

Our Universe

Use Cordova Smart Class Software on the smart board in class to make learning enjoyable.

The Universe

Look at the sky on a clear night. Besides the moon, you see a number of twinkling stars. Stars are huge balls of burning gases. They produce their own heat and light. Stars are thousand times bigger than our Earth, yet they look very small. This is because they are far away from the Earth. The Sun is the star, nearest to the Earth. That is why it appears much bigger than other stars.

The Sun gives us heat and light. This makes life possible on the Earth.

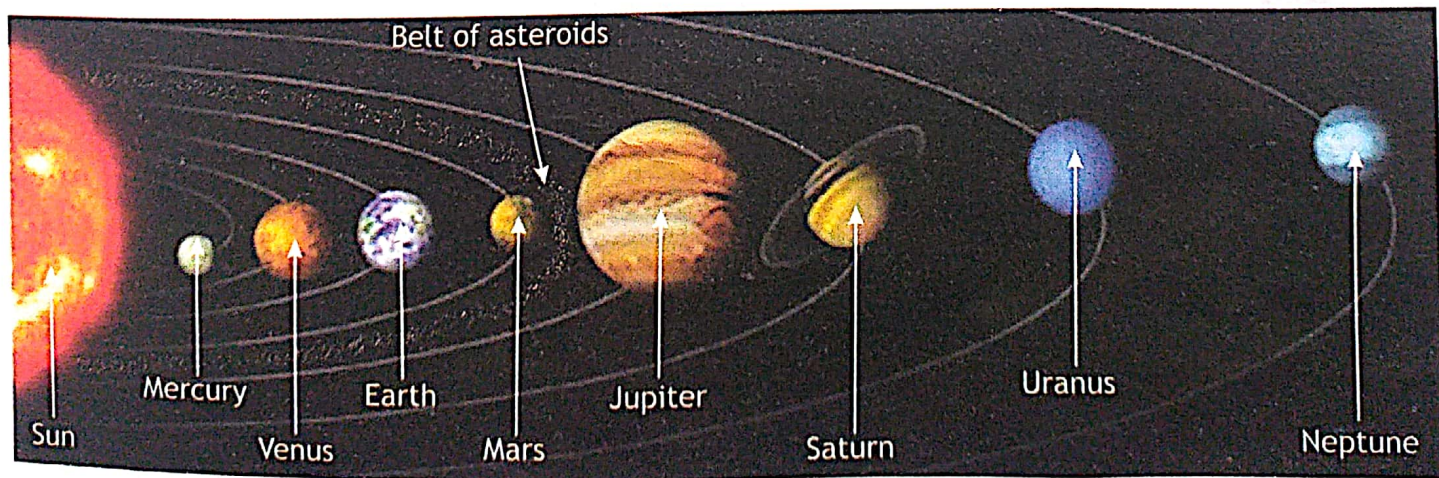
We see a few other bodies in the sky at night. These are **planets**. All these things make up the universe. The universe includes the stars, planets, satellites, comets, asteroids and the space between them.

DO YOU KNOW?

We use an instrument to look at the stars, the moon and other bodies in the sky more clearly. This instrument is called a telescope.

The Solar System

The solar system consists of the Sun, the eight planets and their satellites (or moons) and other heavenly bodies such as comets and asteroids.



Our Solar System

Planets

Planets are heavenly bodies that move around the Sun. They do not have any light of their own. They only reflect the sunlight. A planet is much smaller than a star.

There are eight planets. Each planet moves around the Sun on its own path called **orbit**. The orbits are oval-shaped (see diagram of solar system) with the Sun at their centre. Each planet remains in its own orbit. The eight planets according to their distance from the Sun are **Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune**.



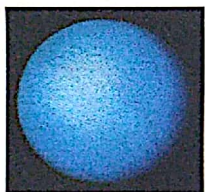
Mercury



Earth



Jupiter



Uranus

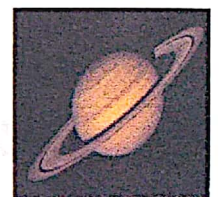
- **Mercury** is the planet nearest to the Sun. It is very hot during the day and very cold at night. It moves faster than any other planet.
- **Venus** is the brightest and hottest planet. It is also called the **morning** and **evening star** as it is seen in the morning and evening.
- **Earth** is neither too hot nor too cold. It has water and air that contains oxygen. It is the only planet with life on it.
- **Mars** is covered with reddish sand and rocks. Because of its reddish appearance, it is also called the '**red planet**'.
- **Jupiter** is the largest planet.
- **Saturn** is the most beautiful planet because of the spectacular ring system around it.
- **Uranus** is the second farthest planet from the Sun.
- **Neptune** is the planet, farthest from the Sun. It is the **coldest** planet.



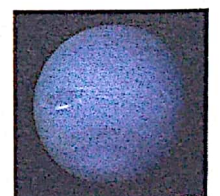
Venus



Mars



Saturn



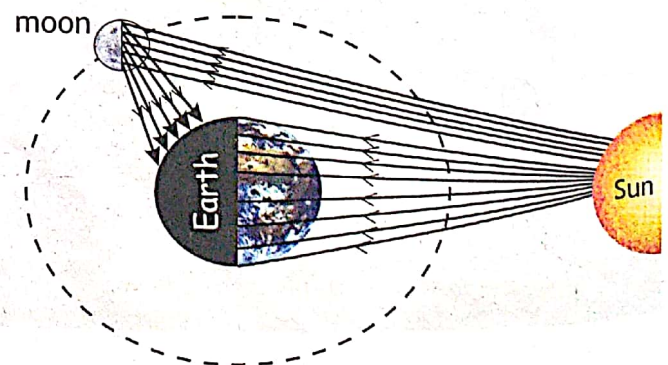
Neptune

Fill in the blanks.

1. is covered with reddish sand and rocks.
2. Planets moves around the Sun on its own path called

Satellites

A **satellite** is a heavenly body that **revolves around a planet**. The **moon** revolves around the Earth. So, the moon is a satellite of the Earth. It has no light of its own. It shines because it reflects the light of the Sun.



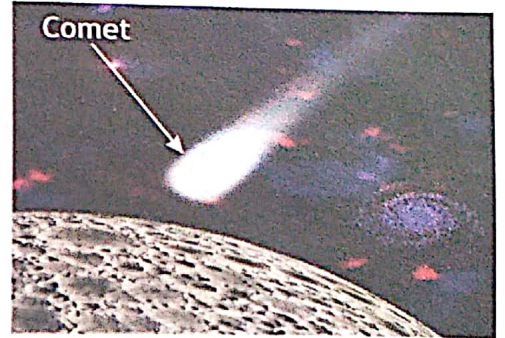
Moon reflects sunlight.

DO YOU KNOW?

According to International Astronomy Union, the solar system consists of eight planets now. Pluto, once considered to be the planet of our solar system, has been dropped as it does not fit into the new definition of the planets.

Asteroids are very small heavenly bodies made up of rocks that revolve around the Sun, mainly between the orbits of Mars and Jupiter.

Comets are heavenly bodies that appear as bright balls of light in the sky with a long glowing tail. The tail of a comet always points away from the Sun.

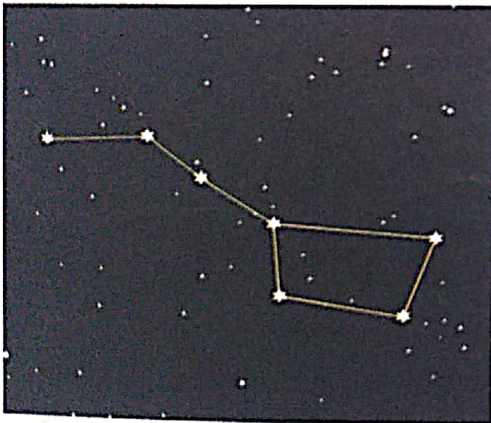


a comet

DO YOU KNOW?

Halley's comet is seen after every 76 years. It was last seen in 1986.

When you look carefully at the sky, you observe that some stars occur in groups. These groups of stars sometimes form shapes of an animal or a person in the sky. **These groups are called constellations.**



Saptarshi constellation

In the north, you find a group of seven stars. They look like seven dots. Join the dots in the sky like in the game of '**Join the Dots**'. The figure created resembles the shape of a large saucepan with a handle. This group of stars is known as *Saptarshi* or the **Big Dipper**. The **Pole Star** or *Dhruv Tara* is also seen in the north. The position of this star is always fixed. This star has since long ago helped travellers and sailors to find their way on seas and land.

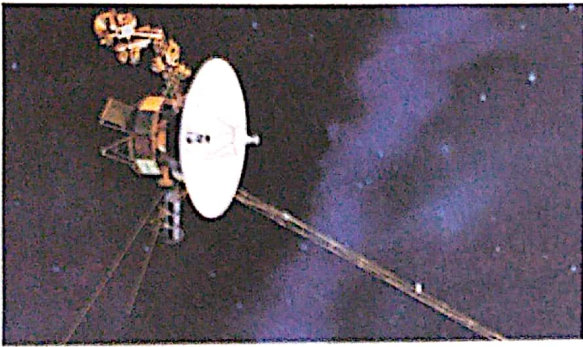
Tick (✓) the correct statement and cross (✗) the one that is not.

1. A group of stars is called constellation.
2. Pole Star or Dhruv Tara is seen in the east.

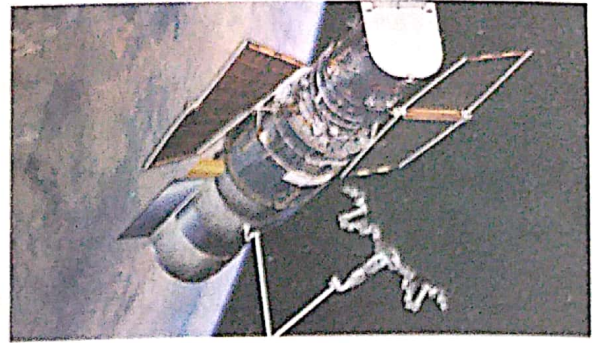
Space Exploration

The vast and limitless region beyond the Earth's atmosphere is called space.

Nowadays, astronomers use space probes to study heavenly bodies. Pictures of space probes are given on the next page.

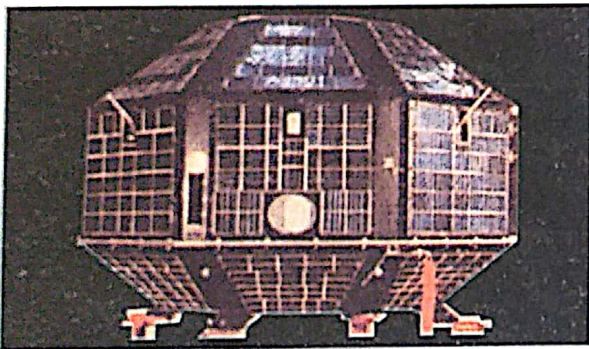


Voyager Spacecraft has sent photographs of all the planets taken from a close range.

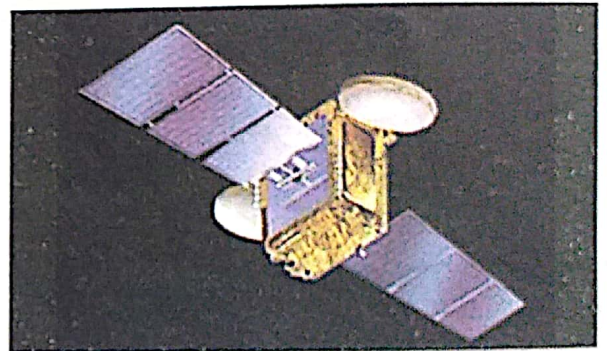


The Hubble Space Telescope is permanently stationed in outer space to provide latest information about various heavenly bodies.

Man has launched a number of man-made satellites called **artificial satellites** into space. They move around the Earth just like our moon. Given below are pictures of Indian artificial satellites.



Aryabhata



INSAT-1

Artificial satellites are used

- for conducting scientific experiments.
- for weather forecasting and communication.
- to enable us to watch television programmes live, broadcast from different parts of the world.
- to make long distance phone calls (STD and ISD).



PRACTICE EXERCISE – SECTION A

(Use Cordova Smart Class Software on the smart board in class to do these exercises.)

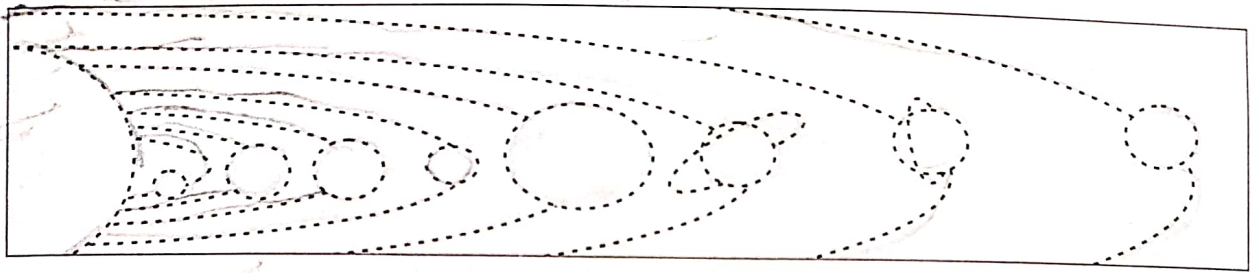
A Multiple Choice Questions (MCQs). Tick (✓) the correct answers.

1. An instrument that is used to see stars, planets and the moon is
(a) microscope (b) hydroscope (c) telescope
2. The planet nearest to the Sun is
(a) Saturn (b) Mercury (c) Earth

B Fill in the blanks:

1. The is the nearest star to the Earth.
2. has a spectacular ring system around it.

C Join the dots, name the system. Colour and label it also:



PRACTICE EXERCISE – SECTION B

(Use Cordova Smart Class Software on the smart board in class to do these exercises.)

A Multiple Choice Questions (MCQs). Tick (✓) the correct answers.

1. Halley's comet is seen after every
(a) 76 years (b) 70 years (c) 82 years
2. The red planet is
(a) Mars (b) Neptune (c) Earth

B Very short answer questions.

1. Why is the Sun important for us?
2. How does moon shine?

C Short answer questions.

1. What makes up the universe?
2. Define the solar system.

D Long answer questions.

1. What are constellations? Give two examples.
2. Distinguish between a star and a planet.
3. The Sun gives its heat to all planets irrespective of their size or atmosphere there.
What should we learn from the Sun?

Value Corner



ACTIVITY

PROJECT

- Make a model of the solar system and display it in your classroom.
- Find about INSAT series and record the information in a folder. Paste relevant pictures to make it informative and colourful.

GROUP DISCUSSION

Suggested topic : 'Advantages of artificial satellites.'