Chapter- 3

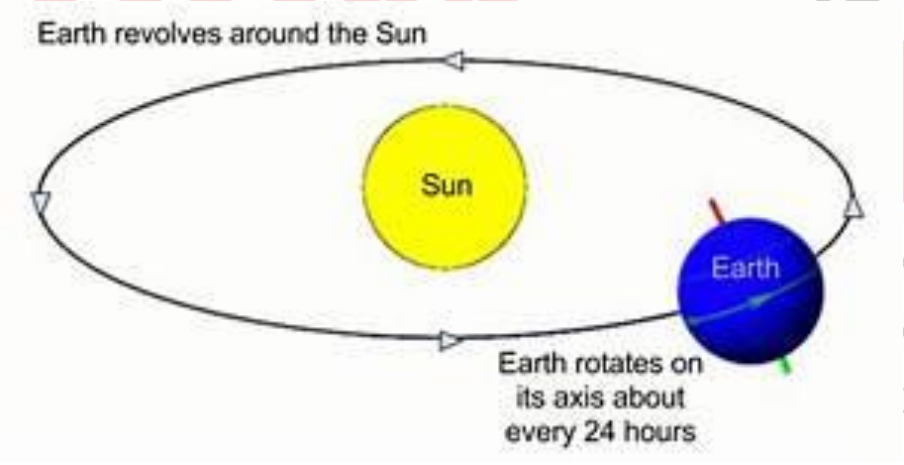
Movements of the Earth

STUDY NOTES

Let's Learn

All books tell us that the Earth is moving. If it is moving, why do we not feel this movement? It's so because the Earth is moving at a steady rate and we are all moving with it. However, we will feel the Earth's movement if it's speed suddenly increases or decreases.

The Earth, along with all the other heavenly bodies, is constantly moving. The two main movements of the Earth are **rotation** and **revolution.** These movements have an important impact on life on Earth. Let us understand the difference between these two motions, and how they affect our lives.

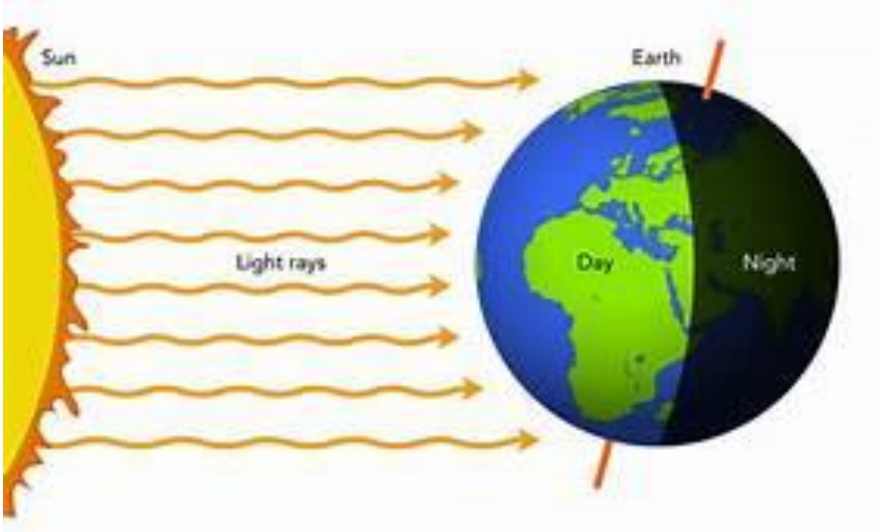


THE ROTATION OF THE EARTH

The spinning movement of the Earth about its **axis** is called rotation. The Earth's axis is an imaginary line that passes through the North and South Poles, and it is **tilted** at an angle of 23½°. The Earth takes 24 hours to complete one rotation about its axis. This is called one **earth-day.**

Effect of the rotation of the Earth: Day and Night

The rotation of the Earth causes **day** and **night.**



While rotating, different parts of the Earth face the Sun. The part of the Earth that faces the Sun experiences day, while the other side, which faces away from the Earth, is dark and experiences night. The Earth rotates from the west to the east. As a result, the Sun, the Moon and the stars appear to rise in the east and set in the west.

The period between night and day is called **dawn** and the period between day and night is called **dusk.**

REVOLUTION OF THE EARTH

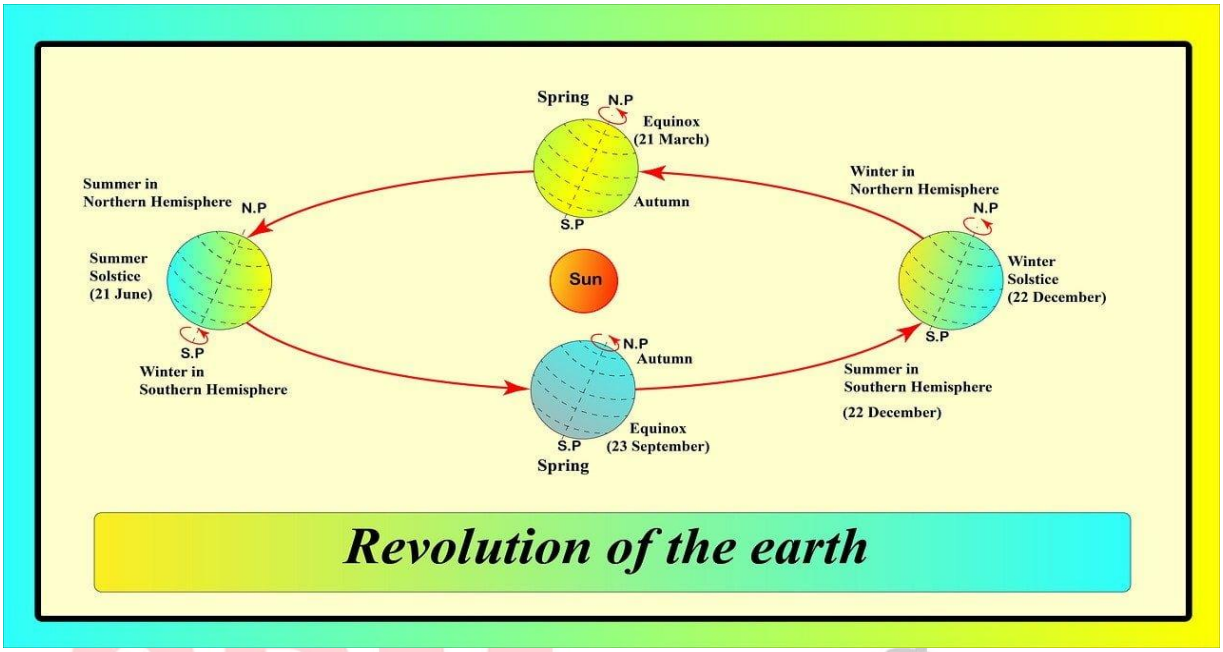
The movement of the Earth around the Sun is called revolution. The path along which the Earth revolves around the Sun is fixed and is called its **orbit.** The Earth's orbit is elliptical or oval in shape. It takes the Earth one year, or 365 days and 6 hours, to complete one revolution.

Effects of revolution: seasons

Most places on Earth experience different seasons in a year, namely **spring, summer, autumn and winter.** These seasons are caused by the revolution of the Earth and the tilt in the Earth's axis. As the Earth orbits the Sun, its tilted axis always points in the same direction. So, during the course of a year, different parts of the Earth face the Sun.

The part of the Earth that is tilted towards the Sun gets the direct rays of the Sun and has summer, while the part that faces away from the Sun, receives less heat from the Sun, and so, has winter.

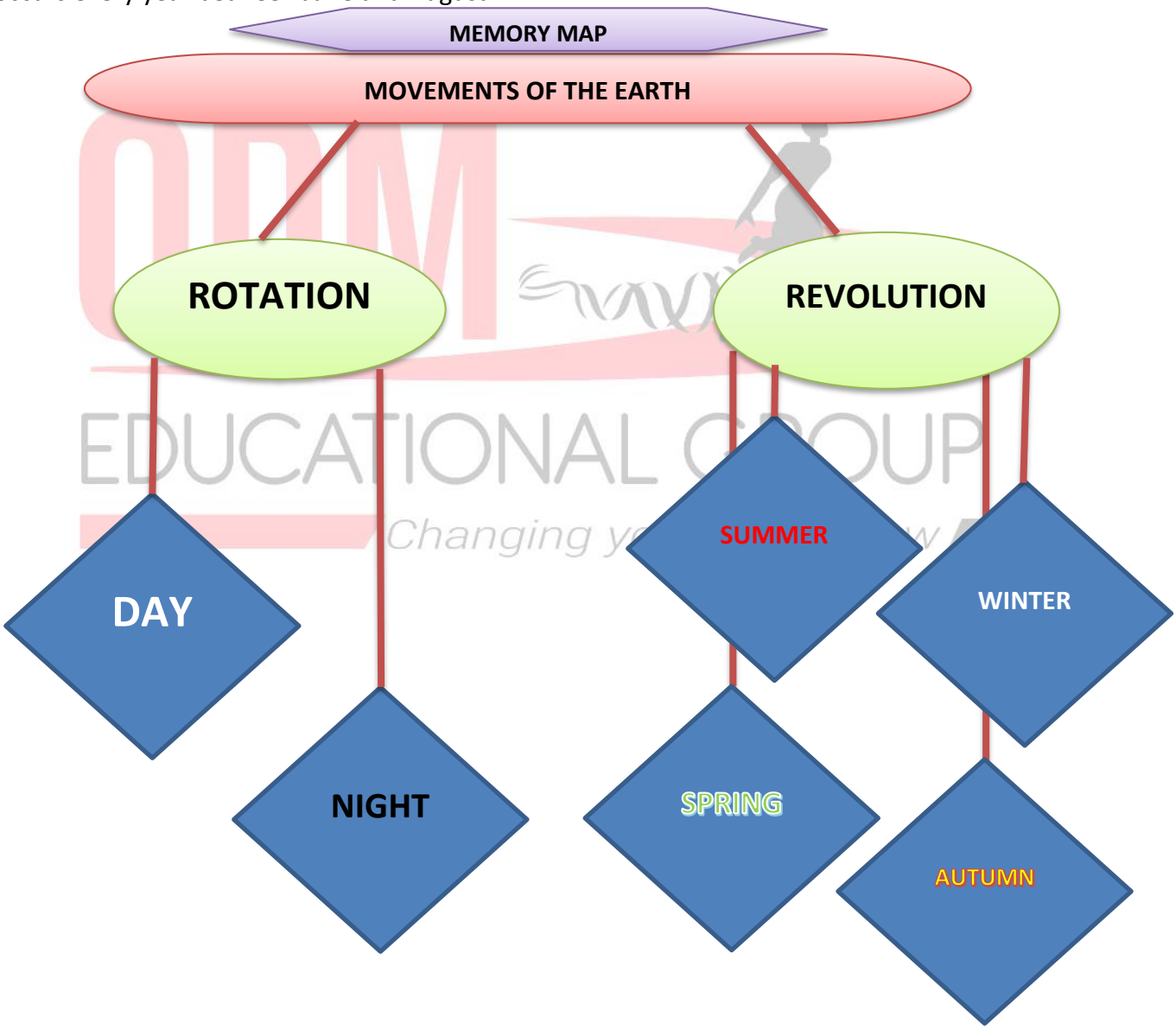
Twice a year, in March and September, neither of the poles is facing the Sun, and all parts of the Earth get roughly equal hours of daylight and darkness. At this time, places on Earth have seasons like autumn and spring, which are neither too hot nor too cold.



Thus, as you can see from the figure on the previous page, the Northern Hemisphere and the Southern Hemisphere experience opposite seasons. For example, in December, Canada, which lies in the Northern Hemisphere, has winter, while Australia in the Southern Hemisphere has summer. In June, Canada experiences summer, while Australia experiences winter.

	Northern Hemisphere	Southern Hemisphere
March	Spring	Autumn
June	Summer	Winter
September	Autumn	Spring
December	Winter	Summer

In India, we have yet another season - the **monsoon!** This is the season of rains in India. It occurs every year between June and August.



Let's know more

Fill in the blanks

- ✧ The _____ of the Earth causes day and night.
- ✧ _____ is the period between night and daylight, and _____ is the period between daylight and night.
- ✧ The movement of the Earth round the Sun is called _____.
- ✧ The Earth's orbit is _____ in shape.
- ✧ The _____ are reversed between the Northern and Southern Hemispheres, because of the _____ of the Earth's axis.

Let's Do

A. Fill in the blanks.

1. The fixed path along which the Earth revolves around the Sun is called its _____.
2. The part of the Earth facing away from the Sun has _____.
3. The imaginary line along which the Earth rotates is called its _____.
4. Day and Night on the Earth are caused by the _____ of the Earth.
5. In the month of June the _____ Pole is tilted towards the Sun.

B. Write T for true and F for false sentences.

1. The Earth takes 24 hours to revolve around the Sun.
2. The hemisphere of the Earth that is tilted away from the Sun gets longer hours of sunlight.
3. When the North Pole is tilted towards the Sun, the Northern Hemisphere has summer.
4. When the Northern Hemisphere has day, the Southern Hemisphere has night.

Understand and Answer

C. Answer the following questions.

1. How many different types of motions does the Earth have?

2. What is meant by 'rotation' of the Earth? What is the effect of rotation?

3. Why is one day and one night on the Earth of 24 hours?

4. In the month of June it is summer in the Northern Hemisphere and winter in the Southern Hemisphere. Why?

5. Why do the seasons repeat year after year?

Teacher's Note

In the solar system, the planet Venus has the longest day. A day in Venus is equal to 243 days on the Earth. However, a year on Venus lasts for only 224.

Improve your G.K

- The Earth is rotating at a speed of about 2,200 kilometers per hour**.**
- When nights and days are equal is known as **Equinoxes**.
- March 21 is known as **vernal**(spring) equinox**.**
- September 23 is known as the **autumn** equinox**.**

ANSWER KEY

Let's know more

Fill in the blanks.

- Rotation
- Dawn & dusk
- Revolution
- Elliptical/oval
- Seasons & tilt

Let's Do

A. 1. orbit

2. night

3. axis

4. Rotation

5. North

B.1. F

2. F

3. T

4. T

Understand and Answer

C.1. The Earth have two types of motions - Rotation & Revolution.

Rotation - Movement of the Earth around its axis is called rotation.

Revolution - Movement of the Earth around the Sun along a fixed orbit is called revolution.

2. When the Earth spins about its axis is called rotation of the Earth. This rotation of the Earth causes day and night.

3. The Earth completes one rotation around its axis in 24 hours. That is why one day and one night on the Earth is of 24 hours.

4. In the month of June it is summer in the Northern Hemisphere and winter in the Southern Hemisphere because the North Pole is tilted towards the Sun, the South Pole is tilted away from the Sun.

5. The seasons repeat year after year as the revolutionary behaviour of the Earth continues as well as the fact that earth is permanently tilted on its axis; the earth goes through the same behaviour each year.