

Board –CBCE

Class –8th

Topic – Stars And The Solar System

1. Mark the following statements as True (T) or False (F):

- (a) Pole star is a member of the solar system.
- (b) Mercury is the smallest planet in the solar system.
- (c) Uranus is the farthest planet in the solar system.
- (d) INSAT is an artificial satellite.
- (e) There are nine planets in the solar system.
- (f) Constellation Orion can be seen only with a telescope.

Ans. (a) False (b) True (c) False (d) True (e) False
(f) False.

1. In which part of the sky can you find Venus if it is visible as an evening star?

Ans. Western sky.

1. Name the largest planet of the solar system.

Ans. Jupiter (Brihaspati).

1. What is a constellation? Name any two constellations.

Ans. Constellations are a group of stars that appear to form some recognizable shape. For example, Ursa Major and Orion.

4. Draw sketches to show the relative positions of prominent stars in:

- (a) Ursa Major and (b) Orion.

Ans.

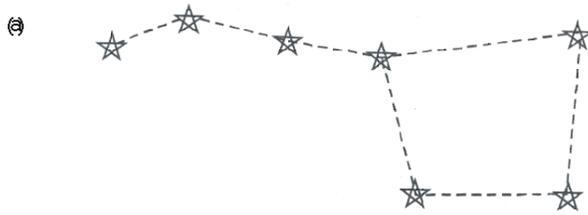


Fig. Ursa Major

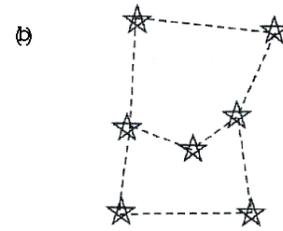


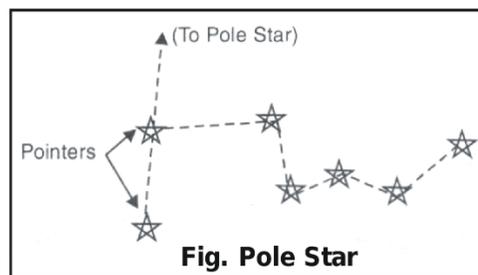
Fig. Orion

5. Name two objects other than planets that are members of the solar system.

Ans. Comets, asteroids and meteors.

6. Explain how you can locate the Pole Star with the help of Ursa Major.

Ans. Pole stars can be located with the help of the two stars at the end of Ursa Major. Imagine a straight line passing through these stars, as shown in Fig. Extend this imaginary line towards the north. (About five times the distance between the two stars). This line will lead to a star that is not too bright. This is the Pole Star. Verify that the Pole star does not move as all other stars drift from east to



7. Do all the stars in the sky move? Explain.

Ans. No, stars do not move, but they only appear to move from east to west, as the Earth from where we see them rotates from west to east. However, pole star, which is situated in the direction of the Earth's axis. It does not appear to move.

8. Why is the distance between stars expressed in light years? What do you understand by the statement that a star is eight light-years away from the Earth?

Ans. The Sun is nearly 150,000,000 kilometres (150 million km) away from the Earth. The next nearest star to the Earth after the Sun is Alpha Centauri. It is at a distance of about 40,000,000,000,000 km from the Earth. Some stars are even further away. It is not convenient to express such distances in kilometres. Such large distances are expressed in another unit known as light year. One light-year is the distance travelled by light in one year. If we say that a star is eight light-years away from Earth, the light from that star will reach the Earth in eight years.

8. Why do we classify the Sun as a star?

Ans. Sun is classified as a star because it

I. has its source of energy.

II. It continuously emits a huge amount of heat and light.

Has a life period. It was born 5 billion years ago and is expected to glow for another 5 billion years.

9. Differentiate between 'a star' and 'shooting star'.

Ans.

	Star	Shooting star
1.	A star is made of hot gases like hydrogen	A shooting star is made up of rock and metal
2.	A star is self-luminous	A shooting star has no light of its own.
3.	A star does not get destroyed due to friction.	A shooting star burns due to heat of friction when entering the atmosphere of the earth
4.	A star is very big in size	A shooting star is very very small.

10. Mention the four independent motions of the Earth.

Ans. The Earth has the following four independent motions:-

- Revolution of the Earth in an elliptical orbit around the Sun.
- Rotation of the Earth about its axis once in 24 hours.

- The spinning of the Earth about its axis.
- The motion of the Earth along with the Sun and other planets in space.

11. Explain the arrangement of stars in the Orion constellation.

Ans. It has seven or eight bright stars. Orion is also called the hunter. The three middle stars represent the belt of the hunter. The four bright stars appear to be arranged in the form of a quadrilateral.

12. What are asteroids, meteors and meteorites?

Ans. The gap between the orbits of Mars and Jupiter is occupied by a large number of small objects that revolve around the Sun is called asteroids. A meteor is usually a small object that occasionally enters the Earth's atmosphere. At that time, it has a very high speed. The friction due to the atmosphere heats it. It glows and evaporates quickly. Some meteors are large, and so they can reach the Earth before they evaporate completely. The body that reaches the Earth is called a meteorite.

13. Explain the phases of the Moon.

Ans. The day on which the whole disc of the Moon is visible is known as the full moon day. After that, every night, the size of the bright part of the Moon appears to become thinner and thinner. On the fifteenth day, the Moon is not visible. This day is known as the 'new moon day'. The next day, only a small portion of the Moon appears in the sky. This is known as the crescent moon. Then again, the Moon grows larger every day. On the fifteenth day, once again, we get a full view of the Moon. The various shapes of the bright part of the Moon as seen during a month are called phases of the Moon.

14. What is a solar system? Explain the characteristics of any two planets in the solar system.

Ans.

The Sun and the celestial bodies which revolve around it form the solar system. It consists of a large number of bodies such as planets, comets, asteroids and meteors.

Mercury: The planet Mercury is nearest to the Sun. It is the smallest planet in our solar system. Because Mercury is very close to the Sun, it is very difficult to observe it, as most of the time, it is hidden in the glare of the Sun. However, it can be observed just before sunrise or just after sunset, near the horizon. So it is visible only at places where trees or buildings do not obstruct the view of the horizon. Mercury has no satellite of its own.

Venus: Venus is the Earth's nearest planetary neighbour. It is the brightest planet in the night sky. Sometimes Venus appears in the eastern sky before sunrise. Sometimes it appears in the western sky just after sunset. Therefore, it is often called the morning or an evening star, although not a star. Venus has no moon or satellite of its own. The rotation of Venus on its axis is somewhat unusual. It rotates from east to west while the Earth rotates from west to east.

15. Write a short note on comets.

Ans. Comets are also members of our solar system. They revolve around the Sun in highly elliptical orbits. However, their period of revolution around the Sun is usually very long. A Comet generally appears as a bright head with a long tail. The length of the tail grows in size as it approaches the Sun. The tail of a comet is always directed away from the Sun.