



LIGHT, SHADOW AND REFLECTION

- **LIGHT** is a form of energy which is responsible for the sense of sight and it enables to see things around us.
- Light enables us to see objects around us like tree, vehicles, houses, people etc.
- At night due to absence of sunlight, it becomes dark, which reduces our visibility.

1. LUMINOUS OBJECTS –

Objects that emit or give out their light are called luminous objects.

Example - The Sun, Light bulb, Phone, Fire etc.



2. NON-LUMINOUS OBJECTS -

Any non-light emitting object is visible when light from luminous source falls on that object and reaches our eyes. These objects are called Non-Luminous Objects.

Example - The Earth, The moon, Chair, Dog etc.

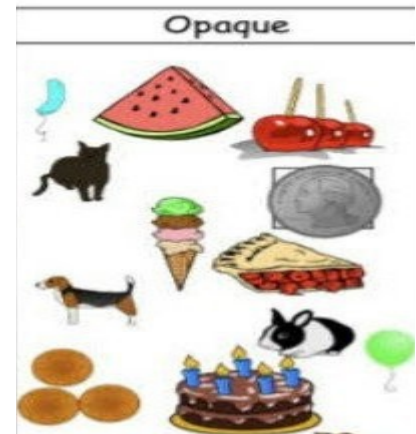


➤ Objects are classified based on the amount of light that can pass through them.

1. OPAQUE OBJECTS -

These objects do not allow light to pass through them and we can not see through these objects.

Example – Wall, door, tree, dog, coin etc.



2. TRANSLUCENT OBJECTS -

These objects allow light to pass through them partially.

We can see through these objects a little but not clearly.

Example – Polythene, thin plastic sheet, Ice, butter paper etc.



3. TRANSPARENT OBJECTS -

These objects allow light to pass through them completely.

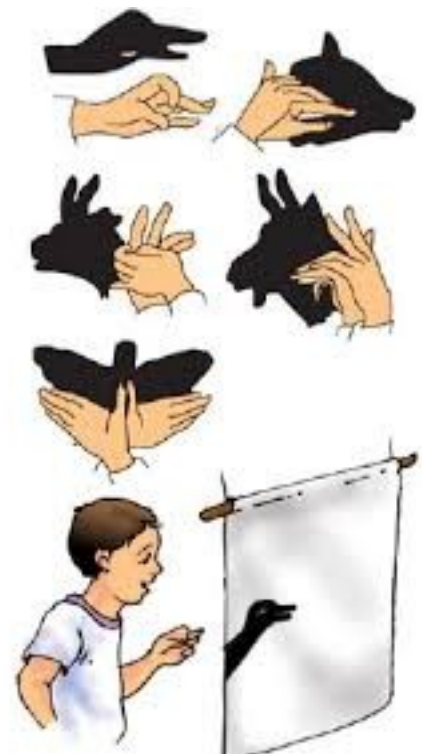
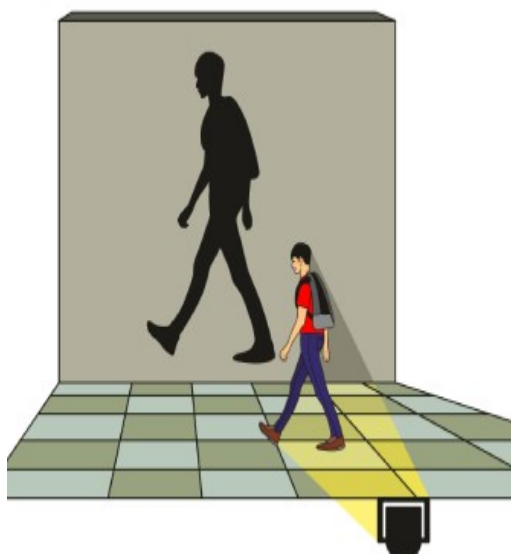
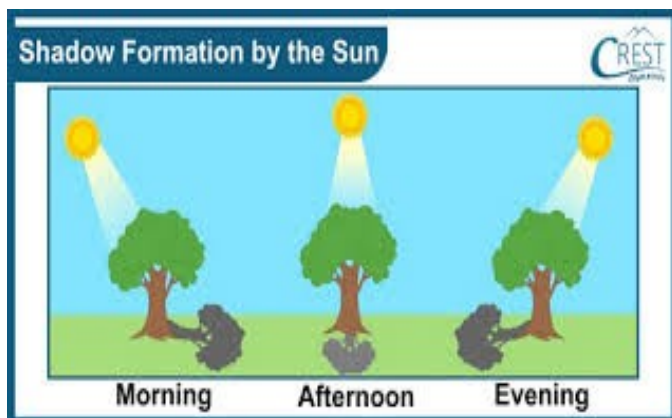
We can see through these objects clearly.

Example – Air, water, clear glass etc.



SHADOWS

- A **Shadow** is a space where light from a light source is blocked by an opaque object.
- Shape of the shadow is always similar to that of the object but the size varies according to the distance of the object from the light source.
- A Shadow is formed when a part of light is blocked by the object and if all the light is blocked by the object, then there will not be any shadow.
- Shadows of different types of objects may have similar shape as the amount of they may block is same,
- Shadows cannot occur in dark rooms (**due to absence of light**) and full light rooms with no objects (**due to absence of opaque objects**).
- A Shadow is always obtained on a screen like walls, ground etc.
- A Shadow is always black or gray irrespective of the colour of the object.

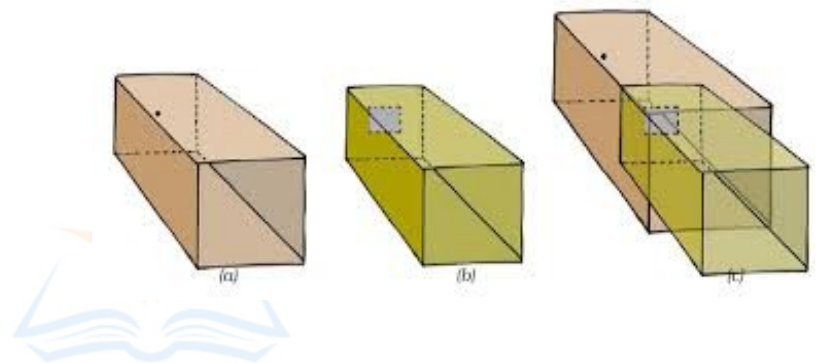


PINHOLE CAMERA

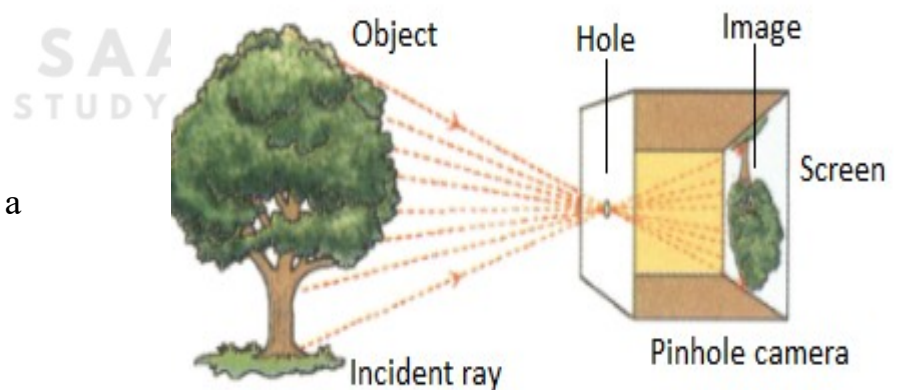
- A **Pinhole camera** is a simple camera, without lens, in the shape of a box. One of the side has a small hole and it produces an inverted image of the outside world at the other side.
- The box should be painted black from outside and inside for better clarity.
- The object whose image is to be seen should be in bright light.
- Smaller the hole, sharper the image.
- Temporary black and white images are formed on the screen if tracing paper is used.
- Permanent coloured and b&w images can be obtained using photographic films instead of tracing paper.

Examples -

- A Sliding pinhole camera



- Formation of image inside a pinhole camera

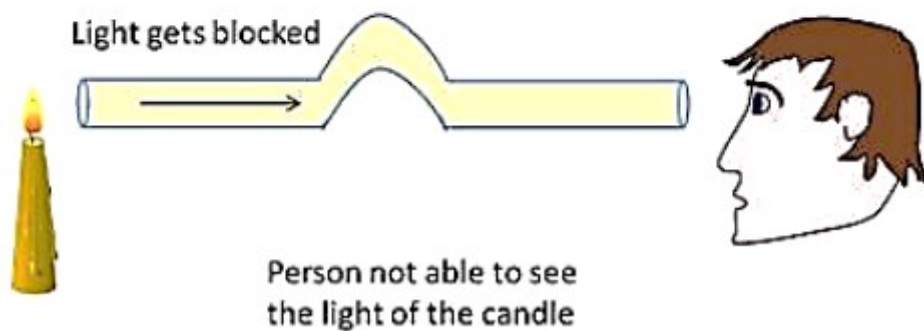
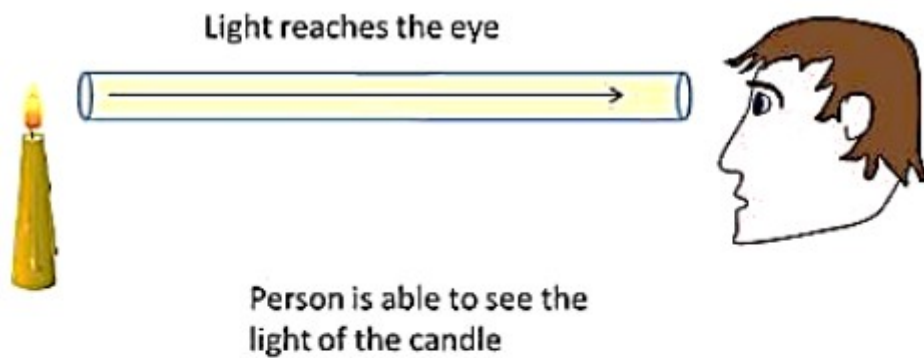


- Various images of sun (small spots) on the ground, Space between leaves of the trees behave as pinhole.



LIGHT TRAVELS IN A STRAIGHT LINE

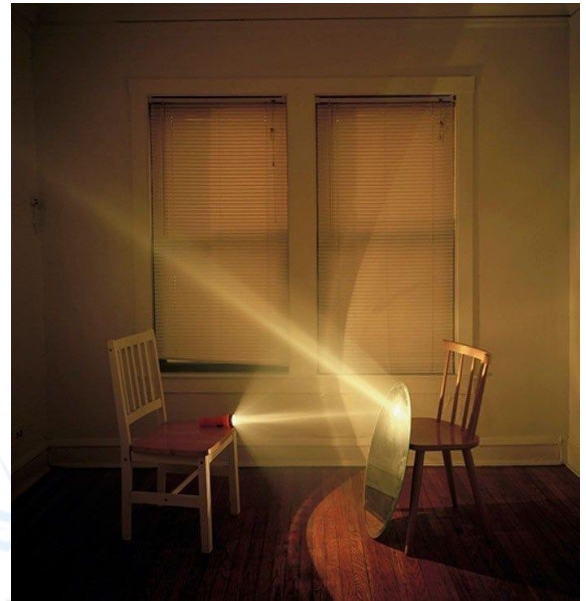
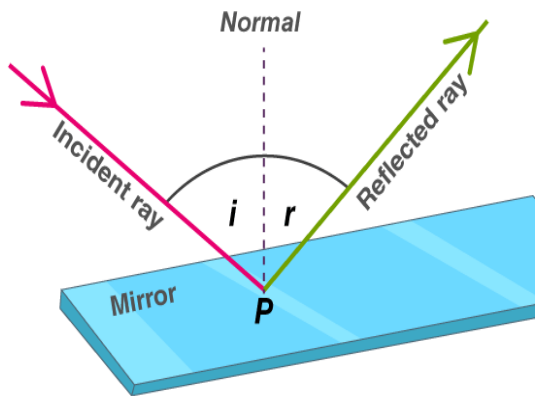
- Light always travel in straight lines.
- Blocking of such straight moving light rays by opaque objects results in shadows.
- Shadows cant be formed if light rays do not travel in straight lines.



MIRRORS AND REFLECTIONS

- Light waves may change their direction on striking a surface, this is called **Reflection**.
- Mirror is an object which reflects light.
- Shiny and polished surfaces usually act as mirrors.
- Due to reflection, image of an object is seen in the mirror.
- Mirror changes the direction of light falling on it.

REFLECTION OF LIGHT



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STUDY STATION