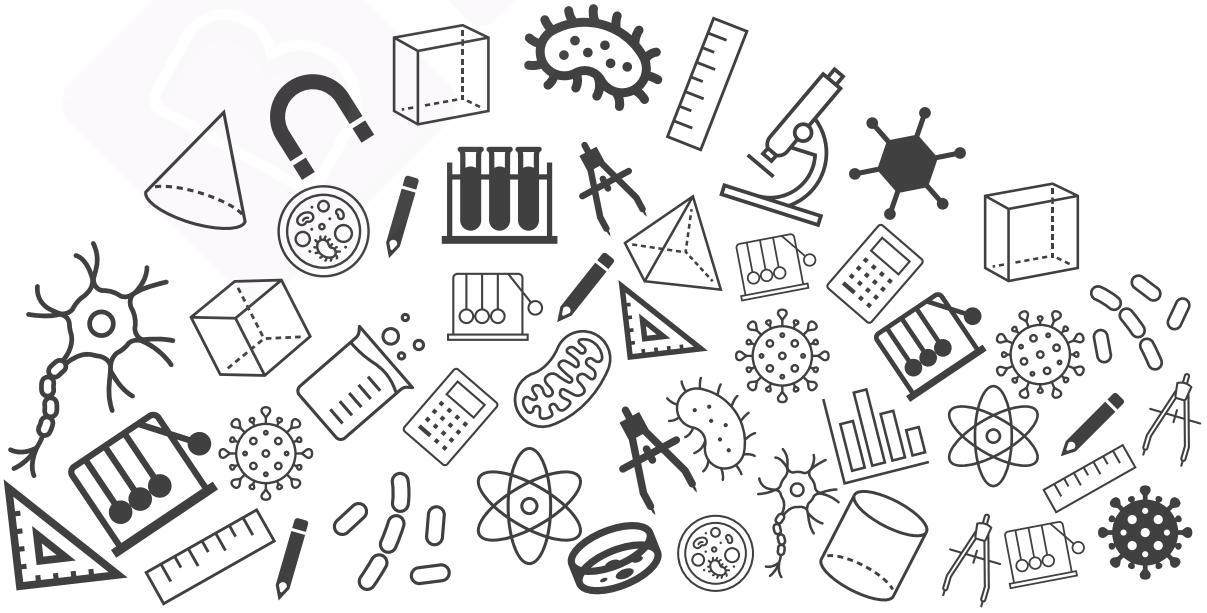
Grade 06
Chapter Notes



BYJU'S Classes

Class Notes

Light, Shadows and Reflections

Grade 06

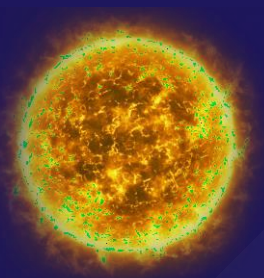
Topics to be Covered

1. Luminous and Non-luminous Objects
2. Transparent, Translucent and Opaque Objects
3. Rectilinear Propagation of Light
4. Pinhole Camera
   1. Image Properties
   2. Pinhole Camera in Nature
5. Shadow
6. Reflection of Light

1. Luminous and Non-luminous Objects

Light enables vision.

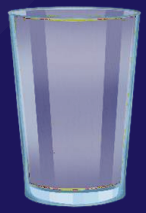
- Objects which **emit light of their own** are known as **luminous** objects.



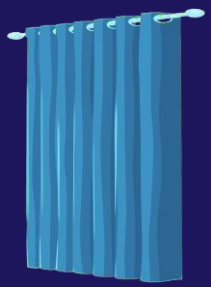
The Sun

Candle flame

- Objects which **do not emit light of their own** are known as **non-luminous** objects.



Glass



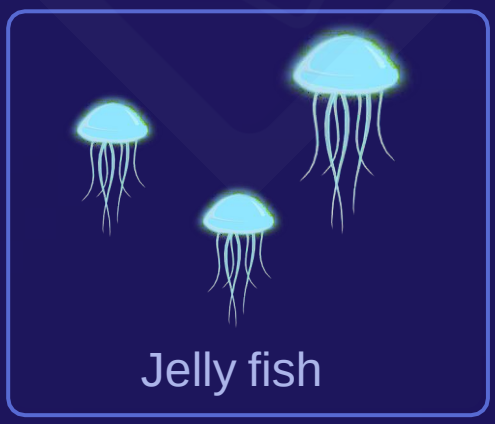
Curtain

1. Luminous and Non-luminous Objects

1.1 Bioluminescence

- Living creatures which can emit light of their own are said to be bioluminescent. In other words, bioluminescence refers to the emission of light by living organisms.
- Fireflies, jelly fish and angler fish are bioluminescent creatures.

Fireflies



Jelly fish

Angler fish

2. Transparent, Translucent and Opaque Objects

- Objects that completely allow light to pass through them are known as **transparent** objects.
- Examples: glass, air, etc.

Glass slab

- Objects that partially allow light to pass through them are known as **translucent** objects.
- Examples: sunglasses, tracing paper, etc.

Sunglasses

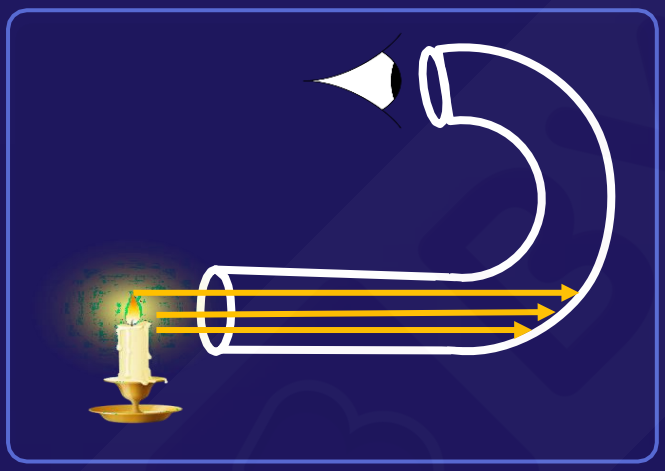
- Objects that do not allow light to pass through them are known as **opaque** objects.
- Examples: wooden cupboard, rock, etc.

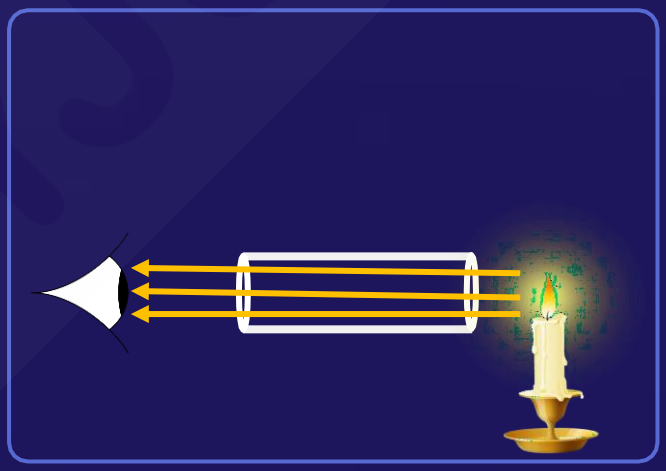
Cupboard

3. Rectilinear Propagation of Light

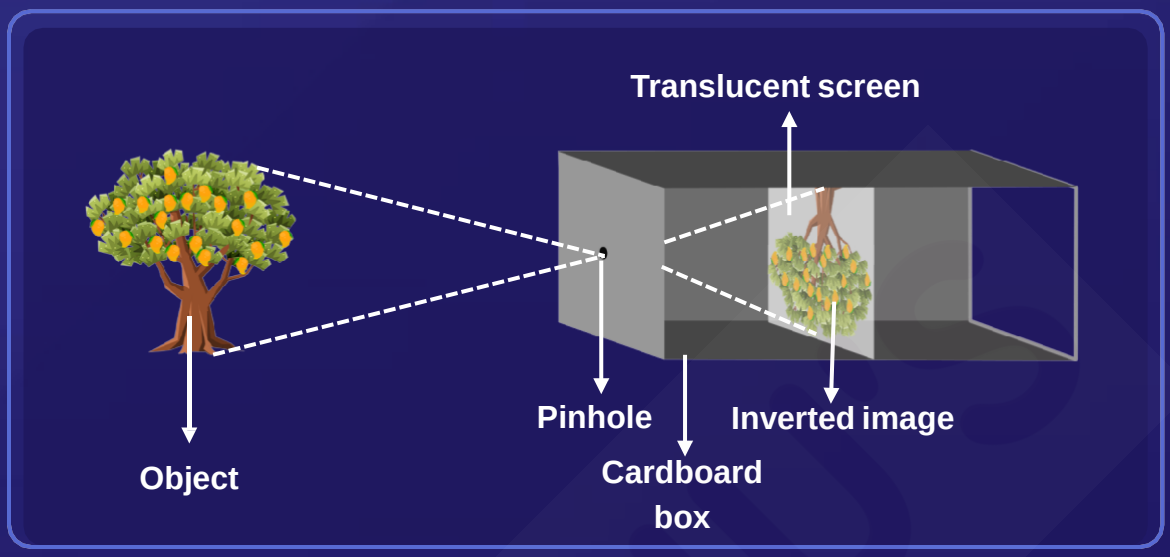
- Light always travel in a straight line in a medium. This is known as rectilinear propagation of light.

- If we look at a candle flame through a bent tube and a straight tube, we will find that the flame is visible only through the straight tube. This is because light travels in straight lines in a medium and cannot bend.





4. Pinhole Camera



It is the simplest type of camera which doesn't use a lens to form the image of an object. It can easily be constructed using a cardboard box, and a translucent sheet.

- A small hole is made on one side of a cardboard box, which acts as a pinhole. The hole should be small to obtain a sharp image.
- The box is painted black from the inside to avoid any reflection of light entering through the pinhole.
- A translucent screen is used to obtain the image.
- The image can be seen from the other open end of the box. The open end should be covered with a black cloth so that no other external light can enter the box.

4. Pinhole Camera

4.1 Image Properties

The principle behind formation of image by a pinhole camera is rectilinear propagation of light. No image would have been obtained if light didn't travel in straight lines in a medium.

The image formed by a pinhole camera is always

- ❑ inverted
- ❑ same colour as the object
- ❑ smaller, larger or same size as the object

4.2 Pinhole Camera in Nature

Gaps in between the thick leaves of a tree act as pinholes for the light rays from the Sun or the Moon. This forms circular patches on the ground which are basically image of the Sun or the Moon.

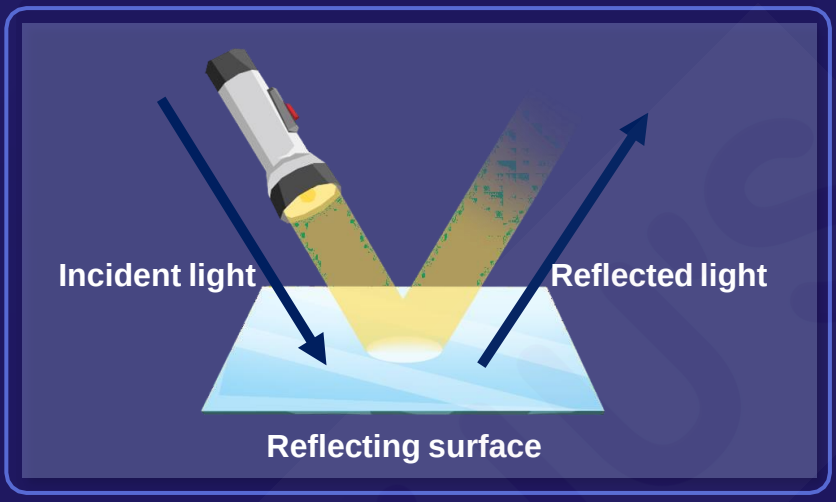
5. Shadow

- Shadow is the dark patch formed behind an opaque body when it is placed in the path of light. Shadows are formed because light travels in straight lines and cannot bend when obstructed by an opaque object.

- Properties of a shadow:
  - ❑ Shadow can only be obtained on a screen.
  - ❑ It is always black in colour.
  - ❑ Size of a shadow can vary depending upon the positions of the object, the light source and the screen.
  - ❑ Shadows give us some information about shapes of objects. Sometimes, shadows can also mislead us about the shape of the object.

6. Reflection of Light

- The phenomenon of bouncing back of light rays after striking an object is known as the reflection of light.



- Non-luminous objects can be seen because of reflection of light. Light rays coming from a luminous object fall on a non-luminous object, get reflected and finally reach our eyes to make vision possible.