



**New words**

1.New words: 1. Luminous 2. Mirror 3. Opaque 4. Pinhole camera 5. Reflection 6. Shadow 7. Translucent 8. Transparent

**Pre activity:**

Draw OR stick any three luminous and non luminous objects.

**1. Answer the following:**

**Q1. Classify the objects or materials given as below opaque, transparent or translucent and luminous or non-luminous:**

**Ans:** Air, water, a piece of rock, a sheet of aluminium, a mirror, a wooden board, a sheet of polythene, a CD, smoke, a sheet of plane glass, fog, a piece of red hot iron, an umbrella, a lighted fluorescent tube, a wall, a sheet of carbon paper, the fame of a gas burner, a sheet of cardboard, a lighted torch, a sheet of cellophane, a wire mesh, kerosene stove, sun, firefly, moon

OBJECT	OPAQUE	TRANSPARENT	TRANSLUCENT	LUMINOUS	NON-LUMINOUS
Air	—	✓	—	—	✓
Water	—	✓	—	—	✓
A piece of rock	✓	—	—	—	✓
A sheet of aluminium	✓	—	—	—	✓
A mirror	✓	—	—	—	✓
A wooden board	✓	—	—	—	✓
A sheet of polythene	—	—	✓	—	✓
A CD	✓	—	—	—	—
Smoke	—	—	✓	—	✓
A sheet of plane glass	—	✓	—	—	✓
Fog	—	—	✓	—	✓
A piece of red hot iron	✓	—	—	✓	✓
An umbrella	✓	—	—	—	✓
A lighted fluorescent tube	✓	—	—	✓	—
A wall	✓	—	—	—	✓
A sheet of carbon paper	✓	—	—	—	✓
The flame of a gas burner	✓	—	—	✓	—
A sheet of card board	✓	—	—	—	✓
A lighted torch	✓	—	—	✓	—
A sheet of cellophane	—	✓	—	—	✓
A wire mesh	—	—	—	—	✓
Kerosene stove	✓	—	—	✓	—
Sun	✓	—	—	✓	—
Fire fly	✓	—	—	✓	—
Moon	✓	—	—	—	✓

## **I. Very short answer questions:**

1. Whether the moon is luminous or non luminous object?

Ans: Moon does not have light of its own hence ,Moon is non-luminous object.

2. Can you think of creating a shape that would give a circular shadow if held in one way and a other way?

Ans: Yes, there are many things which give a circular shadow if held in one way and a rectangular shadow if held in another way. For example: a cylinder, a circular disc etc.

3. In a completely dark room, if you hold up a mirror in front of you, will you see a reflection of yourself?

Ans: No, in a completely dark room no image will be formed because there is no light in the room so no reflection of light takes place and no image will be formed.

4. How does a light ray travel?

Ans: Light ray travels in a straight line.

5. Give one natural source of light.

Ans: Sun is a natural source of light.

6. What is shadow?

Ans: Shadow is the dark space behind an opaque object where light does not reach.

7. What is lateral inversion means?

Ans: The apparent reversal of the mirror images were compared with the object for example right side of the object appears as left side in the image.

8. How does the colour of an opaque object affects the colour of the shadow?

Ans: The colour of an opaque object does not affect the colour of the shadow. The shadow is always black, some portion may be grey.

9. What type of images are formed by plain mirror?

Ans: direct and literally inverted image is formed by a plain mirror the size of the image formed by the plane mirror is same as that of the object.

## **II. SHORT ANSWER TYPE QUESTIONS**

1. State difference between a luminous and a non-luminous objects with example.

Ans: Objects which emit light are called luminous objects.

Example: sun, stars, burning candle etc.

The objects which do not emit light are called non-luminous objects.

Example: moon, earth, blackboard.

2. When does a shadow is formed?

Ans: The shadow is the dark space formed by an opaque object, when it comes in the path of light or when it blocks incoming light rays.

3. What are the essential conditions for the formation of shadow?

Ans: The essential conditions to cast a shadow are-- a. There should be an opaque object. b. There should be a source of light c. screen is needed for image to fall down. \*The object must be placed in the path of light. Then shadow is formed on the screen.

4. Write difference between shadow and image.

Ans: a) A dark outline or patch formed by an opaque object that blocks light coming from a source of light is called shadow. While the image is the reflection of light.

b) By seeing the image, we can identify the object but shadow can mislead you from actual object.

5. Write the difference between Transparent translucent and a opaque object give examples for each

Ans: The objects which allow the light to pass through them completely and can see through them or count as transparent objects for example clear glass, thin sheet of plastic, clean water etc. The objects which allow some amount of light to pass through them and can see through them partially are called translucent objects for example fog, butter paper, coloured glass, smoke etc. The objects which do not allow any light to pass through them are called as opaque object for example brick, wall, table, wood etc

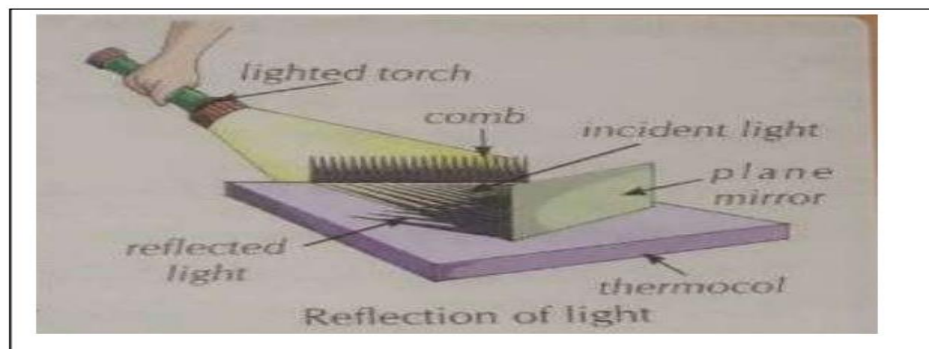
6. What is a pinhole camera? what type of image is formed by it?

Ans: A pinhole camera is a device which forms a photographic image of a bright object on a screen. The image formed by a pinhole camera are upside down i.e. inverted images

### III. LONG ANSWER QUESTION

1.Explain the manner in which light travels in a straight line with the help of an activity.

Ans: Take a comb and fix it on one side of a thermocol sheet. Fix a mirror on the on the other side as shown in the figure. Spread a sheet of dark coloured paper between the mirror and the comb. Keep this in sunlight or send a beam of light from a torch through the comb. You get a pattern of light and shadow. This activity explains the manner in which light travels and gets reflected from a mirror.



2. You have to cast the shadow of your pencil on the wall with the help of candle in a dark room. How can you obtain the shadow of same size, small size and big size of the same pencil?

Ans: (a)The shadow of the pencil will be small when the pencil is taken close to the wall and away from the candle.

(b)The shadow will be big in size when the pencil is taken closer to the candle.

(c)To get the same sized shadow as the pencil is, adjust the distance between candle and wall at equal distances.

### THINK AND ANSWER:

1. Have you ever seen an ambulance? It is written in the form of mirror image on vehicles. Explain why it is done so and give the mirror image of AMBULANCE.

Ans: The mirror image of AMBULANCE is ECNALUBMA. It is written so on the vehicles for the people to see in their rear view mirrors, read it correctly and immediately give way to the vehicle as it carries patients who need urgent medication

### POST ACTIVITY: DRAW A PERISCOPE.

