

## Earth as Part of the Solar System

### E. Long-answer questions:

1. The Sun is a star. Why do you say that?
2. Of all the eight planets and Moons, why is life possible only on Earth?
3. Why do we see phases of the Moon?
4. Why is the earth considered a unique planet in the solar system?

## Solutions

### E. Long-answer questions:

1. Stars are giant balls of gases and have their own light. The Sun too is a huge ball of fire mainly consisting of two gases—helium and hydrogen, so it is a star of medium size and average brightness.
2. The Earth sustains life because it is the only planet just at the right distance from the Sun—hence it is neither too hot nor too cold. It also has the right mix of gases in the atmosphere for humans and plants. Also the availability of water and the tilt of the earth i.e., the axis which causes seasons and the water cycle sustain life.
3. The moon orbits the Earth in 27 days and 8 hours and also spins on its axis. As a result, the same side of the moon faces the Earth. However the size changes every night—a circular or Full Moon is called the Full Moon then it decreases in size for the next 15 days, then it disappears. Then the size starts increasing till it becomes the full moon. These are the phases of the moon.
4. The Earth is considered a unique planet as it is the only planet in the solar system which sustains life. This is possible because it is neither too hot nor too cold as it is just at the right distance from the Sun.
  - It also has the right levels of oxygen and carbon dioxide. Oxygen is required for respiration by humans and carbon dioxide is required by plants for photosynthesis. Carbon dioxide traps heat during the day and radiates it back at night—this keeps the Earth warm at night otherwise the Earth would be frozen at night.
  - There is also the availability of water.
  - The atmosphere shields from ultra—violet rays of the sun and shields the earth from cosmic particles.
  - The Earth tilts at just at the right angle so there are seasonal changes and the water cycle otherwise there would have been no water.