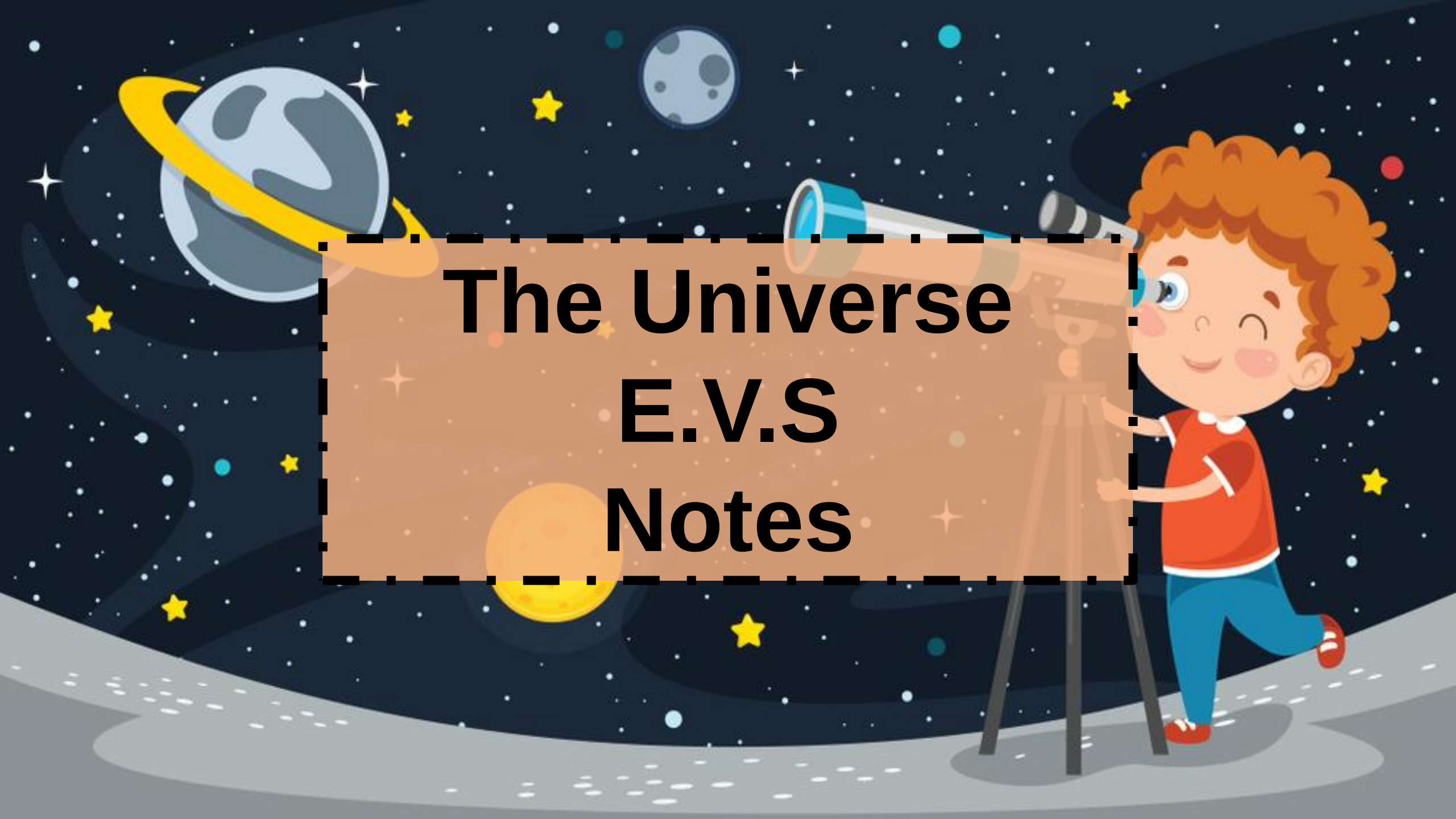
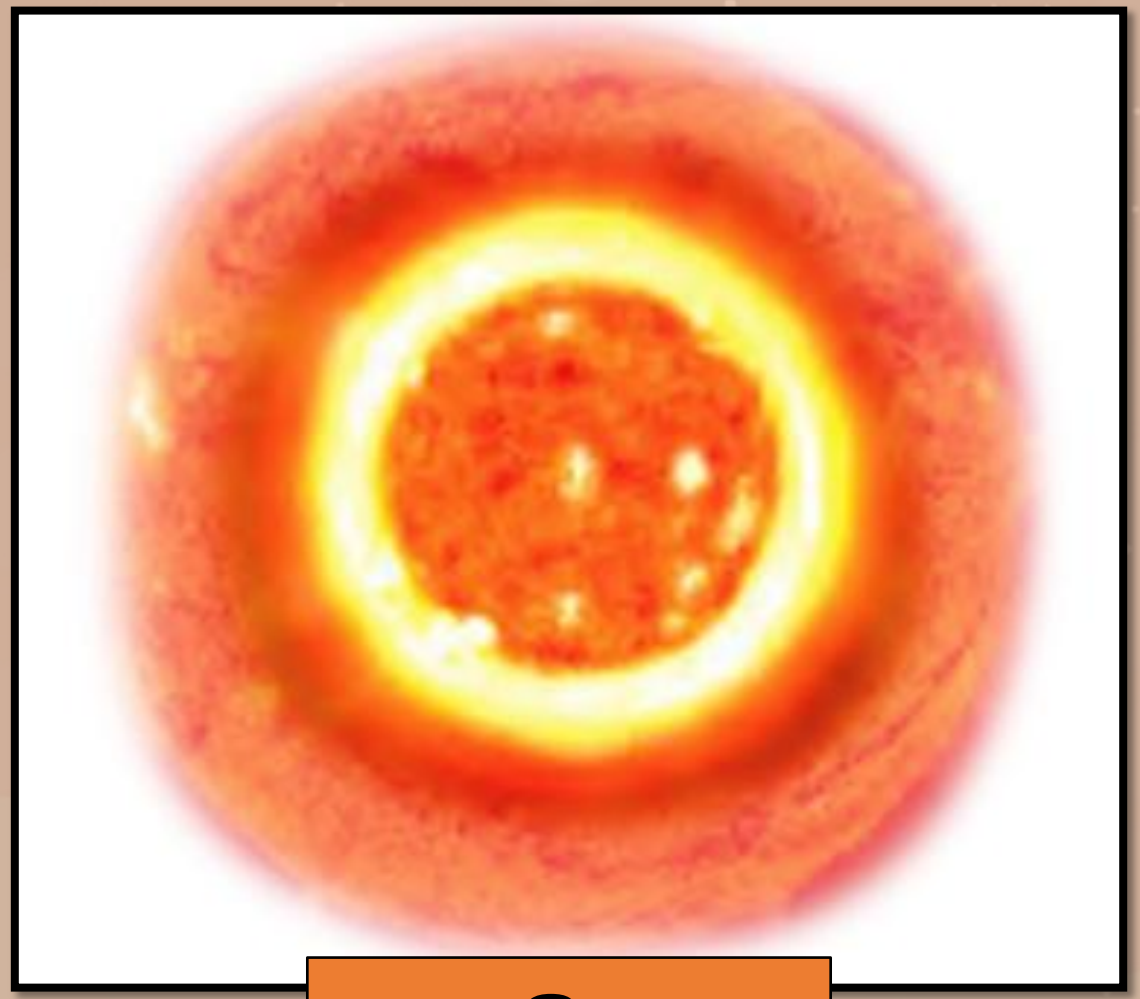

The Universe
E.V.S
Notes

INTRODUCTION

Look at the twinkling objects in the clear night sky. These twinkling objects are the stars. Among these stars there are some other celestial bodies, which do not twinkle. These are the planets. Sun is a star while the earth is a planet.

STARS AND THE SUN

A star is a huge ball of hot gases. It gives out heat and light. Sun is also a star. It is the nearest star to earth. This is the reason that it appears big as compared to the other stars. Sun is the only source of light and heat. Without the sun we cannot imagine life on the earth.



Sun

Many patterns of the stars are visible in the sky. These patterns are called constellations.

Constellations

Stars are the part of a huge cloud called the galaxy . There are several galaxies in the universe. Our solar system is a part of the galaxy called the Milky Way .

Milky Way

PLANETS AND THE SOLAR SYSTEM

Planet is a big ball of rocks. It does not give out its own light and heat. Earth is also one of the eight planets of the solar system. These planets move around the sun. Sun and the eight planets are together called the solar system.

The names of these planets are as follows in order of increasing distances from the sun:

Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune.

Our solar system

Mercury, the nearest planet to the earth, is very hot during the day and very cold during the night. It has no moon.

Venus is the hottest planet. It shines brightest among all planets. It can be seen in the morning and evening. This is the reason, it is called the morning or the evening star. Venus also does not have any moon.

Earth is the only planet which has life. It is neither too hot nor too cold. It has water and is surrounded by air containing oxygen.

Mars is known as the red planet. It appears red because of the red dust that covers it. It has two moons. Its name Mars, is derived from the Roman God of War.

The other four planets—Jupiter, Saturn, Uranus and Neptune are further away from the sun. They are very cold and mainly consist of frozen gases.

Jupiter is the largest planet. It is the fastest spinning planet. It has 67 (53 confirmed and 14 unconfirmed) known moons. It has a big red spot on it. This is actually a big storm that has been blowing for years.

Saturn is the second largest planet. It has seven wide rings that surround it. The rings are made of ice, rocks and dust. It has 62 (53 confirmed and 9 unconfirmed) known moons.

Uranus is the third largest planet. It has 27 known moons. It is covered with a thick layer of blue and green gases.

Neptune has 14 (13 confirmed and 1 unconfirmed) known moons. Two spots can be seen on its surface. It has cold winds that blow at a high speed.

DID YOU KNOW

Pluto is farthest from the sun. It is very cold and also very small. Now it is not considered as a planet. It is known as the dwarf planet.

Check Your Knowledge

Fill in the blanks.

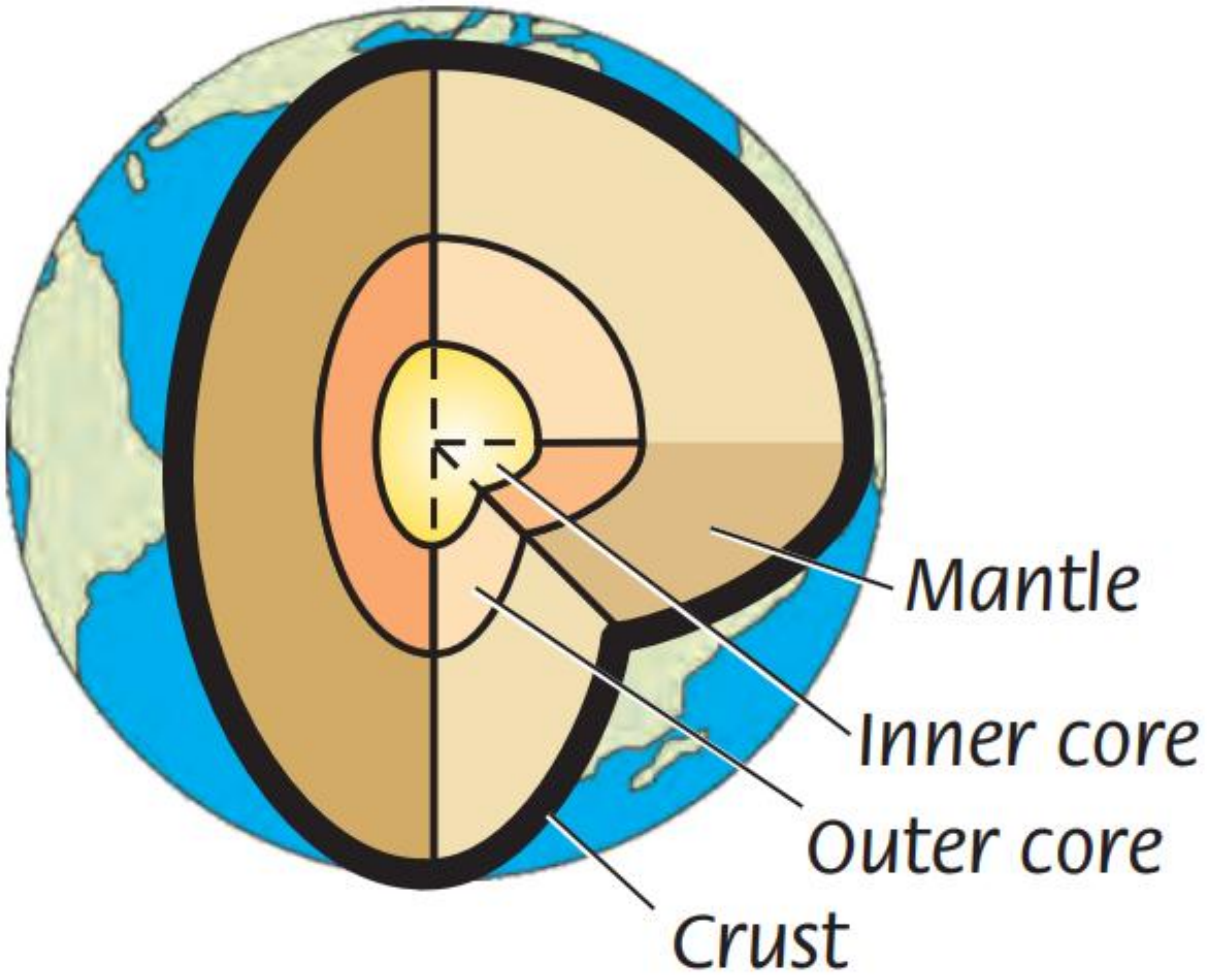
1. A _____ is a huge ball of glowing gases.

2. _____ is also called the morning star.

3. _____ is the largest planet of the solar system.

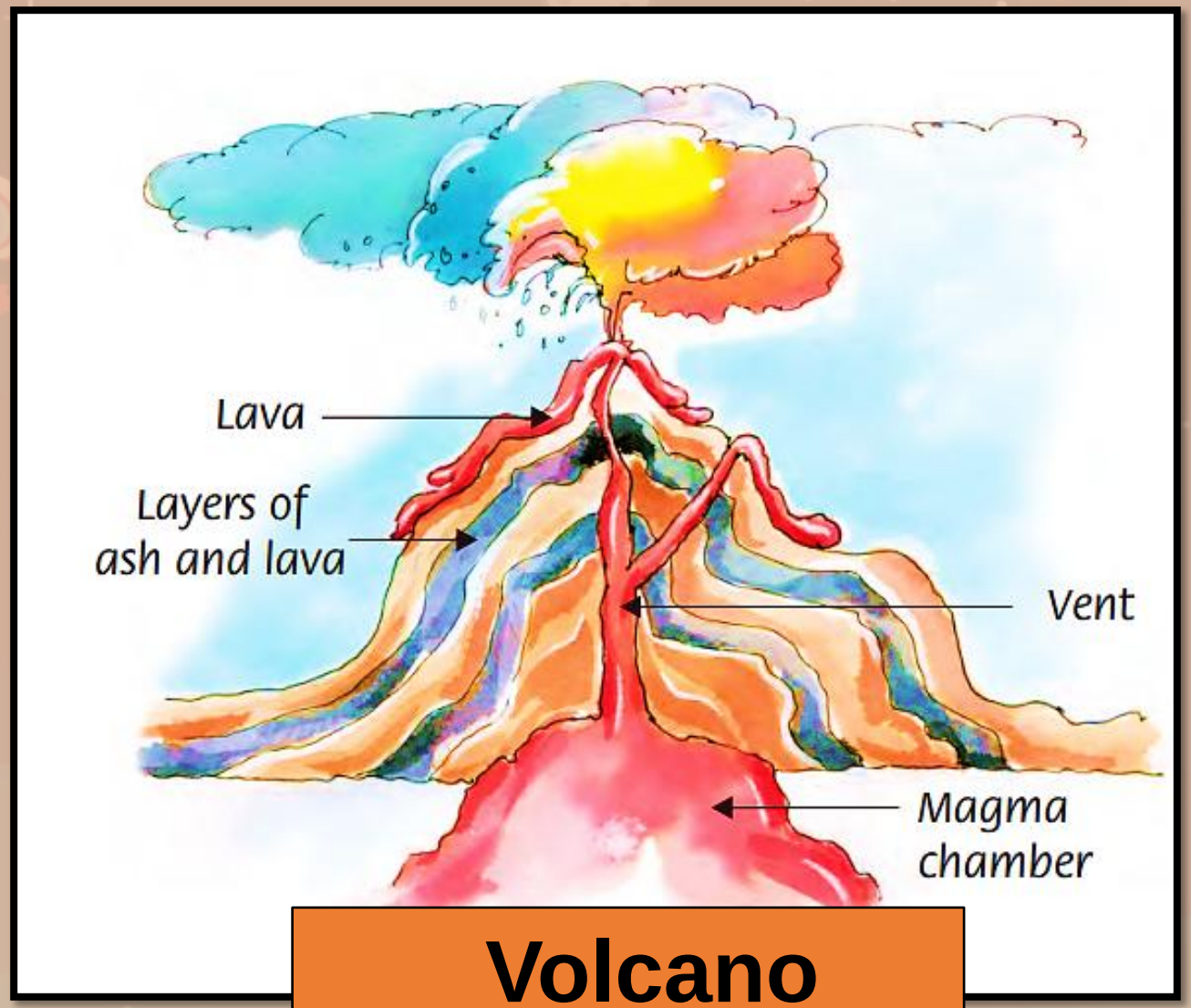
EARTH

We live on the outer surface of the earth, which is cool and has conditions suitable for life. This outer surface is called the crust . But the earth is not the same deep inside. It is very hot inside. The inner part of the earth is called the mantle. It is made of very hot molten rocks. In the centre is the core. It is the hottest part of the earth. It consists of molten metals.



Structure of the earth

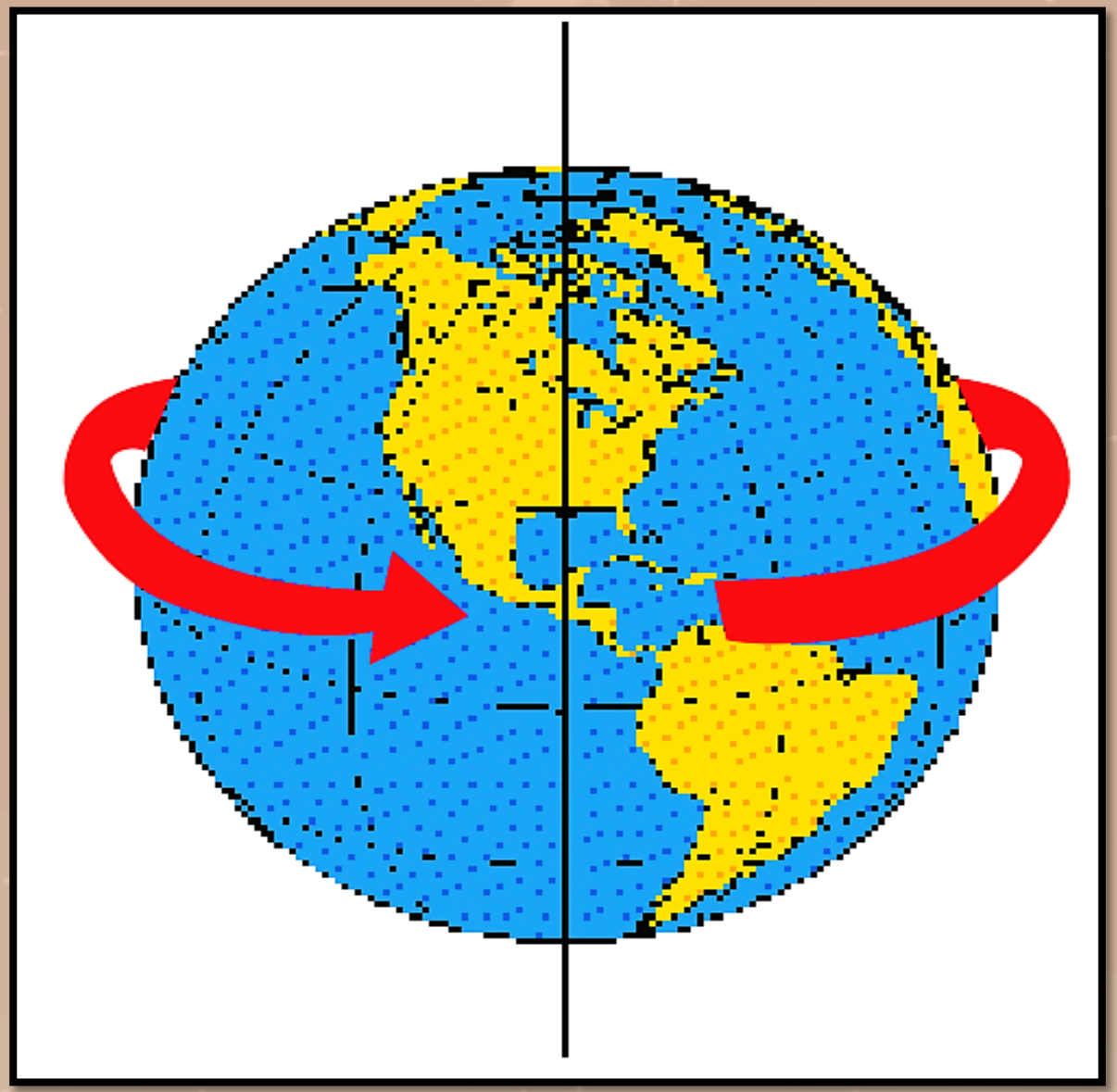
You have heard of volcanoes giving out lava and causing great damage. Volcanoes are actually cracks or holes in the crust of the earth. Molten rocks called Magma, sometimes gush out, from the mantle of the earth, through these cracks. It is red hot and hardens to form rocks on cooling. This shows how hot is the earth, deep inside.



Volcano

Movements Of The Earth

Earth is always moving. It spins like a top and also moves around the sun. Rotation and revolution are the two motions of the earth.

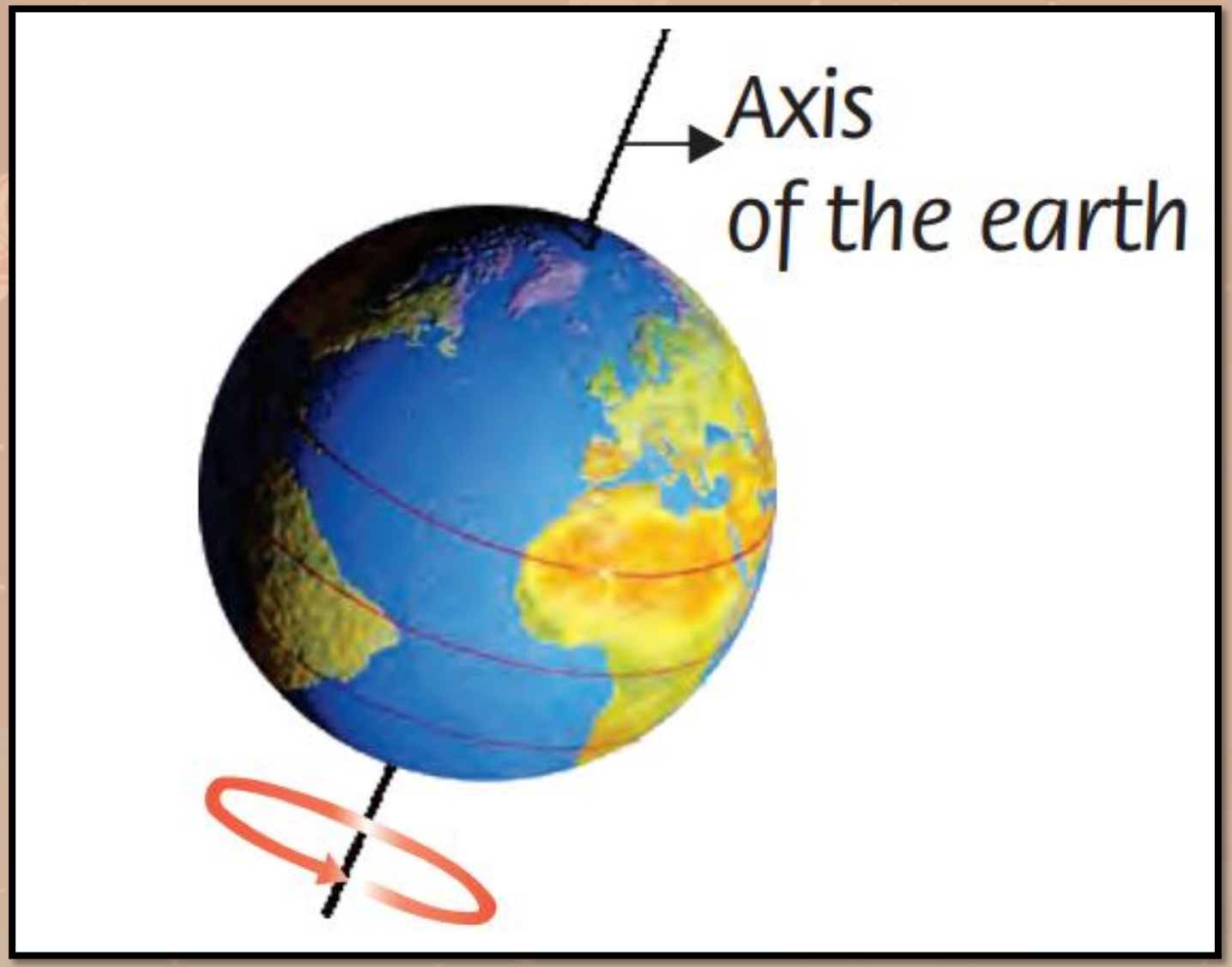


Earth Rotates on its Axis

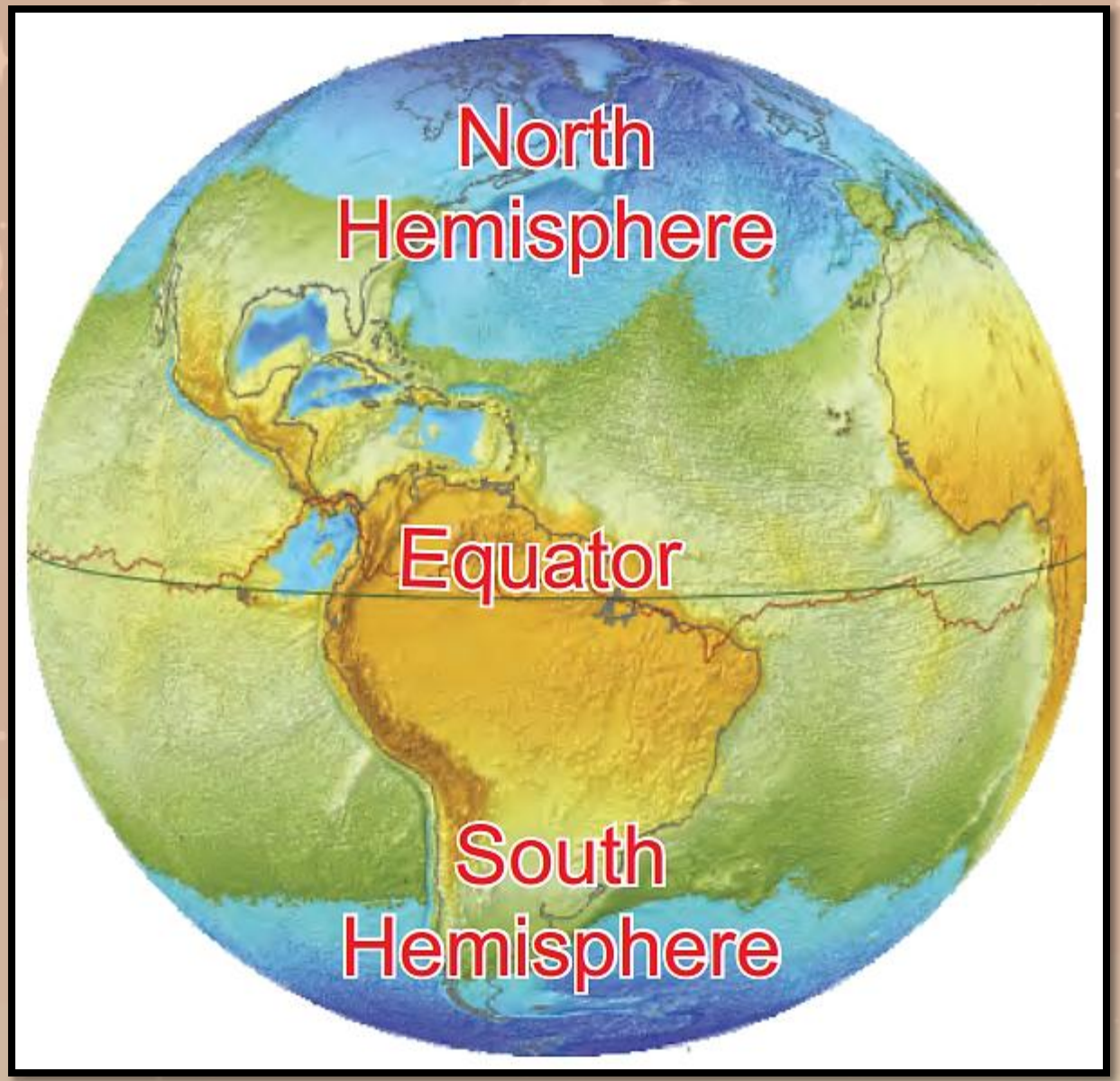
Earth spins like a top around a line passing through its centre. This spinning movement of the earth is called rotation. The imaginary line passes through the north and south poles is called the axis of the earth. The equator is another imaginary line around the earth. It divides the earth into

two equal halves, the northern hemisphere

and the southern hemisphere.


Axis
of the earth

Earth completes one rotation around its axis in 24 hours. This rotation of earth causes day and night.


North
Hemisphere
Equator
South
Hemisphere

Earth Revolves Around The Sun

Earth also moves around the sun in a fixed path called the orbit . This movement of the earth is called the revolution . Earth completes its one revolution around the sun in 365 days. This time period is called solar year.

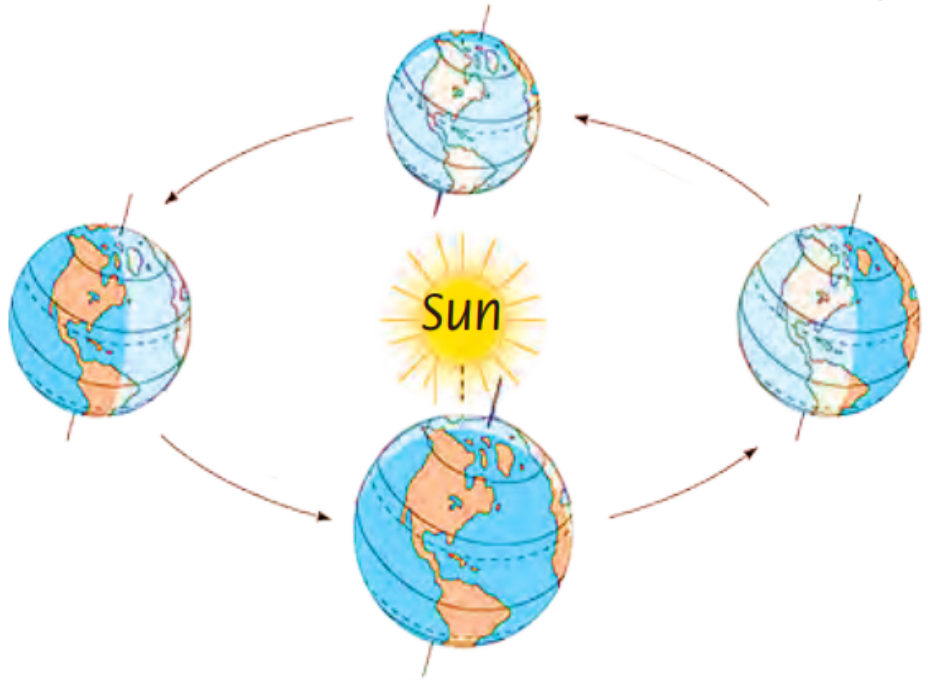
Revolution of earth causes seasons

We know that the seasons change throughout the year. It is hot in the summer months and cold in the winter months. Days are longer in the summer than in the winter. This happens because of the revolution of the earth around the sun.

Earth is divided in two halves—the northern hemisphere and the southern hemisphere. The imaginary line dividing the earth is called the equator.

Spring in the Northern Hemisphere:
Autumn in the Southern Hemisphere

Summer in the
Northern Hemisphere:
Winter in the
Southern Hemisphere



Winter in the
Northern Hemisphere:
Summer in the
Southern Hemisphere

Autumn in the Northern Hemisphere:
Spring in the Southern Hemisphere

Revolution of earth around the sun and seasons

When during the revolution North Pole tilts towards the sun, the northern hemisphere receives more light and has summer season. At this time the southern hemisphere tilts away from the sun and experiences the winter season.

After few months when the earth reaches the other side of the sun, the South Pole tilts towards the sun, and the North Pole tilts away from the sun. So, the southern hemisphere has summer and the northern hemisphere has winter.

Festivals and heavenly bodies

Our country is the land of festivals. Many festivals are linked to the sun, moon and seasons. Holi comes in the spring season and on the full moon night of Falgun month. Baisakhi, Pongal, Lohri are also related to the seasons. The days of the week in Hindi are named after the planets.

Fact File

- Till 2006, Pluto was considered the nineth planet in the solar system. But it was decided by the scientists that it is too small to be called a planet.
- Pluto is now renamed as Plutoid and is considered as the dwarf planet.

Things to Remember

- Sun, the eight planets and their moons belong to the solar system.
- The crust of the earth is cool and has life. The mantle and core are very hot in inside.
- Earth rotates on its axis and also revolves around the sun.
- The revolution of the earth and its tilted axis on rotation cause seasons.