

# Light

**1. What is Light?**

Ans. Light is a form of energy which produces the sensation of sight in us.

**2. What is source of light?**

Ans. An object that gives out light is called Source of Light.

**3. How many types of sources of light?**

Ans. There are two types of Source of light

- a. Natural Source of light
- b. Artificial Source of light

**4. What are Natural Sources of Light?**

Ans. Source of light that occur in nature are called Natural Source of Light.

Ex: Sun Star, Fireflies etc.

**5. What are artificial sources of light?**

Ans. Source of light that are made by humans are called Artificial or Human made source of light.

Ex: LED Bulb, Electric Tube etc.

**6. What are Luminous Objects?**

Ans. An object that gives out its own light is called Luminous Object.

Ex: Sun, Star, Burning Candle, Electric Bulb etc.

**7. What is Luminous Intensity?**

Ans. The measure of brightness of light from a light source is known as its luminous intensity.

Its unit is **Candela (cd)**.

**8. What is Bioluminescence?**

Ans. Some living organisms can emit light, which is produced due to chemical reaction of an enzyme called luciferase with oxygen in the air. The process of emission of light is called Bioluminescence.

**9. What is Bioluminescence Organism?**

Ans. The Organism which emit lights by Bioluminescence are called Bioluminescence Organism.

Ex: Firefly, Glow-worms etc.

**10. What are Non-luminous Objects?**

Ans. An object that does not give out its own light is called a non-luminous Object.

Ex: Planets, Chair, Table, Moon etc.

**11. 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.

**12. What is the definition of Rays of Light?**

Ans. The narrow path along which the light travels in the given direction is called Ray of Light.

**13. What is the definition of Beams of Light?**

Ans. A group of light rays which are travelling together is called a beam of light.

**14. What are Parallel Beams of Light?**

Ans. It consists of light rays that travel parallel to one another.  
A beam of light which comes from a source located very far has light rays parallel to one another.

**15. What are Divergent Beams of Light?**

Ans. It consist pf light rays that come from a source and travel in different direction.

**16. What are Convergent Beams of Light?**

Ans. Convergent Beams of Light consists of light that come from different directions and meet at a point.

**17. What is Pin hole Camera?**

Ans. The pinhole camera is the simplest kind of camera. It does not have a lens. It just makes use of a tiny opening (a pinhole-sized opening) to focus all light rays within the smallest possible area to obtain an image, as clearly as possible. The simple image formed using a pinhole camera is always inverted.

**18. On which principle a pinhole camera can works?**

Ans. Pinhole Camera works on the principle of rectilinear propagation of light.

**19. How can we change the image size of Pin Hole Camera?**

Ans. When the distance between the screen and the pinhole is increased a bigger image is formed and when the distance between pin hole and the screen is decreased a smaller image is formed.

**20. What happen when the hole size of pin hole camera increased?**

Ans. When the size of the pin hole is increased then more light passes through pin hole and we get brighter image but the image is blurred due to the overlapping of image.

**21. Why do we get inverted image in Pin Hole Camera?**

Ans. In the pinhole camera, the light enters through a very fine hole and is propagated in a straight line. An inverted image is formed in a pinhole camera because the light rays coming from the top and bottom of the object intersect at the pinhole. Thus, we get an upside-down image in a pinhole camera due to linear propagation of light through the hole of the pinhole camera.

**22. What happen when the aperture of Pin hole camera become small?**

Ans. If the aperture is smaller, the image becomes sharper. But the small aperture gives a dull picture.

**23. What are the advantages of Pine hole Camera?**

Ans. The advantage of Pin Hole Camera is  
It does not require any lens.

**24. What are the disadvantages of Pine Hole Camera?**

Ans. The disadvantages of Pine Hole Camera are

- The image obtained is temporary and does not show the details of the object.
- It cannot be used to see the motion of the moving objects.

**25. What is Solargraphy?**

Ans. Pin hole camera is commonly used to capture the movement of the sun over a long period of time. This type of photography is called Solargraphy.

**26. 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.

**27. 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.

**28. 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.

**29. What is Shadow?**

Ans. The dark area formed when light is blocked by any opaque object kept in its path is called Shadow.

It is formed due to rectilinear propagation of light.

**30. What are the characteristics of Shadow?**

Ans. Some of the characteristics of shadow are as below:

- A shadow is always formed on the opposite side of the light source.
- A shadow shows only the outline or shape of the object and no other details.
- The colour of the Shadow does not depend on the colour of the object.  
Shadows are always dark.
- The size of the shadow depends on the distance of the light source from the object and also on the distance of the screen from the object.

**31. Why translucent object forms a dim shadow?**

Ans. A translucent object forms a dim shadow since some part of the light is not transmitted. Brightness or darkness of the shadow depends on how much light can be transmitted through it.

### 32. What is Umbra and Penumbra?

Ans. For an extended source of light the shadow is dark at the center and is surrounded by a less dark area. The Dark position is called Umbra and the less dark position is called Penumbra.

### 33. What are the differences between Umbra and Penumbra?

Ans.

Umbra	Penumbra
(1) It is the darkest part of shadow.	(1) It is less dark part of shadow.
(2) No light reaches to this region.	(2) Light from some parts of the source reaches.
(3) It is central part of shadow.	(3) It is outer part of a shadow.

### 34. When only Umbra is formed?

Ans. Only Umbra is formed on the screen when an opaque object is lit up with a point source of light.

### 35. When Umbra and Penumbra are formed?

Ans. Umbra and Penumbra are formed on the screen when an opaque object is lit up with an extended source of light.

### 36. 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.

### 37. Eclipse are how many types?

Ans, Eclipse are two types:

- Lunar Eclipse
- Solar Eclipse

### 38. What is Lunar Eclipse?

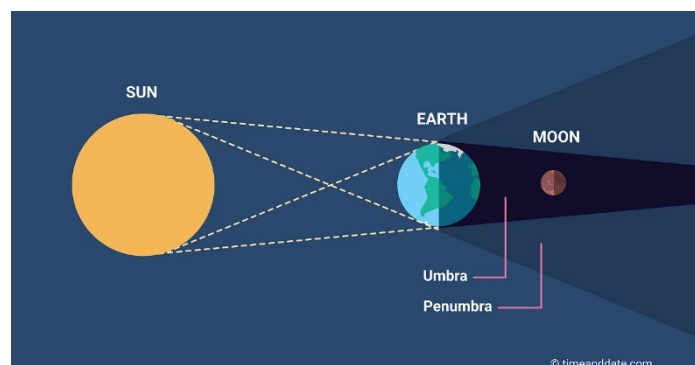
Ans. A lunar eclipse occurs when the Sun, the Earth, and the moon are in a straight line with Earth in between the Sun and the Moon. The Earth casts shadow on the Moon.

### 39. 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.

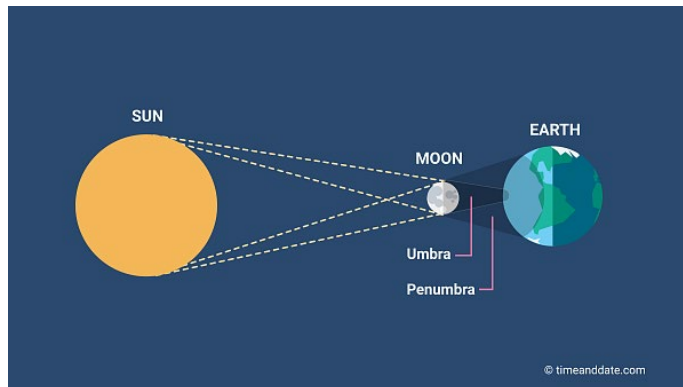
### 40. What is Partial Lunar Eclipse?

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.



#### 41. 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.



Earth. You can see a total solar eclipse only if you are in the path where the Moon casts its darkest shadow, the umbra.

#### 42. 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

#### 43. 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.



## Light Short Question

1. Light from the sun takes about \_\_\_\_\_ time to reach Earth.
2. Shadow is formed due to \_\_\_\_\_.
3. \_\_\_\_\_ is a natural Luminous Object.
4. When the source of light is smaller than the object the umbra is \_\_\_\_\_ in the size of the object.
5. \_\_\_\_\_ object does not form any shadow.
6. Cellophane paper is an example of \_\_\_\_\_ object.
7. Electric Bulb is called incandescent lamp because it glows with \_\_\_\_\_.
8. A source of light that has negligible dimensions is called \_\_\_\_\_.
9. The unit of Luminous Intensity is \_\_\_\_\_.
10. Light rays coming together to meet at a point are called \_\_\_\_\_.
11. Light passes slightly through \_\_\_\_\_ object.
12. The process of emission of light from the body is called \_\_\_\_\_.
13. \_\_\_\_\_ insect is a source of Light.
14. When the distance between the screen and the pinhole is increased the image, size is \_\_\_\_\_.
15. Collection of Light Rays are called \_\_\_\_\_.
16. Speed of the light in Water is \_\_\_\_\_.
17. The measure of brightness of light from a light source is known as its \_\_\_\_\_.
18. \_\_\_\_\_ camera does not require any lens.
19. \_\_\_\_\_ is an example of formation of shadow in nature.
20. Wood is an example of \_\_\_\_\_ object.
21. The emerged and spread light rays are called \_\_\_\_\_.
22. Moon is an example of \_\_\_\_\_ object.
23. Straight and very narrow path of light is called \_\_\_\_\_.
24. The speed of the light in vacuum or Air is \_\_\_\_\_.
25. When the source of light is equal to size of the object the umbra formed is the \_\_\_\_\_ of the object.
26. Electric Bulb is an example of \_\_\_\_\_ source of light.
27. When the distance between the screen and the pinhole is decreased the image, size is \_\_\_\_\_.
28. Butter Paper is an example of \_\_\_\_\_ object.
29. An object that gives out light is called \_\_\_\_\_.
30. Speed of the light in glass is \_\_\_\_\_.
31. \_\_\_\_\_ enzyme reacts with oxygen to produce light in some living organisms.
32. Pinhole Camera works on the principle of \_\_\_\_\_.
33. A shadow is always formed on the \_\_\_\_\_ side of the light source.
34. Light do not pass through \_\_\_\_\_ Object.
35. When the source of light is bigger than the object the umbra is \_\_\_\_\_ and the penumbra is \_\_\_\_\_.
36. The image formed by a pinhole camera is not affected by the \_\_\_\_\_.
37. If the aperture of pin hole camera is smaller, the image becomes \_\_\_\_\_ and \_\_\_\_\_.
38. We can see clearly through \_\_\_\_\_ object.
39. \_\_\_\_\_ is an artificial Luminous Object
40. If only a bright ring is seen around a centrally eclipsed area then we see \_\_\_ eclipse.



- 1) 8 mins 20 sec
- 2) rectilinear propagation of light.
- 3) Sun /Star
- 4) Bigger
- 5) Transparent.
- 6) Transparent
- 7) Heat
- 8) Point Source of Light.
- 9) Candela (cd).
- 10) Convergent beam.
- 11) Translucent
- 12) Bioluminescence.
- 13) Fireflies
- 14) Increased.
- 15) Light Beam
- 16)  $2.25 \times 10^8$  m/s
- 17) luminous intensity.
- 18) Pinhole
- 19) Eclipses
- 20) Opaque
- 21) Divergent Beam.
- 22) Luminous
- 23) Light Ray.
- 24)  $3 \times 10^8$  m/s
- 25) Same
- 26) Extended
- 27) Smaller.
- 28) Translucent
- 29) Source of Light
- 30)  $2 \times 10^8$  m/s
- 31) luciferase
- 32) rectilinear propagation of light
- 33) opposite
- 34) Opaque
- 35) Small, Large.
- 36) shape of the pinhole
- 37) sharper and dull.
- 38) Transparent
- 39) Electric Bulb, Electric Torch etc.
- 40) annure