Light and Shadow

1. How can we see an object?
   Ans. When light from any source falls on an object some of it reflects back from the surface and is scattered in all directions. When the reflected light reaches out eyes, we can see the object.

2. What happen when light fall on an object?
   Ans. When light falls on object three things can happen
   a. Light passes through the objects completely.
   b. Only a part of the light passes and the rest gets reflected or absorbed.
   c. Light does not pass through the object

3. **What is the definition of Transparent Object?**
   Ans. An object that allows light to pass through it completely is called Transparent Object.
   Ex. Clear glass, Clean Air Clean Water etc.

4. **What is the definition of Translucent Object?**
   Ans. An object that allows only a part of light to pass through it is called Translucent Object.
   Ex: Ground Glass, Butter Paper, Oiled paper.

5. **What is the definition of Opaque object?**
   Ans. An object that does not allow light to pass through it is called an Opaque Object.
   Ex: Wood, Metal Stone etc.

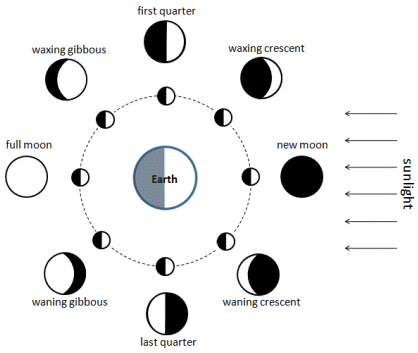
6. **What is Rectilinear Propagation of Light?**
   Ans. Line travels in a straight line. The property of light travelling in a straight line is called rectilinear propagation of light.

7. **What is Shadow?**
   Ans. A shadow is a dark patch formed behind an opaque object when it blocks the path of the light coming from the source of light.

8. **Why does a shadow form?**
   Ans. A shadow is formed because a light travel in a straight line. The rays that fall on the opaque object are blocked. Due to this they do not reach the screen. So, the position of screen does not receive any light and remains dark. This dark position is the shadow of the object.

9. **Which Conditions are essential for the formation of shadow?**
   Ans. Following conditions are essential for the formation of Shadow:
   a. There must be a source of light.
   b. There must be an opaque screen to receive the shadow of opaque object.
   c. Object must be placed in between the screen and the source of light.

10. **What are the characteristics of Shadow?**
    Ans. The characteristics of Shadow are
    a. It is always dark. It is not affected by the color of the object or the color of the light.
    b. The shape of the shadow is similar to the shape of the object.
    c. It is always formed in the direction opposite to the source of light.
11. What is Different Phase of Moon?
    Ans. The moon is an Opaque object. It has no light of its own. It has no light of its own. It shines because it reflects the sun's light. As the moon moves around the Earth, the light of the sun falls on different positions of the moon. We are able to see only the part of the moon on which the light of the sun falls. These are called different phase of moon.

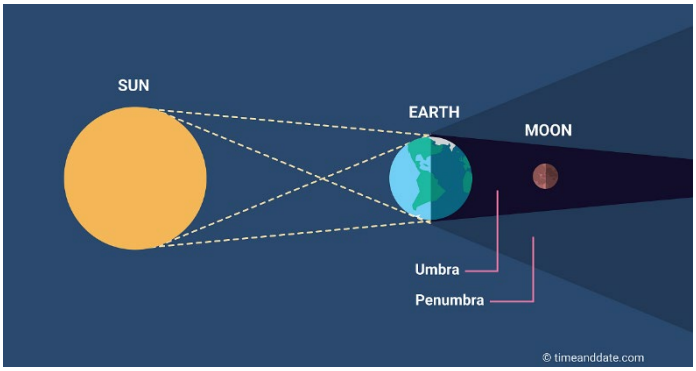


12. **What is Eclipse?**
    Ans. An eclipse takes place when one heavenly body such as a moon or planet moves into the shadow of another heavenly body.

13. **Eclipse are how many types?**
    Ans, Eclipse are two types:
    a. Lunar Eclipse
    b. Solar Eclipse

14. **What is Lunar Eclipse?**
    Ans. A lunar eclipse occurs when the Sun, the Earth, and the moon are in a straight line with Earth in between the Sun and the Moon. The Earth casts shadow on the Moon.

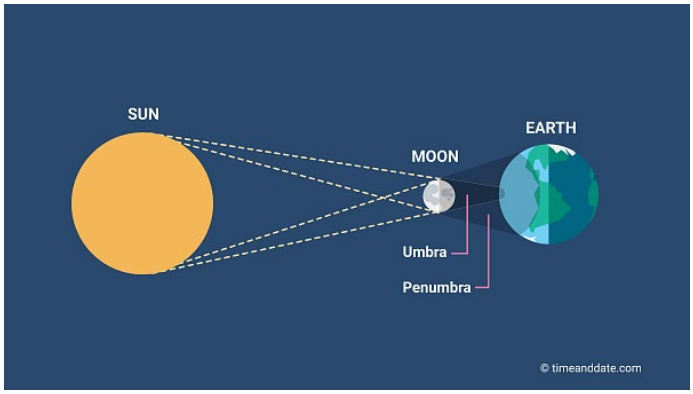
15. **What is Total Lunar Eclipse?**
    Ans. When the whole moon is in the umbra region of the earth's shadow, it is not visible at all. This is called Total Lunar Eclipse.



16. **What is Partial Lunar Eclipse?**
    Ans. When the moon comes slightly out of line. It is not completely in the umbra region of the Earth's Shadow. It receives some light from the sun that it reflects to earth. This makes it partially visible. This is called Partial Lunar Eclipse.

17. What is Solar Eclipse?

Ans. A solar Eclipse occurs when the sun, Earth and the Moon are in a straight line with the moon in between the Sun and the Earth. The moon casts its shadow on the Earth.



18. When Total Solar Eclipse happen?

Ans. A **total solar eclipse** happens when the Moon completely covers the Sun. It can take place only when the Moon is near perigee, the point of the Moon's orbit closest to the Earth. You can see a total solar eclipse only if you are in the path where the Moon casts its darkest shadow, the umbra.

19. When Partial Solar Eclipse happen?

Ans. A partial solar eclipse occurs when the Moon only partially obscures the Sun's disk and casts only its penumbra on the Earth.

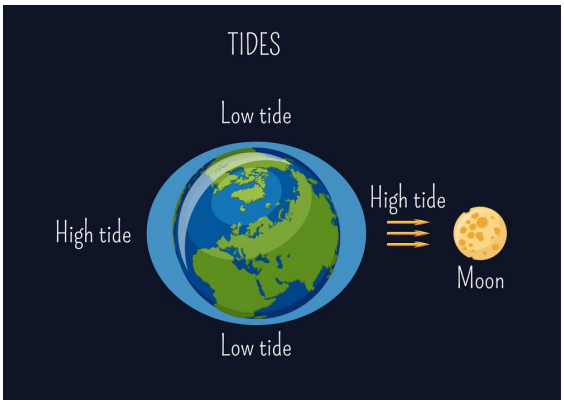
20. What is the Tide?

Ans. Tides can be defined as the alternate rise and fall of the ocean water. It is caused by the combined effects of:

- The gravitational force exerted on Earth by the Sun
- The gravitational force exerted on Earth by the Moon
- Rotation of the Earth

21. How High Tide and Low Tides are formed?

Ans. During the full moon and new moon days, the sun, the moon, and the earth are in the same line and the tides are highest. These tides are called High Tide. But when the moon is in its first and last quarter, the ocean waters get drawn in diagonally opposite directions by the gravitational pull of sun and earth resulting in low tides. These tides are called Low Tide.



22. What are Artificial satellites?

Ans. An artificial body placed in orbit round the earth or moon or another planet in order to collect information or for communication are called Artificial Satellites.
Ex: Sputnilk-1 was the first artificial satellite to be sent into space in 1957.
Aryabhata was India's first artificial satellite to be sent to space.

23. Why Artificial Satellites are useful to us?

Ans. Artificial Satellites are useful to us in several ways. They are

a) **Communication Satellites:**
   Communication satellites are used to relay radio and television programmes. They also help in sending telephone signals to far-off places.
   Ex: GSAT-16.

b) **Weather Satellites**
   Weather satellites are used to study the atmospheric conditions from which weather forecasts are made. They give warnings about forthcoming storms and cyclone.

c) **Remote Sensing Satellites**
   Remote sensing satellites are those that take photographs of the Earth. These photographs help scientists to study the features of the Earth's Surface.
   Ex: Cartosat-3

d) **Scientific Satellites:**
   These satellites help us to study space and galaxies.
   The advancement in science has enabled man to learn so much about the universe and has made life easier and comfortable.