ANSWERS

Chapter 6: Earth, Sun and Moon

What I Know

1. Venus
2. Mercury
3. Neptune
4. Pluto
5. Earth

Checkpoint 1

1. False
2. False
3. False
4. True
5. True

Checkpoint 2

1. 27
2. reflects
3. high, low
4. Apollo 11
5. lunar month
6. artificial satellite

Checkpoint 3

1. True
2. True
3. False
4. True
5. False
6. True
7. False
8. False

What I Have Learnt

I. Objective Type Questions.

A. 1. Moon
2. Mantle
3. fifth largest
4. total

B. 1-c, 2-d, 3-f, 4-a, 5-b

C. 1. Solar eclipse
2. Moon
3. Core
4. Eclipse
5. New moon
6. Moon
7. Sun
8. Artificial satellites

D. Layers of the Earth:

1. Crust
2. Mantle
3. Core

Types of eclipses:

Lunar eclipse: Earth comes in between the Sun and the moon

Solar eclipse: Moon comes in between the Earth and the Sun

II. Short Answer Questions.

1. Crust, mantle and core are the layers of the Earth.
2. Eclipse is a phenomenon when shadows are formed when the Sun, Earth and moon come in straight line, with the Sun at one end.
3. The different shapes of moon are called the phases of the moon.
4. Total solar eclipse and partial solar eclipse.
5. When the moon is completely blocked by the Earth, it is called a total lunar eclipse.
6. a. When the sea level rises due to the gravitational pull of moon, it is called high tide and when the sea level falls, it is called low tide.

   b. The thin, outermost layer of the Earth is called the crust. It makes up only 1% of the Earth's mass.

   The mantle is a dense, hot layer of semi-solid rocks approximately 2,900 km thick.

   Below the mantle is the core. It makes up one-third of the mass of the Earth.

   c. A solar eclipse occurs when the moon comes in between the Sun and the Earth.

   A lunar eclipse occurs when the Earth comes in between the Sun and the moon.

III. Long Answer Questions.

1. The moon is the natural satellite of our planet, Earth. It is the fifth largest natural satellite in the solar system. The moon does not have a light of its own. In other words, moon is non-luminous as it reflects the light emitted by the Sun. The moonlight we see at night is nothing but the sunlight reflected by the moon. This is why we do not see the moon in daylight, as the sun itself is so bright that the moon disappears in the sky. The surface

of the moon is 9.4 billion acres. The moon has its own gravity with which it attracts all the objects towards its centre. The moon's gravity is one-sixth of the Earth's gravity.

Our Earth is the 3rd planet from the Sun and is the 5th largest planet in the solar system. It is about 93 million miles or 150 million kilometres away from the Sun. Unlike other planets in the solar system, our Earth is very unique. It has water, air and soil to support life.

2. Crust: The thin, outermost layer of the Earth is called the crust. It makes up only 1% of the Earth's mass. This consists of the continents and ocean basins. The crust has varying thickness, ranging between 35–70 km thick in the continents and 5–10 km thick in the ocean basins. This layer is made up of rocks. It contains everything that is essential for life.

   Mantle: The mantle is a dense, hot layer of semi-solid rocks approximately 2,900 km thick. This is where most of the internal heat of the Earth is located. Mantle is the middle and thick layer in which molten metals, minerals, ores and other semi-solid rocks are present. Outer mantle is made up of hard rocks. Inner mantle consists of molten rock called magma, which consists of iron and magnesium. When a volcano erupts, this magma comes out onto the surface of the Earth.

   Core: Below the mantle is the core. It makes up nearly one-third the mass of the Earth. The Earth's core is actually made up of two distinct parts: a 2,200 km thick liquid outer core and a 1,250 km thick solid inner core. The outer core is made of iron and is very dense. As the Earth rotates, the liquid outer core spins, creating the Earth's magnetic field. The inner core is made of solid iron and nickel. (Refer to textbook for diagram.)

3. It is the Moon's lack of atmosphere that creates such extreme temperatures. The moon doesn't have an atmosphere to absorb sunlight like the Earth does, and so the surface gets very hot. The Moon's lack of atmosphere also lets heat escape during lunar nights so that it gets rather cold on the surface.

4. The moon does not have its own light. It reflects the sunlight. When the moon passes between the Earth and the Sun, sunlight falls on the part turned away from us and so the moon is not visible to us. This happens on the new moon night. Every night, the illuminated part grows in size till we see the full moon (Purnima) on the 15th day. From the next day, the illuminated part decreases in size and becomes completely invisible on the 15th day. This is known as the new moon (Amavasya) day. From one new moon to another it takes roughly 30 days and this period is called a lunar month (lunar means 'related to the moon'). The different shapes of the moon are called phases of the moon.

5. Solar means 'related to the Sun'. During a solar eclipse, the Sun is hidden from our view. Solar eclipse occurs when the Sun, moon and Earth form a line, and the moon comes in between the Earth and the Sun. It usually occurs during the new moon. When the Sun is completely blocked by the moon, it is called a total solar eclipse. When the Sun and the moon are not exactly in line and the moon only partially blocks the Sun, it is called a partial solar eclipse.

   Lunar means 'related to the moon'. During a lunar eclipse, the moon is hidden from our view. Lunar eclipse occurs when the Sun, Earth and moon form a line, wherein the Earth comes in between the Sun and the moon. It occurs during full moon. When the moon is completely blocked by the Earth, it is called a total lunar eclipse. When the Earth only partially blocks the moon, it is called a partial lunar eclipse. (Refer textbook for the diagram.)

6. Uses of artificial satellites:
   a. Communication satellites: They allow telephone and data conversations to be relayed through the satellites.
   b. Navigation satellites: They help ships and planes to navigate.
   c. Weather satellites: These satellites are very useful to meteorologists. They help to study weather pattern and forecast the weather. They take pictures of the movement of clouds. They have special infrared cameras which take photographs of the heat waves given off by the Earth.
   d. Observation satellites: They photograph the Earth. They observe the planet for changes in everything from temperature to melting of ice sheets.
   e. Military satellites: Military satellites or spy satellites can detect the launch of missiles, etc. The actual information about these satellites remains secret. Applications may include enemy movements, early warning of missile launches, etc.
   f. Scientific satellites: Scientific satellites perform scientific missions.

Enrichment Activities

I. HOTS

A. There is no gravitational force in space, so people float in the space.

B. No, we cannot drink a shake on the moon using a straw.

C. If there will be no sunlight, it will be dark and very cold everywhere.

D. Movement will be restricted if there were craters on the Earth.