work; have skills in the processes of work; be enthusiastic, punctual, economic, care for safety, clean and careful in working and have the awareness to protect the environment
- Understand the benefits of the objects and the utensils in daily life; solve problems and respond to needs through creative thinking; be skilful in making simple toys and utensils by applying the technological processes, i.e., identify problems or needs, collect data, design by conveying ideas through a two-dimensional sketch, construct and evaluate; choose the materials and the instruments appropriate for application; choose to use objects and utensils creatively in daily life, and recycle the objects and the utensils
- Understand and be skilful in searching for data at all stages, presenting the data in various forms and applying the methods of ICT maintenance

### Grade 6 graduates

- Understand and improve the steps of working; have skills in management, teamworking and systematic working, and have creative thinking; be diligent, patient, responsible and honest in working; have the manners and the awareness to consume water and electricity economically and cost-effectively
- Understand the meaning and the evolution of technology and the elements of the technological system; have ideas for solving problems or responding to diverse needs; apply the knowledge and the skills into making objects and utensils safely according to their interests i.e., identify the problems or the needs, collect the data, design by conveying ideas through a three-dimensional sketch or a mind map, take action and evaluate; choose to apply technologies creatively, and manage the technologies through transformation and recycling
- Understand the basic principles of problems-solving; be skilful in utilising computers to search for data, store the data, prepare graphics, document and present the data, and work with awareness and responsibility
- Know and understand about occupations as well as have the knowledge, the capacity and morality related to those occupations

## Grade 9 graduates

- Understand the efficient work processes; apply group processes in work; be skilful in seeking knowledge, solving problems and management; have the characteristics of hard working that show sacrifice and morality; make correct decisions with proper reasoning and have an awareness of economical and cost effective use of energy, resources and the environment

- Understand the technological processes and levels; have creativity in problem-solving or responding to the needs; make objects and utensils or use the methodology according to the technological processes by conveying ideas through an image, leading to creating work or the models of the ideas and reporting results; choose to apply the technologies creatively to life, society and the environment and manage the technologies through reducing use of resources or choose to apply the technologies without the negative effects on the environment

- Understand the basic principles of communicating data, computer networks, and the principles and the methods of solving problems or implementing the projects through ICT processes; be skilful in searching for and communicating data through computer networks in a moral and ethical manner, and use of computers for solving problems and making applications of ICT for presentation of accomplished tasks

- Understand the guidelines for choosing occupations, having favourable attitudes and recognise the importance of livelihood, methods of seeking employment and necessary qualifications for employment; analyse the guidelines for entering employment; have basic skills required for occupations of interest, and evaluate livelihood alternatives in accord with knowledge, aptitudes and interests

## Grade 12 graduates

- Understand the methods of working for their livelihoods; establish achievements through creative thinking; be skilful in teamworking, management, problem-solving and seeking knowledge; work morally and have an awareness of cost-effective and sustainable use of energy and resources

- Understand the relationship between technology and other disciplines; analyse technological systems; have creativity in problem-solving or responding to the needs; make and develop objects and utensils through safe technological processes by using software to design or present the accomplishments; analyse and choose to apply the technologies appropriate to daily life, society and the environment, and manage the technologies through the clean technologies methods

- Understand the components of the information systems, the components and the principles of functioning of computers, systems of data communication for computer networks, the characteristics of computers and connecting accessories, and be skilful in using computers to solve problems; write programming languages; develop computer programs; use hardware and software; communicate and search for data on the Internet; use computers to process data to serve as information for decision-making; use ICT to present achievements and use computers to create work or projects

- Understand the guidelines for entering the employment, the choices and the application of technologies appropriate to the occupations; have experiences in the occupations they have aptitudes and interests, and have the desired characteristics for the occupations

## Strand 1: Living and Family

Standard OT1.1: Understanding of the concept of the work; possessing creativity and skills in various respect-work processes, management, problem-solving, teamwork and investigation for seeking knowledge, morality, diligence, and awareness of the need to economise on the consumption of energy, resources and the environment for living and for family

### Grade-level Indicators

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
1. Tell the methods of working for self-gratification. 2. Use simple materials, instruments and equipment in working safely. 3. Work for self-gratification with enthusiasm and punctuality.	1. Tell the methods and the benefits of working for self-gratification and their families. 2. Economically use materials, instruments and equipment suitable to the type of work. 3. Work safely to help themselves and their families.	1. Tell the methods and the benefits of working to help themselves, their families and the public. 2. Use the materials, instruments and equipment as required for various types of work. 3. Work in stages as required by the work process, paying attention to cleanliness, carefulness and conservation of the environment.	1. Explain the reasons for working to reach the goals. 2. Work in stages to reach the goals with diligence, patience, responsibility and honesty. 3. Conduct themselves with good manners when working. 4. Economically and cost-effectively consume energy and resources when working.	1. Explain the reasons for working correctly at each stage required by the work process. 2. Apply the management skills in the systemic, refined and creative work. 3. Conduct themselves with good manners when working with family members. 4. Have an awareness of the economical and cost-effective consumption of energy and resources.	1. Discuss the guidelines to work and improve each stage of the work. 2. Apply the management and teamwork skills. 3. Conduct themselves with good manners when working with family members and others.



Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<ol style="list-style-type: none"> <li>1. Analyse the stages of work as required by the work process.</li> <li>2. Apply the group processes in working with sacrifice.</li> <li>3. Make decisions with proper reasons in solving the work problems.</li> </ol>	<ol style="list-style-type: none"> <li>1. Apply the skills in seeking knowledge for work development.</li> <li>2. Apply the skills for problem-solving processes when working.</li> <li>3. Be aware of hard working and economically and cost-effectively consume resources when working.</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss about the efficient stages of working.</li> <li>2. Apply the skills for team working with morality.</li> <li>3. Discuss about the work by applying the management skills for economising on the energy, the resources and the environment.</li> </ol>	<ol style="list-style-type: none"> <li>1. Explain the methods of working for a living.</li> <li>2. Establish the achievements through creative thinking and have teamwork skills.</li> <li>3. Have the management skills for work.</li> <li>4. Have the skills for problem-solving processes.</li> <li>5. Have the skills for seeking knowledge for a living.</li> <li>6. Have the morality and the desired characteristics when working.</li> <li>7. Cost-effectively and sustainably consume energy and resources in working for conservation of the environment.</li> </ol>

## Strand 2: Design and Technology

Standard OT2.1: Understanding of the technology and technological processes; designing and making objects, utensils or the methodologies through the creative technological processes; selective utilization of the technologies beneficial to one's life, society and the environment; participation in sustainable technological management

### Grade-level Indicators

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
-	<ol style="list-style-type: none"> <li>1. Tell the benefits of objects and utensils used in daily life.</li> <li>2. Make simple toys and utensils by identifying problems or needs, collecting information, designing by conveying the ideas through a two-dimensional sketch, making and evaluating.</li> </ol>	<ol style="list-style-type: none"> <li>1. Make simple toys and utensils by identifying problems or needs, collecting information, designing by transforming ideas into a two-dimensional sketch, making and evaluating.</li> <li>2. Select objects and utensils for creative use in daily life.</li> <li>3. Recycle the objects and the utensils.</li> </ol>	-	<ol style="list-style-type: none"> <li>1. Explain the meaning and the evolution of technology.</li> <li>2. Safely make objects and utensils of interest by identifying problems or needs, collecting information, selecting the methods of design by conveying the ideas through a three-dimensional sketch, making and evaluating.</li> <li>3. Apply the knowledge and the skills into making objects and utensils.</li> </ol>	<ol style="list-style-type: none"> <li>1. Explain the components of the technological system.</li> <li>2. Safely make objects and utensils of interest by identifying problems or needs, collecting information, selecting the methods of design by transforming the ideas into a three-dimensional sketch or a mind map, making and evaluating.</li> </ol>

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
-	<ol style="list-style-type: none"> <li>1. Explain the technological process.</li> <li>2. Safely make objects and utensils or the methodologies through the technological process by conveying the ideas through a three-dimensional sketch or a projected picture, leading to making the models of objects and utensils, or conveying the concepts of the methodology through the models, and reporting on the results of presenting the methodology.</li> </ol>	<ol style="list-style-type: none"> <li>1. Explain technological levels.</li> <li>2. Safely make objects and utensils or the methodologies through the technological process; design by conveying the ideas through a projected picture, leading to making the models of objects and utensils, or conveying the concepts of the methodology through the models, and reporting on the results of presenting the methodology.</li> </ol>	<ol style="list-style-type: none"> <li>1. Explain and link the relationship between the technology and the other disciplines.</li> <li>2. Analyse the technological system.</li> <li>3. Safely make objects and utensils or the methodologies in accord with the technological process by conveying the ideas through an image and models, leading to making things or conveying the concepts of the methodology through the models, and reporting on the results by using or presenting the achievements.</li> <li>4. Have creativity in problem-solving or responding to needs for their own products or development of others' products.</li> </ol>

**Strand 2: Design and Technology**

Standard OT2.1: Understanding of the technology and technological processes; designing and making objects, utensils or the methodologies through the creative technological processes; selective utilization of the technologies beneficial to one's life, society and the environment; participation in sustainable technological management

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
	3. Apply the knowledge of appropriate utilization of utensils and equipment into making simple toys and utensils. 4. Have at least one creative feature in solving the problems or responding to needs.			4. Have at least two creative features in solving the problems or responding to the needs. 5. Choose the technologies to use in daily life for the benefits of life and the society and reuse the objects and the utensils.	3. Apply the knowledge and the skills into making the objects and the utensils.

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
	<p>3. Have creativity in problem-solving or responding to the needs in their own production.</p> <p>4. Apply the technologies into life, the society and the environment, and reduce the consumption of resources or choose to use the technologies without the negative effects on the environment.</p>		<p>5. Apply the technologies suitable to daily life for the benefit of life, the society and the environment, and sustainably manage the technologies through the methodology of clean technologies.</p>

**Strand 3: Information and Communication Technology (ICT)**

Standard OT3.1: Understanding, appreciation and efficient, effective and ethical application of information technology in searching for data, communicating, problem-solving, working and livelihood

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
1. Tell the information of interest and the sources of information around them. 2. Tell the benefits of information technology instruments.	1. Tell the benefits of information and collect the information of interest from the various reliable sources. 2. Tell the benefits of and conserve the sources of information. 3. Tell the names and the functions of the basic instruments forming the major components of a computer.	1. Search for the information in stages and present it in various forms. 2. Tell the methods of caring for and maintaining the information technology instruments.	1. Tell the names and the functions of the information technology instruments. 2. Tell the basic principles of the function of a computer. 3. Tell the advantages and the disadvantages of operating the computers. 4. Use the computers' functioning systems for work. 5. Create images or work from imagination with responsibility by using graphics programmes.	1. Search for and collect the information of interest and of useful purposes from the various reliable sources. 2. Create documentary work for use in daily life with responsibility.	1. Tell the basic principles of problem-solving. 2. Use a computer to search for information. 3. Store useful information in various forms. 4. Present the information in appropriate forms by choosing applied software. 5. Use a computer to facilitate creation of work pieces from imagination or from work performed in daily life with awareness and responsibility.

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<ol style="list-style-type: none"> <li>1. Explain the principles of function, the roles and the benefits of a computer.</li> <li>2. Discuss about the main characteristics and the effects of information technologies.</li> <li>3. Process the data so as to serve as information.</li> </ol>	<ol style="list-style-type: none"> <li>1. Explain the basic principles of the communicating information and the computer networks.</li> <li>2. Explain the principles and the methods of problem-solving through the information technology processes.</li> <li>3. Search for information and communicate through the computer networks morally and ethically.</li> <li>4. Use software for work.</li> </ol>	<ol style="list-style-type: none"> <li>1. Explain the principles of implementing a project requiring the application of information technologies.</li> <li>2. Write the basic programming languages.</li> <li>3. Use the information technologies in forms appropriate to the type of work.</li> <li>4. Use the computers to facilitate creation of work from imagination or from work performed in daily life in accord with the principles of project implementation with awareness and responsibility.</li> </ol>	<ol style="list-style-type: none"> <li>1. Explain the composition of the information system.</li> <li>2. Explain the components and the principles of the function of a computer.</li> <li>3. Explain the information communication system for computer networks.</li> <li>4. Tell the characteristics of a computer and the connecting accessories.</li> <li>5. Efficiently solve problems through the information technology processes.</li> <li>6. Write programming languages.</li> <li>7. Develop computer projects.</li> <li>8. Use hardware and software appropriate to various tasks.</li> <li>9. Communicate and search for information through the Internet.</li> <li>10. Use the computers in processing data to serve as information for decision-making.</li> <li>11. Use the information technologies to present the achievements in appropriate forms as targeted.</li> </ol>

Standard OT3.1: Understanding, appreciation and efficient, effective and ethical application of information technology in searching for data, communicating, problem-solving, working and livelihood

Grade-level Indicators					
Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6



Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
			<p>12. Use the computers to facilitate creation of work or projects with the awareness and the responsibility.</p> <p>13. Tell the recommended instructions for the information technologies users.</p>

**Strand 4: Occupations**

Standard OT4.1: Understanding and acquiring the necessary skills and experiences; proper perception of future career; the technological application for occupational development; possessing morality and favourable attitude towards careers

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
-	-	-	1. Explain the meaning and the importance of the occupations.	1. Collect information of various occupations in the community. 2. Specify the differences of various occupations.	1. Explore the hidden possibilities that lie with themselves to plan for future occupations. 2. Specify the knowledge, the capacities and the morality relevant to the occupations of interest.

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<ol style="list-style-type: none"> <li>1. Explain the guidelines for choosing the occupations.</li> <li>2. Have favourable attitude towards livelihood.</li> <li>3. Recognise the importance of generating the occupations.</li> </ol>	<ol style="list-style-type: none"> <li>1. Explain how to strengthen occupational skills.</li> <li>2. Specify self-preparation for entering the employment field.</li> <li>3. Have the basic skills required for taking up occupations of interest.</li> </ol>	<ol style="list-style-type: none"> <li>1. Explain how to search for the employment through diverse methods.</li> <li>2. Analyse the guidelines for entering the employment field.</li> <li>3. Evaluate alternatives for taking up occupations according to their knowledge, attitudes and interests.</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss about the guidelines for taking up the occupations of interest.</li> <li>2. Choose and apply technologies appropriate to the occupations.</li> <li>3. Have experiences in the occupations they have aptitude and interest.</li> <li>4. Have the desired characteristics for the occupations.</li> </ol>

## Foreign Languages

### Why it is necessary to learn foreign languages

In the present global society, learning foreign languages is very important and essential to daily life, as foreign languages serve as an important tool for communication, education, seeking knowledge, livelihood and creating understanding of cultures and visions of the world community. Foreign languages enable learners to be aware of diversity of cultures and viewpoints in the world community, conducive to friendship and cooperation with various countries. They contribute to learners' development by giving learners better understanding of themselves and others. The learners are thus able to learn and understand differences of languages and cultures, customs and traditions, thinking, society, economy, politics and administration. They will be able to use foreign languages for communication as well as for easier and wider access to bodies of knowledge, and will have vision in leading their lives.

The foreign language constituting basic learning content that is prescribed for the entire basic education core curriculum is English, while for other foreign languages, e.g., French, German, Chinese, Japanese, Arabic, Pali and languages of neighbouring countries, it is left to the discretion of educational institutions to prepare courses and provide learning management appropriately.

## What is learned in foreign languages

The learning area of foreign languages is aimed at enabling learners to acquire a favourable attitude towards foreign languages, the ability to use foreign languages for communicating in various situations, seeking knowledge, engaging in a livelihood and pursuing further education at higher levels. Learners will thus have knowledge and understanding of diversified matters and events of the world community, and will be able to creatively convey the conceptions and cultures of Thainess to the global society. The main contents include:

- **Language for Communication:** use of foreign languages in listening, speaking, reading and writing, exchanging data and information, expressing feelings and opinions, interpreting, presenting data, concepts and views on various matters, and creating interpersonal relationships appropriately

- **Language and Culture:** use of foreign languages in accordance with the culture of native speakers; relationships, similarities and differences between languages and cultures of native speakers; languages and cultures of native speakers and Thai culture; and appropriate application

- **Language and Relationship with Other Learning Areas:** use of foreign languages to link knowledge with other learning areas, to seek knowledge and to broaden learners' world views

- **Language and Relationship with Community and the World:** use of foreign languages in various situations in the classroom, in community and in the global society, forming a basic tool for further education, livelihood and exchange of knowledge with the global society

## Learners' Quality

### Grade 3 graduates

- Act in compliance with the orders and the requests heard; pronounce the alphabets, words, groups of words, simple sentences and simple chants by observing the principles of pronunciation; accurately tell the meanings of the word and groups of words heard; answer questions from sentences, dialogues or simple tales heard or read
- Engage in interpersonal communication using short and simple words through the patterns heard; use simple orders and requests; tell their needs in simple words; request and give personal data together with their friends; tell their own feelings about various objects around them or various activities through the patterns heard
- Verbally provide information about themselves and matters around them; categorise words among persons, animals and objects they have heard or read
- Speak and act by observing social manners/culture of native speakers; tell the names and simple terms about festivals/important days/celebrations and lifestyles of native speakers; participate in language and cultural activities fitted at their age levels
- Tell differences between sounds of the alphabets, words, groups of words and simple sentences in foreign languages and those in the Thai language
  - Identify words related to other learning areas
  - Listen/talk about simple situations in the classroom
  - Use foreign languages to collect relevant terms around them
  - Be able to use foreign languages (focus on listening and speaking) to communicate about themselves, their families, schools, their surrounding environment, foods, beverages, free time and recreation around 300-450 words (concrete words)
  - Use simple sentences in conversations

## Grade 6 graduates

- Act in compliance with the orders, the requests and the instructions that they have heard and read; accurately read sentences, texts, tales and short verses aloud by observing the principles of reading; choose/specify the sentences and text corresponding to the meanings of symbols or signs read; tell the main idea and answer questions after listening to and reading dialogues, simple tales and stories
- Speak/write in interpersonal communication; give orders, make requests and give instructions; speak/write to express needs; ask for help; willing and refuse to give help in simple situations; speak and write to ask for and give information about themselves, friends, families and matters around them; speak/write to express their feelings about various matters and activities around them, as well as provide brief justifications
- Speak/write to give information about themselves, friends and the surrounding environment; draw pictures, plans, charts and tables to show the various information that they have heard and read; speak/write to show opinions about various matters around them
- Use words, tone of voice, gestures and manners politely and appropriately by observing social manners and culture of native speakers; give information about the festivals/important days/celebrations/lifestyles of native speakers; participate in language and cultural activities in accordance with their interests
- Tell similarities/differences between the pronunciation of various kinds of sentences, use of punctuation marks and word order regarding sentence structure of foreign languages and of Thai language; compare the similarities/differences between the festivals, celebrations and traditions of native speakers and those of Thai
- Search for and collect the terms related to other learning areas from learning sources and present them through speaking/writing
  - Use foreign languages to communicate in classroom and in school
  - Use foreign languages in searching for and collecting various information
  - Be able to use foreign languages (focus on listening, speaking, reading and writing) to communicate about themselves, their families, schools, their environment, foods, beverages, free time and recreation, health and welfare, selling and buying, and climate around 1,050-1,200 words (concrete and abstract words)
  - Use simple and compound sentences to convey meanings in various contexts

## Grade 9 graduates

- Act in compliance with the requests, the instructions, the clarifications and the explanations that they have heard or read; accurately read texts, news, advertisements, tales and short verses aloud by observing the principles of reading; specify/write various forms of non-text information related to sentences and texts that they have heard and read; choose and specify the topics, main ideas and supporting details, and express opinions about what they have heard or read from various types of media, as well as provide justifications and examples for illustration

- Speak and write for an exchange of information about themselves, various matters around them, situations and news of interest society, and communicate such information continuously and appropriately; use appropriate requests, clarifications and explanations and give suitable instructions; speak and write to show needs; offer and provide assistance; accept and refuse to give help; speak and write appropriately to ask for and give information, describe, explain, compare and express opinions about what they have heard or read; speak and write to describe their own feelings and opinions about various matters, activities, experiences and news/incidents, as well as to provide appropriate justifications

- Speak and write to describe themselves, experiences, news/incidents/various issues of interest to society; speak and write to summarise the main idea/theme or topic identified from the analysis of matters/news/incidents/situations of interest; speak and write to express opinions about activities, experiences and incidents, as well as provide justifications

- Choose appropriate language, tone of voice, gestures and manners by observing social manners and culture of native speakers; explain about the lifestyles, customs and traditions of native speakers; participate in/organise language and cultural activities of their interests

- Compare and explain the similarities and the differences between pronunciation of various kinds of sentences and word orders regarding sentence structures of foreign languages and of Thai language; compare and explain the similarities and the differences between the lifestyles and culture of native speakers and those of Thai and apply them appropriately



- Search for, collect and summarise information related to other learning areas from learning sources, and present them through speaking and writing
- Use language for communication in real situations/simulated situations in the classroom, school, community and society
- Use foreign languages in searching/conducting research, collecting and drawing conclusions about knowledge/various information sources from the media and various learning sources for further study and livelihood; disseminate/convey to the public information and news about the school, community and local area in foreign languages
- Be able to use foreign languages (focus on listening, speaking, reading and writing) to communicate about themselves, their families, schools, the environment, foods, beverages, free time and recreation, health and welfare, buying and selling, climate, education and occupations, travelling provision of services, places, language and science and technology around 2,100-2,250 words (words of higher abstract quality)
- Use compound and complex sentences to convey meanings in various contexts in both formal and informal conversations

## Grade 12 graduates

- Observe instructions in manuals for various types of work, clarifications, explanations and descriptions that they have heard and read; accurately read aloud texts, news, announcements, advertisements, poems and skits by observing principles of reading; explain and write sentences and texts related to various forms of non-text information that they have heard or read; identify the main idea, analyse the essence, conclude, interpret and express opinions from listening and reading feature articles and materials for entertainment purpose, as well as provide justifications and examples for illustration

- Speak and write to exchange information about themselves, various matters around them, experiences, situations, news/incidents, issues of interest and communicate them continuously and appropriately; choose and use requests, clarifications, explanations and give instructions; speak and write to show needs; offer and provide assistance; speak and write appropriately to ask for and give data, describe, explain, compare and express opinions about matters/issues/news/incidents about which they have heard and read; speak and write to describe their own feelings and express opinions about various matters, activities, experiences and news/incidents with proper reasoning

- Speak and write to present information about themselves/experiences/news/incidents, matters and various issues of interest; speak and write about the main idea and theme identified from analysis of matters, activities, news, incidents and situations in accordance with their interests; speak and write to express opinions about activities, experiences and incidents in the local area, society and the world, as well as provide justifications and examples for illustration

- Choose the language, tone of voice, gestures and manners appropriate to the level of the persons, time, occasions and places by observing social manners and culture of native speakers; explain/discuss about lifestyles, thoughts, beliefs and origins of customs and traditions of native speakers; participate in, advise and organise language and cultural activities appropriately

- Explain/compare differences between the structures of sentences, texts, idioms, sayings, proverbs and poems in foreign languages and Thai language; analyse/discuss similarities and differences between the lifestyles, beliefs and culture of native speakers and those of Thais, and apply them with reasons
- Conduct research/search for, make records, conclude and express opinions about the data related to the learning areas from various sources, and present them through speaking and writing
- Use language for communication in real situations/simulated situations in the classroom, school, community and society
- Use foreign languages in searching for/conducting research, collecting, analysing and summarising knowledge/various information from the media and various learning sources for further study and livelihood; disseminate/convey to the public information and news about the school, community and local area/nation in foreign languages
- Be able to use foreign languages (focus on listening, speaking, reading and writing) to communicate about themselves, their families, schools, the environment, foods, beverages, interpersonal relationships, free time and recreation, health and welfare, selling and buying, climate, education and occupations, travelling, provision of services, places, language and science and technology around 3,600-3,750 words (words with different levels of usage)
- Use compound and complex sentences to convey meanings in various contexts in both formal and informal conversations

**Strand 1: Language for Communication**

Standard FL1.1: Understanding and ability in interpreting what has been heard and read from various types of media, and ability to express opinions with reasons

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
1. Act in compliance with simple orders heard. 2. Specify the alphabets and the sounds; accurately pronounce and spell simple words by observing the principles of reading. 3. Choose the pictures corresponding to the meanings of words and groups of words heard. 4. Answer the questions from listening to the matters around them.	1. Act in compliance with orders and simple requests heard. 2. Specify the alphabets and the sounds; pronounce and spell the given words; accurately read simple sentences by observing the principles of reading. 3. Match the pictures with the meanings of words, groups of words and sentences heard.	1. Act in compliance with orders and requests heard or read. 2. Pronounce and spell the given words; accurately read aloud groups of words, sentences and simple chants by observing the principles of reading. 3. Match the picture or the symbols with the meanings of groups of words and sentences heard.	1. Act in compliance with orders, requests and simple instructions heard or read. 2. Pronounce and spell the given words; accurately read aloud groups of words, sentences, simple texts and chants by observing the principles of reading. 3. Match the pictures or symbols or signs with the meanings of sentences and short paragraphs heard or read.	1. Act in compliance with orders, requests and simple instructions heard and read. 2. Accurately read aloud the given sentences, the paragraphs and the short poems by observing the principles of reading. 3. Draw/Match the picture or signs with the meanings of sentences and the short paragraphs heard or read.	1. Act in compliance with orders, requests and instructions heard and read. 2. Accurately read aloud the given paragraphs, tales and short poems by observing the principles of reading. 3. Match the sentences or the short paragraphs with the meanings of symbols or signs read.

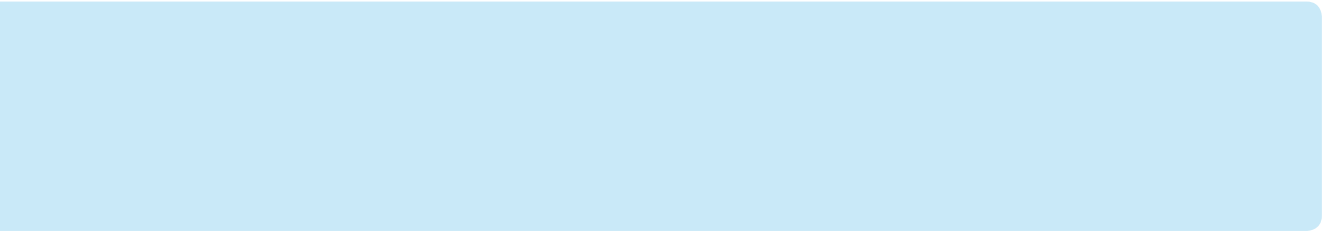
Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<ol style="list-style-type: none"> <li>1. Act in compliance with orders, requests, instructions and simple explanations heard and read.</li> <li>2. Accurately read aloud paragraphs, tales and short poems by observing the principles of reading.</li> <li>3. Match the sentences and the paragraphs with the non-text information read.</li> <li>4. Specify the topic and the main idea and answer the questions from listening to and reading the dialogues, the tales and the short stories.</li> </ol>	<ol style="list-style-type: none"> <li>1. Act in compliance with requests, instructions, clarifications and simple explanations heard and read.</li> <li>2. Accurately read aloud paragraphs, news, advertisements and short poems by observing the principles of reading.</li> <li>3. Specify/write sentences and paragraphs related to various forms of non-text information read.</li> <li>4. Choose the topic and the main idea, tell the supporting details and express the opinions about what has been heard and read, as well as provide the justifications and the simple examples for illustrations.</li> </ol>	<ol style="list-style-type: none"> <li>1. Act in compliance with requests, instructions, clarifications and explanations heard and read.</li> <li>2. Accurately read aloud paragraphs, news, advertisements and short poems by observing the principles of reading.</li> <li>3. Specify and write various forms of non-text information related to sentences and paragraphs heard or read.</li> <li>4. Specify the topic, the main idea and the supporting details and express the opinions about what has been heard and read from various types of media, as well as provide the justifications and the examples for illustrations.</li> </ol>	<ol style="list-style-type: none"> <li>1. Observe the instructions in manuals for various types of work, clarifications, explanations and descriptions heard and read.</li> <li>2. Accurately read aloud paragraphs, news, advertisements, poems and skits by observing the principles of reading.</li> <li>3. Explain and write sentences and paragraphs related to various forms of non-text information, as well as specify and write various forms of non-text information related to the sentences and the paragraphs heard or read.</li> <li>4. Identify the main idea, analyse the essence, interpret and express the opinions from listening to and reading feature articles and entertainment articles, as well as provide the justifications and the examples for illustrations.</li> </ol>

**Strand 1: Language for Communication**

Standard FL1.1: Understanding and ability in interpreting what has been heard and read from various types of media, and ability to express opinions with reasons

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
	4. Answer the questions from listening to sentences, dialogues or simple tales with illustrations.	4. Answer the questions from listening to or reading sentences, dialogues or simple tales.	4. Answer the questions from listening to and reading sentences, dialogues and simple tales.	4. Tell the main points and answer the questions from listening to and reading dialogues and simple tales or short paragraphs.	4. Tell the main idea and answer the questions from listening to and reading dialogues, simple tales and stories.



Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12

## Strand 1: Language for Communication

Standard FL1.2: Possessing language communication skills for effective exchange of information; efficient expression of feelings and opinions

### Grade-level Indicators

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
<ol style="list-style-type: none"> <li>1. Speak in an exchange with short and simple words in interpersonal communication by following the models heard.</li> <li>2. Use simple orders by following the models heard.</li> <li>3. Express their own simple needs by following the models heard.</li> <li>4. Ask for and give simple information about themselves by following the models heard.</li> </ol>	<ol style="list-style-type: none"> <li>1. Speak in an exchange with short and simple words in interpersonal communication by following the models heard.</li> <li>2. Use orders and simple requests by following the models heard.</li> <li>3. Express their own simple needs by following the models heard.</li> <li>4. Ask for and give simple information about themselves by following the models heard.</li> </ol>	<ol style="list-style-type: none"> <li>1. Speak in an exchange with short and simple words in interpersonal communication by following the models heard.</li> <li>2. Use orders and simple requests by following the models heard.</li> <li>3. Express their own simple needs by following the models heard.</li> <li>4. Ask for and give simple information about themselves and their friends by following the models heard.</li> </ol>	<ol style="list-style-type: none"> <li>1. Speak/write in an exchange in interpersonal communication.</li> <li>2. Use orders, requests and simple permission.</li> <li>3. Speak/write to express their own needs and to ask for help in simple situations.</li> <li>4. Speak/write to ask for and give information about themselves, their friends and families.</li> </ol>	<ol style="list-style-type: none"> <li>1. Speak/write in an exchange in interpersonal communication.</li> <li>2. Use orders, requests, permission and give simple instructions.</li> <li>3. Speak/write to express the needs, ask for help and agree and refuse to give help in simple situations.</li> <li>4. Speak/write to ask for and give information about themselves, their friends, families and matters around them.</li> </ol>	<ol style="list-style-type: none"> <li>1. Speak/write in an exchange in interpersonal communication.</li> <li>2. Use orders requests and give instructions.</li> <li>3. Speak/write to express the needs, ask for help and agree and refuse to give help in simple situations.</li> <li>4. Speak and write to ask for and give information about themselves, their friends, families and matters around them.</li> </ol>



Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<ol style="list-style-type: none"> <li>1. Converse to exchange information about themselves, various activities and situations in daily life.</li> <li>2. Use requests, instructions and clarifications according to the situation.</li> <li>3. Speak and write appropriately to express needs, ask for help and agree and refuse to give help in various situations.</li> <li>4. Speak and write appropriately to ask for and give information and express opinions about what has been heard or read.</li> </ol>	<ol style="list-style-type: none"> <li>1. Converse appropriately to exchange information about themselves, various matters around them and various situations in daily life.</li> <li>2. Use orders, instructions, clarifications and explanations according to the situation.</li> <li>3. Speak and write appropriately to express needs, offer help and agree and refuse to give help in various situations.</li> <li>4. Speak and write appropriately to ask for and give information, describe and express opinions about what has been heard or read.</li> </ol>	<ol style="list-style-type: none"> <li>1. Converse and write to exchange information about themselves, various matters around them, situations, news and matters of interest to society, and communicate the information continuously and appropriately.</li> <li>2. Use requests and give instructions, clarifications and explanations appropriately.</li> <li>3. Speak and write appropriately to express needs, offer help and agree and refuse to give help in various situations.</li> <li>4. Speak and write appropriately to ask for and give information, explain, compare and express opinions about what has been heard or read.</li> </ol>	<ol style="list-style-type: none"> <li>1. Converse and write to exchange information about themselves and various matters around them, experiences, situations, news/incidents and issues of interest to the society, and communicate the information continuously and appropriately.</li> <li>2. Choose and use requests, instructions, clarifications and explanations fluently.</li> <li>3. Speak and write to express needs and offer, accept and refuse to give help in simulated or real situations.</li> <li>4. Speak and write appropriately to ask for and give information, describe, explain, compare and express opinions about matters/ issues/news and situations heard and read.</li> </ol>

## Strand 1: Language for Communication

Standard FL1.2: Possessing language communication skills for effective exchange of information; efficient expression of feelings and opinions

### Grade-level Indicators

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
		5. Tell their own feelings about various objects around them or various activities by following the models heard.	5. Speak to express their own feelings about various matters around them and various activities by following the models heard.	5. Speak/write to express their own feelings about various matters around them and various activities, as well as provide brief justifications.	5. Speak/write to express their own feelings about various matters around them and various activities, as well as provide brief justifications.

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
5. Speak and write to express their own feelings and opinions about various matters around them, various activities, as well as provide brief justifications appropriately.	5. Speak and write to express their own feelings and opinions about various matters around them, various activities, as well as provide brief justifications appropriately.	5. Speak and write to describe their own feelings and opinions about various matters, activities, experiences and news/incidents, as well as provide justifications appropriately.	5. Speak and write to describe their own feelings and opinions about various matters, activities, experiences and news/incidents with proper reasons.

**Strand 1: Language for Communication**

Standard FL1.3: Ability to speak and write about information, concepts and views on various matters

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
1. Speak to give information about themselves and matters around them.	1. Speak to give information about themselves and matters around them.	1. Speak to give information about themselves and matters around them. 2. Categorise words into groups according to the types of persons, animals and objects based on what they have heard or read.	1. Speak/write to give information about themselves and matters around them. 2. Speak/draw pictures to show relationships of various objects around them according to what they have heard or read. 3. Speak to express simple opinions about matters around them.	1. Speak/write to give information about themselves and matters around them. 2. Draw pictures, layout and charts to show various information heard or read. 3. Speak/write to express opinions about various matters around them.	1. Speak/write to give information about themselves, their friends and the environment around them. 2. Draw pictures, layout, charts and tables to show various information heard or read. 3. Speak/write to express opinions about various matters around them.

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<ol style="list-style-type: none"> <li>1. Speak and write to describe themselves, their daily routines, their experiences and the environment around them.</li> <li>2. Speak/write to summarise the main idea/theme identified from the analysis of matters/incidents of interest to the society.</li> <li>3. Speak/write to express opinions about activities or various matters around them as well as provide brief justifications.</li> </ol>	<ol style="list-style-type: none"> <li>1. Speak and write to describe themselves, their daily routines, experiences and news/incidents of interest to society.</li> <li>2. Speak and write to summarise the main idea, theme and topic identified from analysis of matters/news/incidents of interest to the society.</li> <li>3. Speak and write to express opinions about activities or various matters around them and experiences, as well as provide brief justifications.</li> </ol>	<ol style="list-style-type: none"> <li>1. Speak and write to describe themselves, experiences/matters/various issues of interest to society.</li> <li>2. Speak and write to summarise the main idea/theme and topic identified from analysis of matters/news/incidents/situations of interest to society.</li> <li>3. Speak and write to express opinions about activities, experiences and incidents, as well as provide justifications.</li> </ol>	<ol style="list-style-type: none"> <li>1. Speak and write to present data themselves/experiences, news/incidents, matters and various issues of interest to society.</li> <li>2. Speak and write to summarise the main idea/theme identified from analysis of matters, activities, news, incidents and situations in accordance with their interests.</li> <li>3. Speak and write to express opinions about activities, experiences and incidents in the local area, society and the world, as well as provide justifications and examples for illustrations.</li> </ol>

**Strand 2: Language and Culture**

Standard FL2.1: Appreciating the relationship between language and culture of native speakers and ability in using language appropriately

**Grade-level Indicators**

<b>Grade 1</b>	<b>Grade 2</b>	<b>Grade 3</b>	<b>Grade 4</b>	<b>Grade 5</b>	<b>Grade 6</b>
1. Speak and make accompanying gestures in accordance with the culture of the native speakers. 2. Tell the names and vocabulary of native speakers' important festivals. 3. Participate in language and cultural activities appropriate to their age levels.	1. Speak and make accompanying gestures in accordance with the culture of the native speakers. 2. Tell the names and vocabulary of native speakers' important festivals. 3. Participate in language and cultural activities appropriate to their age levels.	1. Speak and make accompanying gestures in accordance with social manners/ culture of native speakers. 2. Tell the names and simple vocabulary about the festivals/ important days/ celebrations and lifestyles of the native speakers. 3. Participate in language and cultural activities appropriate to their age levels.	1. Speak and politely make accompanying gestures in accordance with social manners and culture of native speakers. 2. Answer the questions about festivals/ important days/ celebrations and simple lifestyles of the native speakers. 3. Participate in language and cultural activities appropriate to their age levels.	1. Use words, tone of voice and polite gestures in accordance with social manners and culture of native speakers. 2. Answer the questions/ tell the importance of festivals/ important days/ celebrations and simple lifestyles of the native speakers. 3. Participate in language and cultural activities in accordance with their interests.	1. Use words, tone of voice, gestures and manners politely and appropriately by observing the social manners and culture of the native speakers. 2. Give information about the festivals/ important days/ celebrations/ lifestyles of the native speakers. 3. Participate in language and cultural activities in accordance with their interests.

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<ol style="list-style-type: none"> <li>1. Use language, tone of voice, gestures and manners politely and appropriately by observing social manners and culture of the native speakers.</li> <li>2. Describe the festivals, important days, lifestyles and traditions of the native speakers.</li> <li>3. Participate in language and cultural activities in accordance with their interests.</li> </ol>	<ol style="list-style-type: none"> <li>1. Use language, tone of voice, gestures and manners appropriate to various persons and occasions by observing social manners of the native speakers.</li> <li>2. Describe the festivals, important days, lifestyles and traditions of the native speakers.</li> <li>3. Participate in language and cultural activities in accordance with their interests.</li> </ol>	<ol style="list-style-type: none"> <li>1. Choose the language, tone of voice, gestures and manners appropriate to various persons and occasions in accordance with the social manners and culture of the native speakers.</li> <li>2. Describe the lifestyles, customs and traditions of the native speakers.</li> <li>3. Participate in/organise language and cultural activities in accordance with their interests.</li> </ol>	<ol style="list-style-type: none"> <li>1. Choose the language, tone of voice, gestures and manners appropriate to various persons, occasions and places by observing social manners and culture of the native speakers.</li> <li>2. Explain/discuss the lifestyles, thoughts, beliefs and origins of customs and traditions of the native speakers.</li> <li>3. Participate in, give advice and organise language and cultural activities appropriately.</li> </ol>

**Strand 2: Language and Culture**

Standard FL2.2: Appreciating the similarities and the differences between language and culture of the native speakers and Thai speakers, and ability in using accurate and appropriate language

**Grade-level Indicators**

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
1. Specify the alphabets and sounds of the alphabets of foreign languages and Thai language.	1. Specify the alphabets and sounds of the alphabets of foreign languages and Thai language.	1. Tell the differences of the sounds of the alphabets, words, groups of words and simple sentences in foreign languages and Thai language.	1. Tell the differences of the sounds of the alphabets, words, groups of words, sentences and paragraphs in foreign languages and Thai language. 2. Tell the similarities/differences between the festivals and celebrations in the culture of native speakers and those in Thailand.	1. Tell the similarities/differences between pronunciation of various kinds of sentences, use of punctuation marks and word order in accordance with structures of sentences in foreign languages and Thai language. 2. Tell the similarities/differences between the festivals and celebrations of native speakers and those of Thais.	1. Tell the similarities/differences between pronunciation of various kinds of sentences, use of punctuation marks and word order in accordance with structures of sentences in foreign languages and Thai language. 2. Compare the differences/similarities between the festivals, celebrations and traditions of native speakers and those of Thais.



Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
<ol style="list-style-type: none"> <li>1. Tell the differences and the similarities between pronunciation of various kinds of sentences, use of punctuation marks and word order in accordance with the structures of sentences in foreign languages and Thai language.</li> <li>2. Compare similarities and differences between the festivals, celebrations, important days and lifestyles of native speakers and those of Thais.</li> </ol>	<ol style="list-style-type: none"> <li>1. Compare and explain the similarities and the differences between pronunciation of various kinds of sentences and word order in accordance with the structures of sentences in foreign languages and Thai language.</li> <li>2. Compare and explain the similarities and the differences between the lifestyles and culture of native speakers and those of Thais.</li> </ol>	<ol style="list-style-type: none"> <li>1. Compare and explain the similarities and the differences between pronunciation of various kinds of sentences in accordance with the structures of sentences in foreign languages and Thai language.</li> <li>2. Compare and explain the similarities and the differences between the lifestyles and the culture of the native speakers and those of Thais, and apply them appropriately.</li> </ol>	<ol style="list-style-type: none"> <li>1. Explain/compare the differences between the structures of sentences, paragraphs, idioms, sayings, proverbs and poems in foreign languages and Thai language.</li> <li>2. Analyse/discuss the similarities and the differences between the lifestyles, beliefs and culture of the native speakers and those of Thais, and apply them appropriately.</li> </ol>

### Strand 3: Language and Relationship with Other Learning Areas

Standard FL3.1: Using foreign languages to link knowledge with other learning areas, as foundation for further development, seeking knowledge and broadening one's world view

#### Grade-level Indicators

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
1. Explain the terms related to other learning areas.	1. Explain the terms related to other learning areas.	1. Explain the terms related to other learning areas.	1. Search for and collect the terms related to other learning areas, and present them through speaking/writing.	1. Search for and collect the terms related to other learning areas, and present them through speaking/writing.	1. Search for and collect the terms related to other learning areas from learning sources, and present them through speaking/writing.

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
1. Search for, collect and summarise the information/facts related to other learning areas from learning sources, and present them through speaking/writing.	1. Search for, collect and summarise the information/facts related to other learning areas from learning sources, and present them through speaking/writing.	1. Search for, collect and summarise the information/facts related to other learning areas from learning sources, and present them through speaking/writing.	1. Research/search for, make records, summarise and express opinions about the information related to other learning areas, and present them through speaking and writing.

**Strand 4: Language and Relationship with Community and the World**

Standard FL4.1: Ability to use foreign languages in various situations: in school, community and society

**Grade-level Indicators**

<b>Grade 1</b>	<b>Grade 2</b>	<b>Grade 3</b>	<b>Grade 4</b>	<b>Grade 5</b>	<b>Grade 6</b>
1. Listen/speak in simple situations in the classroom.	1. Listen/speak in simple situations in the classroom.	1. Listen/speak in simple situations in the classroom.	1. Listen and speak in situations in the classroom and in school.	1. Listen, speak and read/write in various situations in the classroom and in school.	1. Use language for communication in various situations in the classroom and in school.

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
1. Use language for communication in real situations/ simulated situations in the classroom and in school.	1. Use language for communication in real situations/ simulated situations in the classroom, school and community.	1. Use language for communication in real situations/ simulated situations in the classroom, school, community and society.	1. Use language for communication in real situations/simulated situations in the classroom, school, community and society.

**Strand 4: Language and Relationship with Community and the World**

Standard FL4.2: Using foreign languages as basic tools for further education, livelihood and exchange of learning with the world community

**Grade-level Indicators**

<b>Grade 1</b>	<b>Grade 2</b>	<b>Grade 3</b>	<b>Grade 4</b>	<b>Grade 5</b>	<b>Grade 6</b>
1. Use foreign languages to collect relevant terms around them.	1. Use foreign languages to collect relevant terms around them.	1. Use foreign languages to collect relevant terms around them.	1. Use foreign languages to search for and collect various information.	1. Use foreign languages to search for and collect various information.	1. Use foreign languages to search for and collect various information.

Grade-level Indicators			Interval Indicators
Grade 7	Grade 8	Grade 9	Grades 10-12
1. Use foreign languages in conducting the research for knowledge/ various information from the media and different learning sources for further education and livelihood.	1. Use foreign languages in conducting the research, collecting and summarising knowledge/various information from the media and different learning sources for further education and livelihood. 2. Disseminate/convey to the public the information and the news about the school in foreign languages.	1. Use foreign languages in conducting the research, collecting and summarising knowledge and various information from the media and different learning sources for further education and livelihood. 2. Disseminate/convey to the public the information and the news about the school, the community and the local area in foreign languages.	1. Use foreign languages in conducting the research, collecting, analysing and summarising knowledge/ various information from the media and different learning sources for further education and livelihood. 2. Disseminate/convey to the public the information and the news about the school, the community and the local area/the nation in foreign languages.

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