

Light, Shadows And Reflections

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Introduction

We see many objects in our daily life. When we go to school we see many things like car, bus, fan, bike, tree, animal etc. How do you think, we see all these objects ?

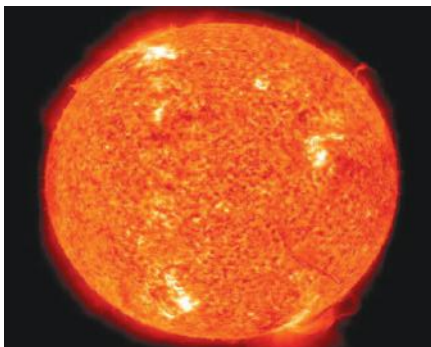
Think of the some places at night.

Suppose we go in a dark room. Are you able to see any object when there is no light ? These, objects reflect light on our eye retina only then we see the objects.

What are Luminous Objects ?

Objects like the sun that gives out or emit light of their own are called luminous objects.

Sun, torch or electric light are luminous objects.



Sun



Burning candle



Electric bulb

Some luminous bodies

Transparent, Translucent and Opaque Objects

If we see clearly through an object and it is allowing light to pass through it is called transparent object such as glass.

If we see through an object not very clearly it is called translucent object such as paper, cloth etc.



Glass



Translucent object



Some opaque objects

If we cannot see through an object at all, it is an opaque object. Light cannot pass through it such as wood, rubber etc.

Shadows

When an opaque object comes in the path of light, black patches are formed on the ground, actually this is the shadow of that opaque object. We see our shadow when we move in opposite direction of source of light, our shadow becomes lengthy on moving ahead.

The shadow can be seen only in a screen. The ground, walls of a room, a building or other such surfaces act as a screen for the shadow.



Shadow gives us some information about shapes of objects while sometimes shadow can also mislead us about the shape of the object.

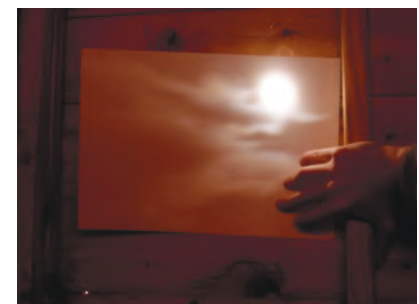
Do You Know ?

The sun is a natural source of light and heat. The earth and the moon are opaque objects and do not have the light of their own. When the Sunlight falls on the earth, a shadow of the earth is made behind it. In the same way, when the sunlight falls on the moon, a shadow is formed behind it.

Pinhole Camera

A pinhole camera is a very simple device. It can form pictures or images of stationary objects.

Look at the pinhole images of the sun under a tree. There is an interesting pinhole camera in nature. Sometimes we pass under a tree covered with large number of leaves, we notice small patches of sun light under it.



pinhole image of light

The circular images are pinhole images of sun. The gaps between the leaves act as the pinholes. These gaps are all kinds of irregular shapes, but we can see circular images of the sun.

Reflections

We see our images in mirror. This is actually reflection of our body. We also see reflections of other objects that are in front of the mirror. Sometimes, we see the reflections of many objects such as tree, wall etc. When a light falls on the mirror then it reflects light.

Periscope is the device which is made on the principle of reflection. With the help of it we can see the chair, which is placed inside the room.

First, image of chair will be formed at first mirror, then it reflects its image at second mirror. From this mirror we see the chair. Periscope is an interesting device which is used to see those objects which are not seen directly by us.



Reflection

Know the Keywords :

Shadow : A dark patch formed behind an opaque object, when it obstructs the passage of light.

Reflection : The phenomenon of bouncing back of light from a surface.

Mirror : Any highly polished surface from which regular reflection takes place.

Point to Remember

- Objects like the sun that gives out or emit light of their own are called luminous objects.
- If we see clearly through an object and it is allowing light to pass through it is called transparent object.
- If we see through an object not very clearly it is called translucent object.
- A pinhole camera can form pictures or images of stationary objects.

EXERCISE TIME

A. Answer the following questions :

1. What are luminous objects ?
2. What is a shadow ?
3. What are transparent, translucent and opaque objects ?
4. How does a periscope form an image ?
5. What is reflection ?

B. Fill in the blanks :

1. Light travels in a _____.
2. Periscope is based on the principle of _____.
3. _____ objects allow light to pass through them completely.
4. A pinhole camera is used to see _____.
5. You see your _____ in the mirror.
6. The _____ can be seen only in a screen.
7. Opaque objects do not allow _____ to pass through them.

C. Write 'T' for true and 'F' for false statements :

1. The moon is a luminous object.
2. Glass is an opaque object.
3. An object is needed to see its shadow.
4. A pinhole camera is very easy to construct.

D. Tick (✓) the correct option :

1. Sun, torch or electric bulb are _____ objects.
(i) non luminous (ii) luminous (iii) none of these
2. A pinhole camera is a very simple :
(i) device (ii) machine (iii) computer
3. The circular images are pinhole images of :
(i) moon (ii) earth (iii) sun



Creative Work

- **Collect some transparent and translucent objects and paste those pictures in your science note book.**