Chapter- 11

The Earth and Its Neighbours

STUDY NOTES

Let's Learn

THE SKY

- The sky is full of heavenly objects.
- Some of them are brighter than others.
- The tiny specks of light that appear in the sky are called **stars**.
- The slow–moving bright bodies are called **planets**.

STARS

- A star is a huge ball of gases.
- It gives out light and heat.
- The sun is a star.
- It is the star nearest to the earth.
- Some are smaller than the sun.
- Some are a thousand times bigger than it.
- Stars shine for millions of years.
- Many patterns of stars are visible in the sky.

We call these patterns constellations.

MILKY WAY

- The stars which we see in the night sky are only part of a huge star cloud.
- This star cloud is called the milky way galaxy.
- Which has billions of stars.
- The Milky Way is a spiral-shaped galaxy.

PLANETS

The Earth on which we live is a planet.

- It does not have light or heat of its own.

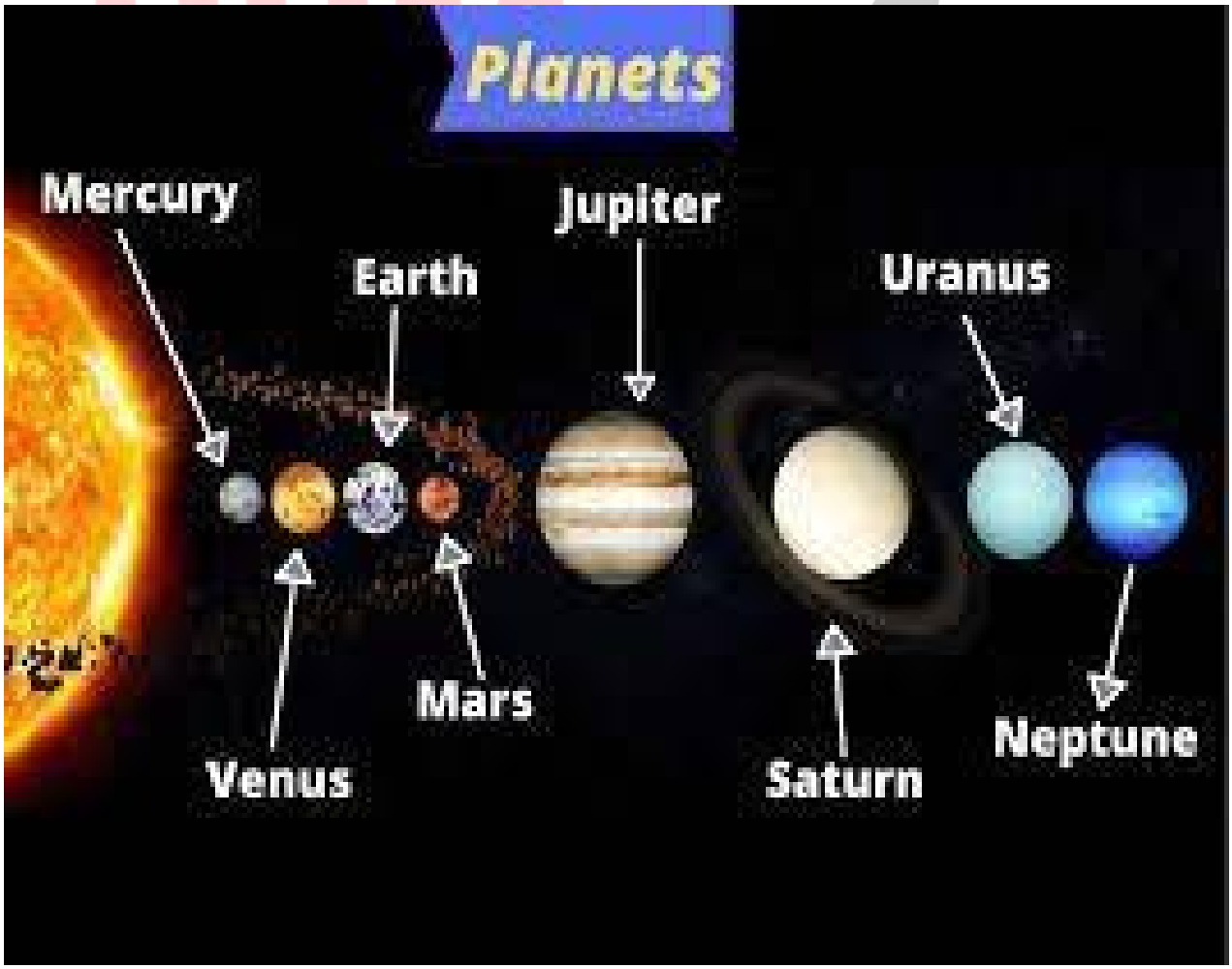
- When sunlight falls on earth it shines.
- A planet is much smaller in size than a star.
- The earth is one of the eight planets that move in their orbits around the sun.
- Five have been known to man for a long time.
- They are Mercury, Venus, Mars, Jupiter, and Saturn.
- The others, namely Uranus and Neptune were discovered after the invention of the telescope.
- Pluto was the ninth planet.
- Pluto is called a dwarf planet in 2006 and then a plutoid in June 2008.
- The planets were named after the gods and goddesses of Greece and Rome.
- Mars, for example, was the Roman god of war.
- Mercury and Venus are seen in the morning and evening.
- Venus is called the morning or the evening star.
- Jupiter is bright is the largest of all planets.
- Saturn is not so bright. It has a system of rings around it.
- The planets that are further away can be seen only with the help of a telescope.

MORE ABOUT PLANETS

NAME OF PLANET	INDIAN NAME	ORDER ACC. TO DISTANCE FROM SUN	NO. OF MOONS	INTERESTING FACTS
Mercury	Budh	First	0	• Boiling by day and cold at night.

Venus	Shukra	Second	0	• Brightest planet • Morning star or evening star as it is seen at dawn or dusk.
Earth	Prithvi	Third	1	• Only planet that supports life
Mars	Mangal	Fourth	2	• Covered with red dust; appear red in the night sky. Thus, it is called the red planet. • Its name comes from Mars, the Roman God of war.
Jupiter	Brihaspati	Fifth	79	• Largest and the fastest spinning planet. • Weighs more than 318 earth put together. • Wider than 11 piles of earthside by side
Saturn	Shani	Sixth	82	• Its rings are made up of ice, rocks & dust.

Uranus	Arun	Seventh	27	• Covered with a thick layer of beautiful blue-green gas
Neptune	Varun	Eighth	14	• Has cold winds that blow at a speed greater than that of a flying plane.



SATELLITES

- Satellites are small heavenly bodies that revolve around planets.
- Some planets have their satellites.
- The moon is a natural satellite of the earth.

SOLAR SYSTEM

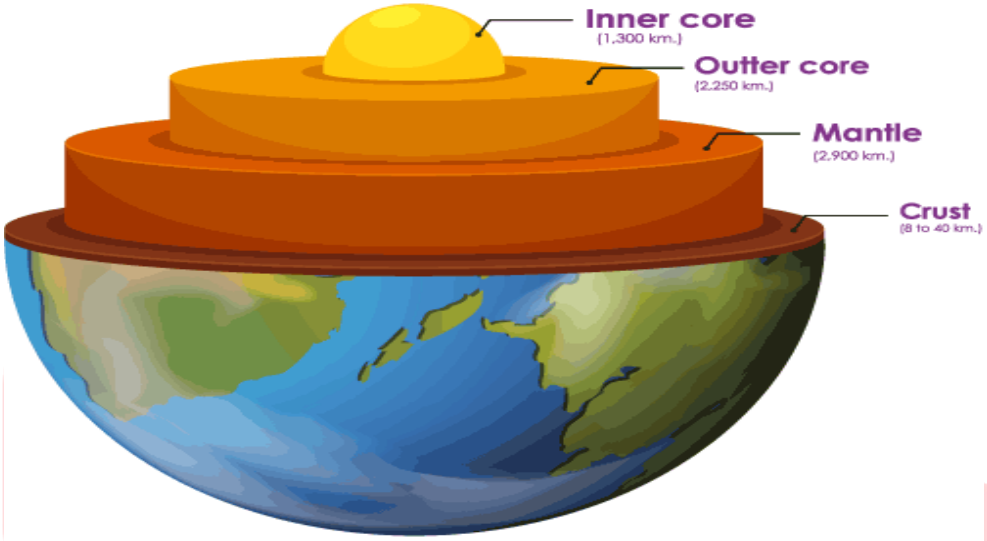
- The sun and the eight planets revolving around it along with their satellites make up the solar system.

OUR PLANET EARTH:

- The earth is a beautiful planet.
- It has land and water, mountains and valleys, hills and plains.
- Earth is also called a half-boiled egg!
- Its outer surface is hard, but the deep inside portion is called the crust.

DIFFERENT LAYERS OF EARTH

- The outer surface is called the crust.
- The inside portion is called the core.
- Between the outer crust and the inner core, there are layers of rocks, minerals, and metals in solid form. This layer is called the mantle.



VOLCANO

- The core of the earth has extremely high temperatures and is under great pressure.
- The boiling liquids and gases of the core push against the outer crust.
- The weak spots of the earth crack open under this pressure, letting the hot boiling liquids and gases gush out. This is how a volcano is formed.

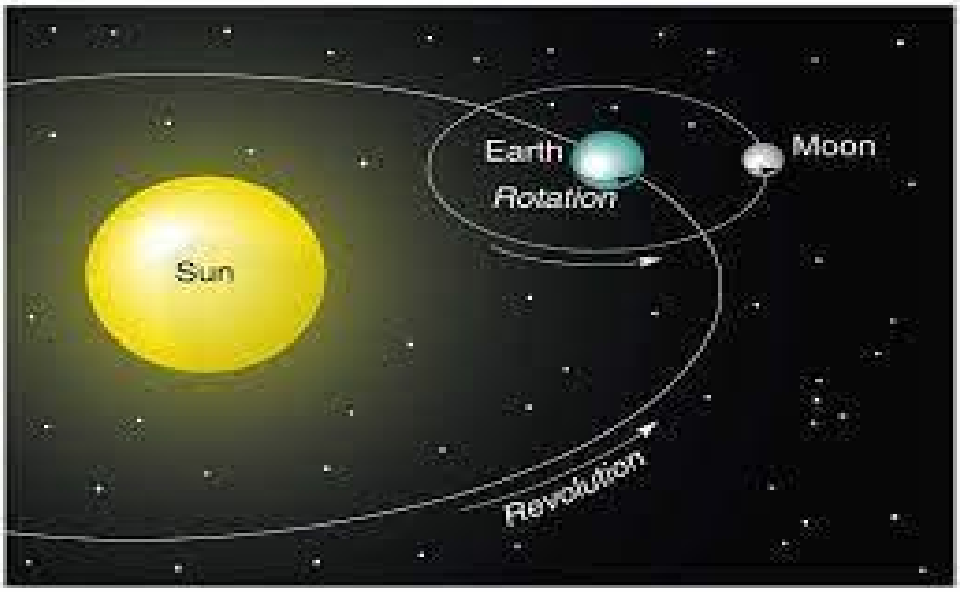
DIFFERENT STATUSES OF VOLCANO

- It erupts regularly.
- A dormant volcano has not erupted for a long time.
- A volcano is said to be extinct if it has not erupted during recorded history.

MOVEMENTS OF THE EARTH

- The earth moves on its axis.
- The axis of the earth is an imaginary line that runs through the center of the earth.
- This axis is slightly tilted. The two points where the axis seems to enter are called the poles: the **North Pole** and the **South Pole**.
- The equator is another imaginary line around the earth, exactly halfway between the poles.
- It divides the earth into two halves, the **Northern Hemisphere** and the **Southern Hemisphere**.

The movement of the Earth on its axis is called **rotation**.

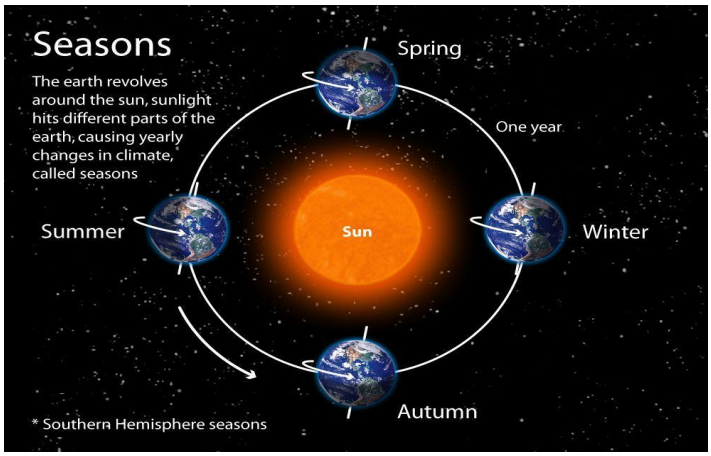


REVOLUTION

- The earth revolves around the sun and this movement of the earth is known as revolution.
- The earth moves continuously. It revolves around the sun in a fixed path called an **orbit**.
- One revolution is completed in about 365 and ¼ days. This time period is called a **solar year**.

SEASONS OF THE EARTH

- As the earth orbits around the sun, the longer days of summer change into the shorter days of winter.
- This causes the seasons: spring, summer, autumn, and winter.
- The axis of the earth is tilted at an angle. So, the season in Northern Hemisphere can never be the same as the season in the Southern Hemisphere.



FORMATION OF DIFFERENT SEASONS

When the north pole is towards the sun

- It is summer in the Northern Hemisphere. The days seem to be hotter because the sun's rays fall directly.
- At the North Pole, there is sunlight for most of the day and some part of the evening.
- During this time south pole is turned away from the sun. So, the sun rays do not reach the south pole and there is not much daylight. It is winter in the Southern Hemisphere.

When the North Pole is turned away from the sun

- It is winter in the Northern Hemisphere. The days are shorter and the sun seems low in the sky.
- Now it is summer in the Southern Hemisphere.
- The region near the equator gets almost the same amount of sunlight all year round.

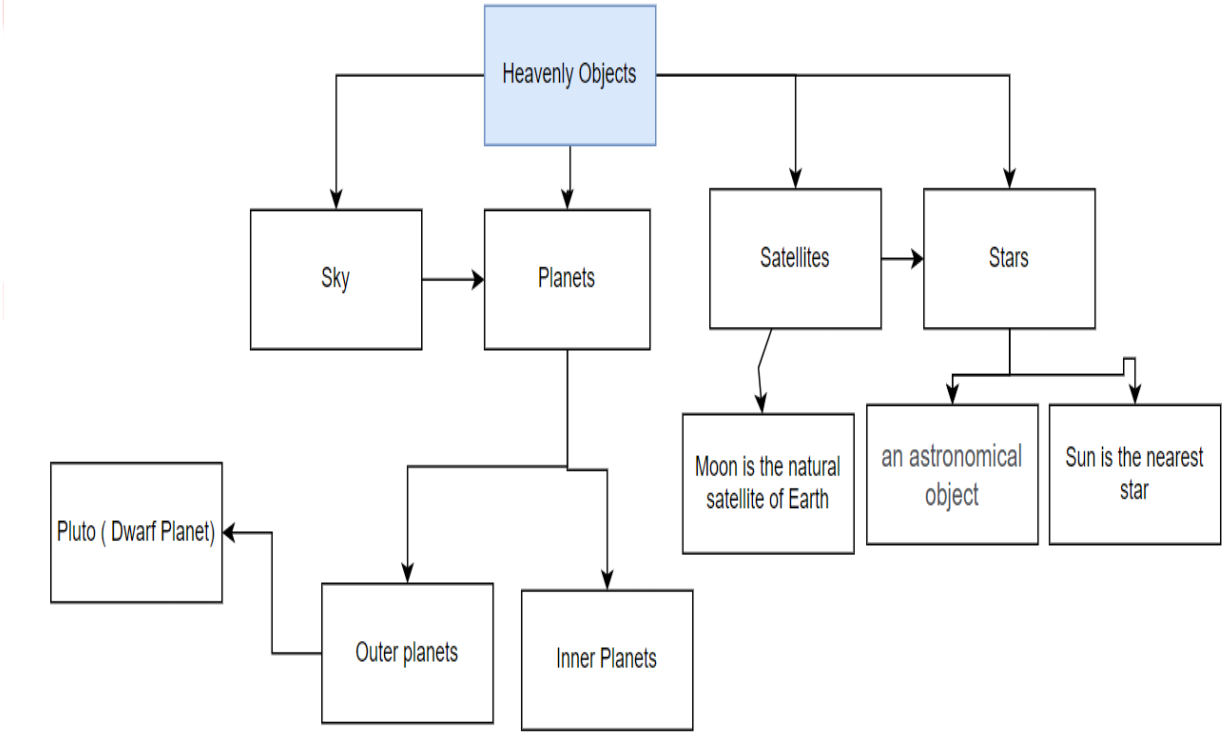
So, the two factors which cause seasons are

1. The tilted axis of the earth.
2. The revolution of the earth.

FESTIVALS AND HEAVENLY BODIES

- Few festivals are like Eid is marked with ‘Depending on the appearance of the moon’.
- This is because It depends on the phases of the moon.
- Many other festivals are too linked to the movement of the moon, the planets, the sun, and the seasons.
- Holi marks the coming of spring. Baisakhi, Onam, Pongal, Bihu, and Lohri are linked to the seasons
- The days of the week in the Indian Calendar are named after the planets.
- For ex: Shanivar means the days of Shani or Saturn.

Memory Map



Let Us Do

A. Tick the correct answer.

1. The sun is a
   a) Constellation b) planet c) star d) satellite
2. This planet was discovered after the invention of the telescope.
   a) Mercury b) Venus c) Mars d) Neptune
3. This is the largest and fastest spinning planet
   a) Jupiter b) Venus c) Uranus d) Neptune
4. This planet is boiling by day by day and cold at night.
   a) Earth b) Mars c) Mercury d) Neptune
5. This planet has rings that are made up of ice, rocks, and dust.
   a) Saturn b) Venus c) Mars d) Uranus
6. This can be active, dormant, or extinct.
   a) Tsunami b) sun c) volcano d) planet

B. Match the columns

1. Our galaxy	a. Mercury
2. Planet nearest to the sun	b. the innermost portion of the earth
3. Equator	c. natural satellite of the earth
4. Moon	d. solar year
5. Core	e. the milky way
6. Complete revolution of the earth around the sun	f. imaginary line dividing the earth in two equal halves

Understand and Answer

C. Write short answers.

1. Name some Indian festivals that are linked to the seasons.
2. Name the imaginary line that runs through the center of the earth.

3. Which movement of the earth is called rotation?

D. Answer these questions.

1. What is the difference between a star and a planet?
2. What do we mean by solar system?
3. What is a satellite? Name any two satellites launched by India.
4. How are seasons formed?

Teacher's Note

Make use of a model of the solar system. Conduct experiments to show

1. Formation of day and night
2. Seasons

Tell the children about the exploration of the moon.

Improve Your GK

❖ Venus is covered with thick, white clouds. The clouds trap the heat of the sun. So, the surface of Venus is very hot. The rocks are hotter than boiling water!

Answer Key

A

1. Star
2. Neptune
3. Jupiter
4. Mercury
5. Saturn

6. Volcano

B.

1. E
2. A
3. F
4. C
5. B
6. D

C1. Some Indian festivals like Holi mark the spring, Baisakhi, Onam, Pongal, Bihu, and Lohri are linked to the seasons and movement of the moon.

2. The Equator is the imaginary line that runs through the center of the Earth.

3. The movement on its axis is called rotation.

D1. Difference between the star and a planet

STAR	PLANET
1. A heavenly body has its own heat and light. 2. Star is a huge ball of gases. 3. Stars have a unique effect of twinkling in the sky. 4. Stars consist of matters like Hydrogen, Helium, and other light elements.	1. A heavenly body with no heat or light of its own. 2. It is much smaller in size than a star. 3. Planets do not exhibit the twinkling of the sky. 4. Planets consist of solid, liquid, and gases.

2. Solar system consists of the sun, the planets, and all the objects moving around the planets are collectively called the solar system.

- The solar system is in a galaxy which is known as "the milky way".
- There are 8 planets in the solar system.

3. Satellites are small heavenly bodies that revolve around planets.

- Some planets have their satellites.
- The moon is a natural satellite of the earth.
- Two satellites launched by India are Aryabhata and Bhaskara Sega -1.

4. Seasons are caused because of the Earth's changing relationship to the Sun.

- The Earth travels around the Sun, called an orbit, once a year or every 365 days.
- As the Earth orbits the Sun, the amount of sunlight in each location on the planet gets every day changes slightly. This change causes the seasons.