

**SAMPLE CONTENT**



Perfect Notes

# ENVIRONMENTAL STUDIES

(Part One & Two)

Build  
Powerful  
Concepts



**STD. V**

(Eng. Med.)

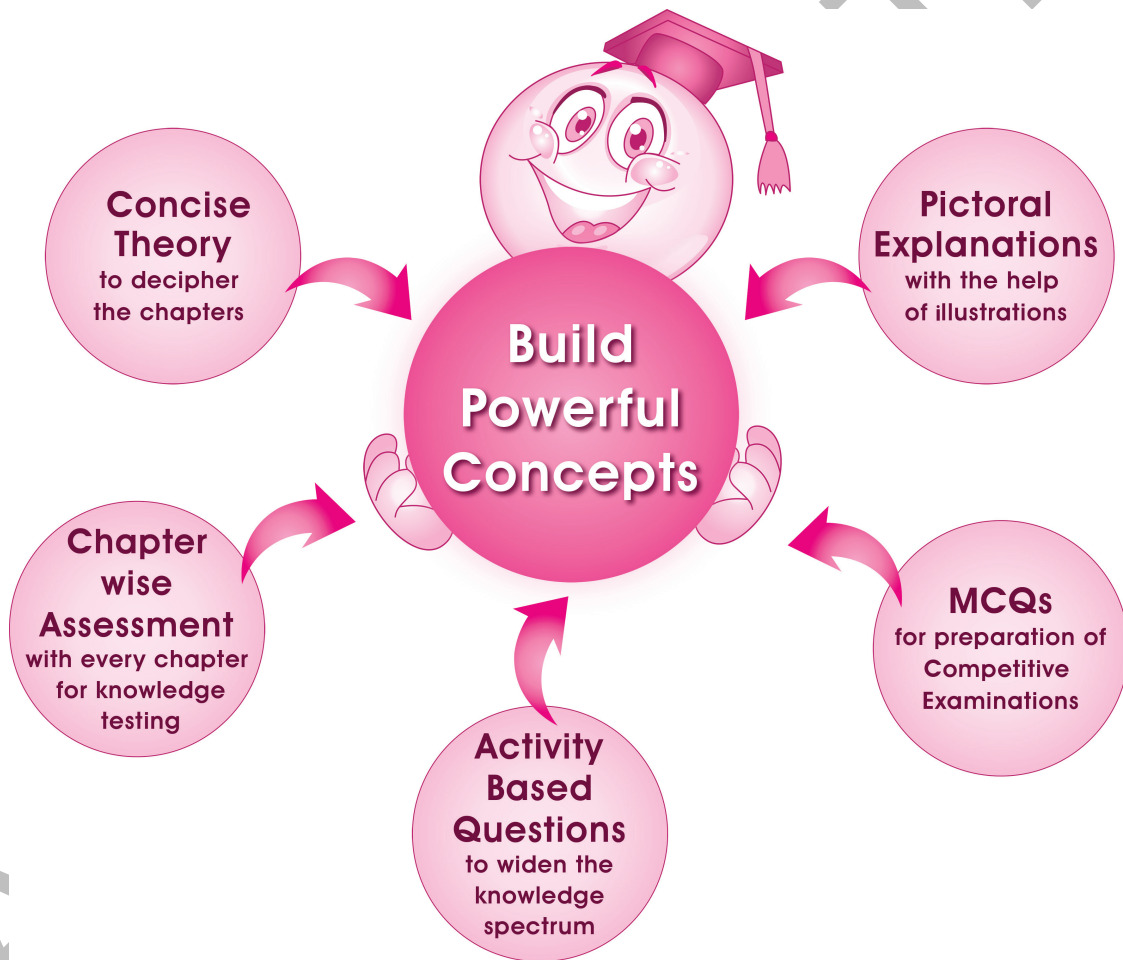
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# STD. V

# Environmental Studies

(Part One & Two)



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## PREFACE

While designing the book, our main intention was to create a book that would act as a single point of reference for students. We wanted this book to provide students, the much needed answers for their textual questions as well as build up their knowledge quotient in the process.

**Environmental Studies: Std. V** has been prepared as per the new 'Continuous Comprehensive Evaluation' (CCE) system which is more child-centric and focuses on active learning and making the process of education more enjoyable and interesting.

Environmental Studies is divided into two parts; part I (Science, Geography and Civics) and part II (History). We have infused the book with a liberal sprinkling of real life examples, pictorial explanations and additional questions. Questions titled under 'Use your brain power', 'Can you tell' and a series of 'In-text Questions', pave the way for a robust concept building.

Every chapter begins with Point wise Theory and Pictorial Illustrations. It follows through by covering all the textual content in the format of **Summative** and **Formative assessment**. Summative assessment includes Question-Answers, Give Reasons and other type of Questions. Formative assessment is divided into section A – Apply your knowledge, section B – Oral work and Section C – Activities which helps students to understand concepts quickly. The chapter also includes **Activity Based Questions** that explain certain concepts to students in a point wise manner through the medium of an activity. The chapter eventually ends with a **Chapter wise Assessment** that stands a testimony to the fact that the child has understood the chapter thoroughly. To provide general and understandable explanations of the difficult terms, '**Glossary**' is included at the end of the book. **Additional information** and **Fun Facts** are added to trigger students' thought process.

With absolute trust in our work, we hope, our holistic efforts towards making this book an ideal knowledge hub for students pays off.

The journey to create a complete book is strewn with triumphs, failures and near misses. If you think we've nearly missed something or want to applaud us for our triumphs, we'd love to hear from you.

Please write to us at: [mail@targetpublications.org](mailto:mail@targetpublications.org)

*A book affects eternity; one can never tell where its influence stops.*

*Best of luck to all the aspirants!*

From,  
Publisher

**Edition:** Second

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**Note: Textual Questions are represented by \* mark.**

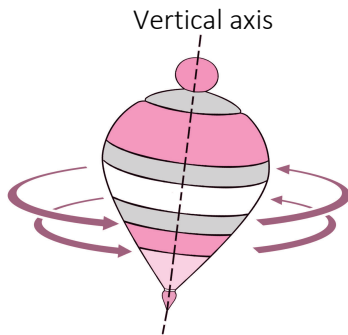
## 2. Motions of the Earth



### Let's Study

1. Turning of an object around itself about a certain imaginary line is called **rotation**.
2. The imaginary line around which an object rotates is called its **axis of rotation**.

**Examples:** Spinning of a top, rotation of car wheel, rotation of the earth.



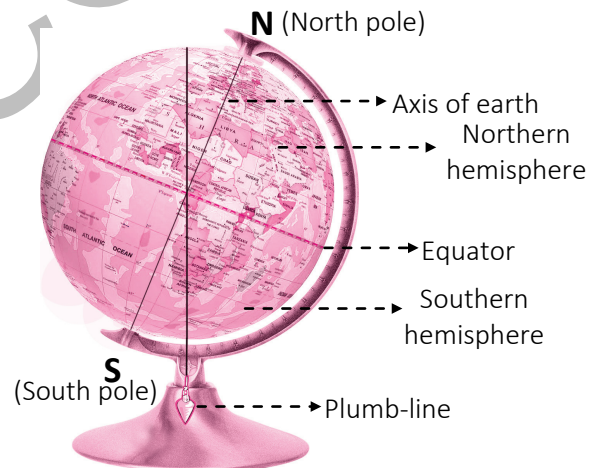
**A top spins around its vertical axis**



**A wheel spins around its horizontal axis**

### Earth's rotation

1. Earth's axis of rotation is not vertical like plumb-line but it makes certain angle to the plumb-line. Hence, we say that the earth's axis is inclined.
2. Earth's axis of rotation passes through the centre of the earth and intersects the earth's surface at north and south locations. These two geographical intersection points are called as north pole and south pole respectively.
3. An imaginary circle around the surface of the earth, exactly in between the north and south poles is called the **equator**. It divides the earth into two equal parts: northern and southern hemispheres respectively.
4. As the earth rotates, its different parts come into the light of the sun successively and also turn away from the sun in the same order.
5. Sunset and sunrise is observed due to rotation of the earth.
6. The period of time taken by the earth to complete one rotation is called a **day**.



**A globe**

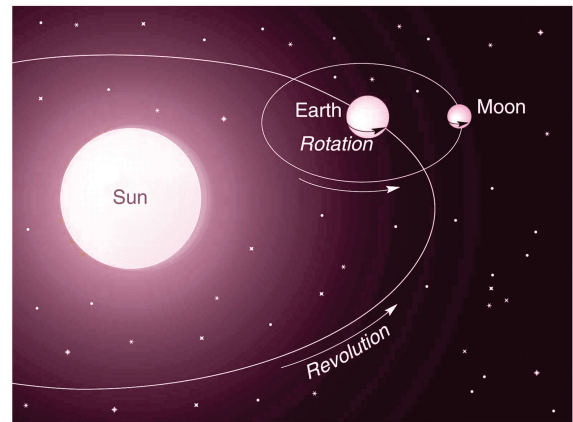
### Earth's Revolution and its effects

1. Circling of the earth around the sun is called as **revolution** of the earth.
2. The period of time taken by the earth to complete one revolution around the sun is called **one year**.
3. The revolution of the earth and inclination of its axis give rise to unequal length of days and nights.
4. The revolution of the earth and inclination of its axis give rise to the cycles of seasons.

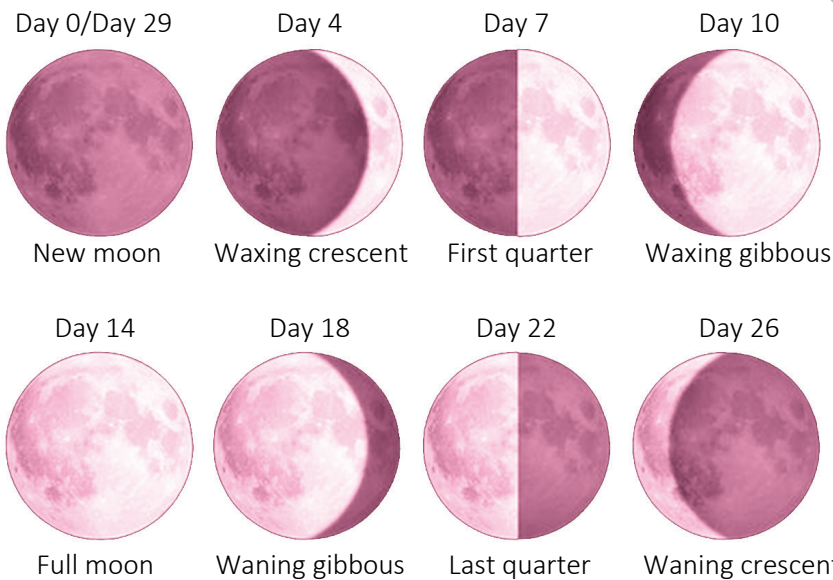


**Phases of the moon**

1. The moon revolves around the earth and the earth revolves around the sun. The sun, moon and earth are not always along a straight line. The orbit in which the earth revolves around the sun and the orbit in which the moon revolves around the earth intersect as shown in the adjacent image.
2. Moon has no light of its own. It is visible because sunlight falls on it.
3. These different shapes of the moon which are visible from the earth are termed as **phases of the moon**. These phases arise due to the revolution of the moon around the earth.



**Motion of the earth and the moon**



**Phases of the moon**

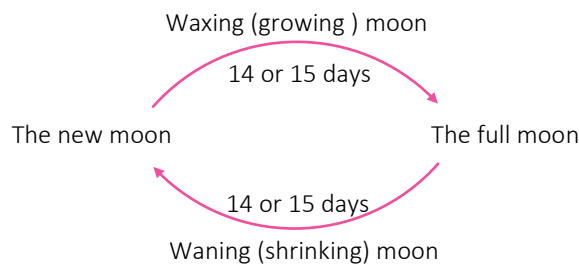


**Additional Information**

For a lunar month of 29 days, if the month begins by new moon then phases of moon falls on specific tithis as given below:

- Waxing crescent → Chaturthi
- First quarter → Ashtami
- Waxing gibbous → Ekadashi
- Full moon → Purnima (In Shukla Paksha)
- Waning gibbous → Chaturthi
- Last quarter → Ashtami
- Waning crescent → Ekadashi
- New moon → Amavasya (In Krishna Paksha)

4. The duration of 28 to 30 days between one new moon to the next new moon is called as **lunar month**. Thus, fortnight of the Waxing moon + fortnight of the Waning moon = 1 lunar month.



5. Every day of the lunar month is called a **tithi**.



Summative Assessment



Fill in the blanks

- \*1. The motion of the earth around itself is called .....
- \*2. The motion of the earth around the sun is called .....
- \*3. The rotation of the earth gives rise to .....
- 4. The imaginary circle that divides the earth into two equal parts is .....
- 5. The earth completes one revolution around the sun in .....
- 6. Between 23<sup>rd</sup> September to 22<sup>nd</sup> March, the days are usually longer than the nights in the southern hemisphere. The difference in these dates may arise due to the ..... year.

Answers:

- 1. rotation                      2. revolution                      3. day and night                      4. equator
- 5. one year                      6. leap



Choose the correct alternative

- 1. Sunrise and sunset is observed due to .....
  - (A) revolution of the sun
  - (B) rotation of the sun
  - (C) revolution of the earth
  - (D) rotation of the earth
- 2. One rotation is said to be completed by the earth when.....
  - (A) the earth makes one round around the sun
  - (B) the earth makes one round around itself
  - (C) one lunar month is completed
  - (D) one year of Gregorian calendar is completed
- 3. The seasons are observed on the earth because of
  - (A) rotation of the earth.
  - (B) revolution of the earth.
  - (C) revolution of the earth and inclination of its axis.
  - (D) rotation of the earth and inclination of its axis.
- 4. A Gregorian calendar counts ..... less every year.
  - (A) one day
  - (B) 6 hours
  - (C) 365 days
  - (D) 29 days
- 5. The period from one new moon to the next is called .....
  - (A) a lunar month
  - (B) a tithi
  - (C) a Shukla Paksha
  - (D) a Krishna Paksha



Fun Fact

Once a year the full moon appears 14% larger than usual. Such a full moon is called as super moon.  
[\[https://solarsystem.nasa.gov/moons/earths-moon/overview/\]](https://solarsystem.nasa.gov/moons/earths-moon/overview/)

Answers:

- 1. (D)                      2. (B)                      3. (C)                      4. (B)
- 5. (A)



Right or Wrong? If Wrong, write the correct sentence.

- 1. **The earth rotates from east to west.**  
**Ans:** Wrong.  
 The earth rotates from west to east.
- 2. **A whole day is divided into 24 parts and each part is called an hour.**  
**Ans:** Right.

**Odd One out**

1. **Spinning of a top, rotation of potter's wheel, revolution of the earth, rotation of the moon.**

**Ans:** Revolution of the earth.

**Reason:** Except for revolution of the earth, in rest of the examples, motion takes place around their respective axis of rotation.

2. **Waxing moon, waning moon, a leap year, a lunar month.**

**Ans:** A leap year.

**Reason:** A leap year is related to the revolution of the earth while the remaining terms are related to revolution of the moon around the earth.

3. **Vasant, Grishma, Summer, Sharad, Shishir**

**Ans:** Summer

**Reason:** Summer, rainy season and winter are three main seasons in India. Also, in India, a year is divided into six seasons namely Vasant, Grishma, Varsha, Sharad, Hemant and Shishir forming a cycle of six seasons called rituchakra.

**Match the Following**

1. **Match the motion described in Group 'A' with their time period given in Group 'B'.**

	Group 'A'		Group 'B'
(i)	Rotation of the earth	(a)	366 days
(ii)	Revolution of the moon	(b)	24 hours
(iii)	Revolution of the earth	(c)	365 days and 6 hours
		(d)	lunar month

**Ans:** (i) – (b), (ii) – (d), (iii) – (c)

**How are we different?**

1. **Rotation of the earth and Revolution of the earth.**

**Ans:**

	Rotation of the earth	Revolution of the earth
(i)	The turning of the earth around itself is called as rotation of the earth.	Circling of the earth around the sun is called as revolution of the earth.
(ii)	Time taken to complete one rotation is 1 day.	Time taken to complete one revolution is 1 year.
(iii)	The rotation of the earth gives rise to day and night.	The revolution of the earth along with the inclination of its axis causes the cycle of seasons.
(iv)	Earth rotates around its axis of rotation.	Earth revolves around the sun in its orbit.

2. **Waning moon and Waxing moon.**

**Ans:**

	Waning moon	Waxing moon
(i)	The period of fortnight between the full moon and the new moon is called waning moon.	The period of fortnight between the new moon and the full moon is called waxing moon.
(ii)	During this period, moon appears smaller day-by-day.	During this period, moon appears to grow larger day-by-day.
(iii)	This is also called as Krishna Paksha.	This is also called as Shukla Paksha.





### Answer in your own words

#### \*1. What's the solution?

**Amit wants to take his granny to Australia which is in the southern hemisphere. But she cannot bear very cold weather. When should they make this trip?**

- Ans:** (a) Amit's granny cannot bear cold weather. Hence, she should visit Australia during summer.  
 (b) Australia is situated in the southern hemisphere. It experiences summer season during the period of 23<sup>rd</sup> September to 22<sup>nd</sup> March.  
 (c) Considering this, they should make the trip to Australia anytime between October to mid-March.

#### \*2. Use your brain power!

##### (i) How many rotations does the earth complete during one revolution around the sun?

**Ans:** The earth completes one rotation in 1 day. It takes 365 days and 6 hours i.e.,  $\frac{1}{4}$  day to complete one revolution.

This means, during one revolution around the sun, the earth performs 365 and  $\frac{1}{4}$  rotations.

##### (ii) It is sunrise at Itanagar in Arunachal Pradesh. Write the names of the following cities in the order in which the sun will rise there.

**Mumbai (Maharashtra), Kolkata (West Bengal), Bhopal (Madhya Pradesh), Nagpur (Maharashtra).**

**Ans:** The earth rotates from west to east. This implies sunrise is observed earlier in the eastern states and gradually is seen by western states of India.

The order in which the sun will rise in the given cities is: Itanagar (Arunachal Pradesh), Kolkata (West Bengal), Nagpur (Maharashtra), Bhopal (Madhya Pradesh) and Mumbai (Maharashtra).



### Answer the following

#### \*1. (i) What is the equator? (ii) What are the two parts of the earth made by the equator?

- Ans:** (i) An imaginary circle around the surface of the earth, exactly in between the north and south poles is called the equator.  
 (ii) The two parts of the earth made by the equator are:  
 (a) Northern hemisphere (b) Southern hemisphere

#### \*2. What is meant by each of the following terms?

##### (i) Full moon (ii) New moon (iii) Lunar month (iv) Tithi

- Ans:** (i) Full moon: When a complete and round moon is seen in the sky, it is called as full moon.  
 (ii) New moon: When the moon is not at all visible in the sky from the earth, it is called as new moon.  
 (iii) Lunar month: The duration of 28 to 30 days between a new moon to the next new moon is called a lunar month.  
 (iv) *Tithi*: Every day of the lunar month is called as tithi.

#### 3. What are poles of the earth?

**Ans:** Earth's axis of rotation passes through the centre of the earth and intersects the earth's surface at north and south locations. These two geographical intersection points are called as north pole and south pole respectively.



## 4. Can you tell? (Textbook page no. 8)

(i) What is the name given to the changing shapes of the moon that we see?

Ans: Phases of the moon.

(ii) What are the names of the days on which we see a round moon and on which we see no moon at all?

Ans: We see a round moon on full moon night and no moon on new moon night.



## Give reasons

## 1. A leap year has 366 days.

- Ans:
- The earth takes 365 days and 6 hours to complete one whole revolution around the sun. Hence, 1 year = 365 days and 6 hours.
  - But according to Gregorian calendar, a year is considered to have 365 days. Thus, it counts 6 hours less every year.
  - To compensate for this time loss, after every 4 years, an extra day is added to the month of February, making it of 29 days instead of 28.
  - Such a year has 366 days instead of 365 and is termed as a leap year. Hence, a leap year has 366 days.

2. Northern hemisphere experiences summer season during 22<sup>nd</sup> March to 23<sup>rd</sup> September.

- Ans:
- Variation in the length of day and night is caused by revolution of earth and inclination of its axis.
  - Due to this, in the northern hemisphere between 22<sup>nd</sup> March to 23<sup>rd</sup> September, the days are longer than the nights.
  - The earth gets more heat in these parts causing warmer weather. As a result, northern hemisphere experiences summer season during 22<sup>nd</sup> March to 23<sup>rd</sup> September.

3. Southern hemisphere experiences summer season during 23<sup>rd</sup> September to 22<sup>nd</sup> March.

- Ans:
- Variation in the length of day and night is caused by revolution of earth and inclination of its axis.
  - Due to this, in southern hemisphere between 23<sup>rd</sup> September to 22<sup>nd</sup> March, the days are longer than the nights.
  - The earth gets more heat in these parts causing warmer weather. As a result, southern hemisphere experiences summer season during 23<sup>rd</sup> September to 22<sup>nd</sup> March.

## Formative Assessment

Section- A  
Apply Your Knowledge

## 1. Can you tell?

In India, many festivals are connected with seasons. Also, certain celebrations are carried out observing the phases of the moon. Name some festivals celebrated according to tithi.

Ans:

	Festivals	Tithi on which it is celebrated
(a)	Ganesh Chaturthi	Chaturthi
(b)	Karva Chauth	Chaturthi
(c)	Nagpanchami	Panchami
(d)	Ramnavami	Navami
(e)	Dashera	Dashami
(f)	Ashadhi Ekadashi	Ekadashi

Festival of Eid is also celebrated studying the phases of the moon.



**Section- B**  
**Oral work**

1. **What are the two parts of a day?**

Ans: The two parts of a day are daytime and nighttime.

2. **How many hours are counted less every year in the Gregorian calendar?**

Ans: In the Gregorian calendar 6 hours are counted less every year.

3. **Referring to rituchakra in which of the seasons trees shed their leaves?**

Ans: Referring to rituchakra, trees shed their leaves in season Shishir.

4. **What are the effects of revolution of the earth?**

Ans: Effects of revolution of the earth are cycles of seasons and unequal lengths of day and night.

5. **How long does it take from new moon to full moon?**

Ans: It takes 14 or 15 days from new moon to full moon.

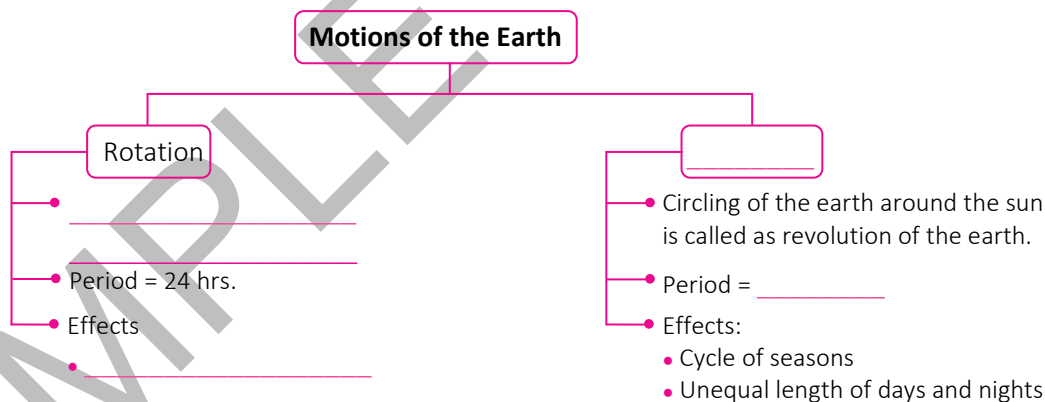


**Section- C**  
**Activities**

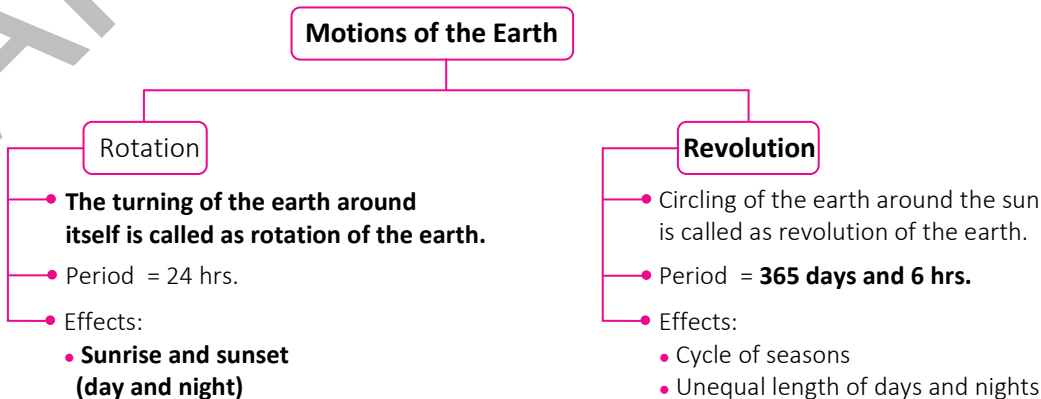
\*1 **Find the names of the various ‘tithis’ using a calendar which shows them.**

Ans: The names of the various tithis are: Prathama/Pratipada, Dwitiya, Tritiya, Chaturthi, Panchami, Shashthi, Saptami, Ashtami, Navami, Dashami, Ekadashi, Dwadashi, Trayodashi, Chaturdashi, Amavasya (new moon) and Purnima (full moon).

2. **Complete the following flow chart.**

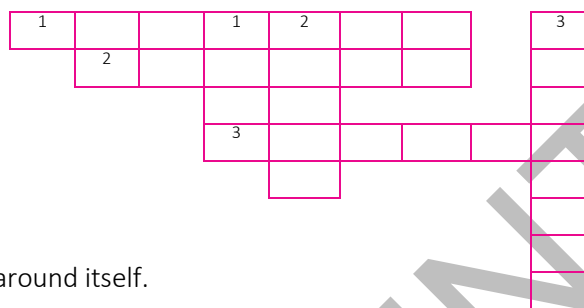


Ans:



**3. Solve the following crossword puzzle.****Across:**

- (1) An imaginary circle dividing the earth into two equal parts.
- (2) The fortnight ending on a full moon is of ..... moon.
- (3) ..... Paksha begins on the new moon day.

**Down:**

- (1) The imaginary line around which object turns around itself.
- (2) A day of lunar month.
- (3) ..... of the earth causes day and night.

**Ans:** Across: (1) EQUATOR (2) WAXING (3) SHUKLA  
Down: (1) AXIS (2) TITHI (3) ROTATION

**Chapter Assessment****1. Select the appropriate options and complete the following paragraph.**

(shorter, May vacation, longer, 23<sup>rd</sup> September, Christmas vacation, 22<sup>nd</sup> March)

Reena wants to enjoy summer in Europe. She should visit it during ..... This is because Europe lies in the northern hemisphere. In northern hemisphere, between ..... and ....., the days are ..... than nights causing warm weather.

**2. What is a leap year? Explain in your own words. Which is the recently observed leap year?****3. Give reason.**

Northern hemisphere experiences winter season during 23<sup>rd</sup> September to 22<sup>nd</sup> March.

**4. Answer the following in your own words.**

- (i) How many rotations does the earth complete in a lunar month?  
(Consider a lunar month of 30 days.)
- (ii) Write the names of the following cities in the order in which the sun will rise.  
Rajkot (Gujarat), Varanasi (Uttar Pradesh), Gurgaon (New Delhi), Shillong (Meghalaya).

**5. Distinguish between Krishna Paksha and Shukla Paksha.****Answers:**

1. Reena wants to enjoy summer in Europe. She should visit it during May vacation. This is because Europe lies in the northern hemisphere. In northern hemisphere, between 22<sup>nd</sup> March and 23<sup>rd</sup> September, the days are longer than nights causing warm weather.
2. (a) The period of time taken by the earth to complete one revolution around the sun is called one year.  
(b) The earth takes 365 days and 6 hours to complete one whole revolution around the earth. Hence, 1 year = 365 days and 6 hours.  
(c) According to the Gregorian calendar, a year is considered to have 365 days. It counts 6 hours less every year.  
(d) To compensate for this time loss, after every 4 years, an extra day is added to the month of February, making it of 29 days instead of 28.  
(e) Such a year has 366 days instead of 365 and is termed as a leap year.  
The recently observed leap year is 2016.



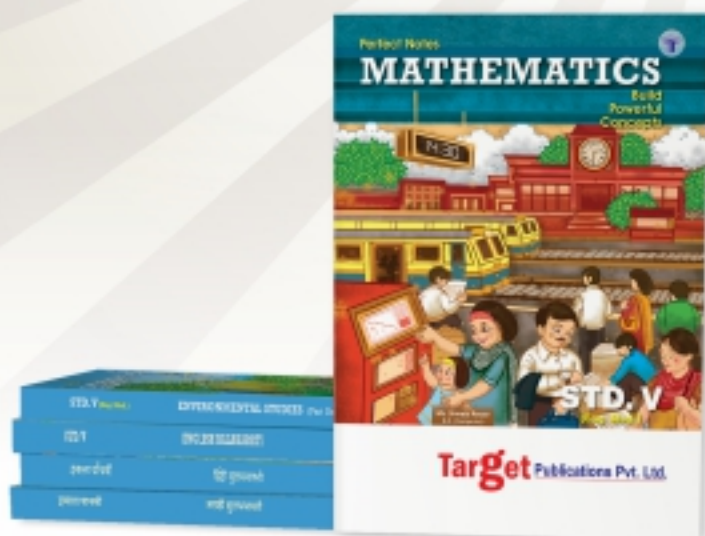
3. (a) Variation in the length of day and night is caused by revolution of earth and inclination of its axis.  
 (b) Due to this, in the northern hemisphere between 23<sup>rd</sup> September and 22<sup>nd</sup> March, the days are shorter than the nights.  
 (c) The earth gets less heat in these parts causing cool weather.  
 As a result, northern hemisphere experiences winter season during 23<sup>rd</sup> September to 22<sup>nd</sup> March.
4. (i) The earth completes one rotation per day. Hence, in the lunar month of 30 days earth completes 30 rotations.  
 (ii) The order in which the sun will rise in the given cities is:  
 Shillong (Meghalaya), Varanasi (Uttar Pradesh), Gurgaon (New Delhi), Rajkot (Gujarat).

5.

	<b>Krishna Paksha</b>	<b>Shukla Paksha</b>
(i)	The period of fortnight between the full moon and the new moon is called as Krishna Paksha.	The period of fortnight between the new moon and the full moon is called as Shukla Paksha.
(ii)	During this period, moon appears smaller day-by-day.	During this period, moon appears to grow larger day-by-day.
(iii)	This period is also called as waning moon.	This period is also called as waxing moon.



# Std. V



## AVAILABLE SUBJECTS:

- English Balbharati
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- मराठी सुलभभारती
- Mathematics
- Environmental Studies (I & II)

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