



CLASS:5th

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SUBJECT: Science

LESSON- L-6: Light & Shadow

I. Key words:

1. luminous
2. transparent
3. translucent
4. opaque
5. sundial
6. shadow
7. frosted

II. Pre activity:

Draw the luminous and non-luminous objects.

III. Differentiate between the following:

1. Luminous and non-luminous objects.

Luminous objects	Non-luminous objects
1) Objects that have their own light are called luminous objects.	1) Objects that do not have their own light are called non-luminous objects.
2) Examples: Sun, bulb, candle.	2) Examples: Cardboard, chair, book.

2. Transparent and translucent materials.

Transparent materials	Translucent materials
1) Objects that allow light to pass through them are called transparent.	1) Objects that allow light to pass through them only partially are called translucent.
2) Examples: clear glass, air.	2) Examples: frosted glass, butter paper.

3. Translucent and opaque materials.

Translucent materials	Opaque materials
1) Objects that allow some light to pass through them are called translucent.	1) Objects that do not allow light to pass through them at all are called opaque.
2) Examples: butter paper, textured glass.	2) Examples: wood, cardboard.

IV. Give reasons for each of these:

1. Light cannot bend around corners of an object.

Ans: Light travels in a straight line. So, light cannot bend around corners of an object.

2. Shadows do not form in dark.

Ans: Shadows always form when light is being blocked by an object. In dark there is no light that can be blocked, so there is no formation of shadows.

3. Shadows are always dark.

Ans: Shadows are formed when light is blocked by objects. Hence, on the other side of the object that blocks the light, there is no light and that side becomes dark. So, shadows are always dark.

V. Answer the questions in brief:

1. What are transparent and translucent materials?

Ans: Materials that allow light to pass through them completely are called transparent materials. Materials that allow light to pass through them partially are called translucent materials.

2. Transparent materials do not form shadows. Explain why.

Ans: Transparent objects do not form a shadow because light passes through these objects. It is not blocked.

3. Why do opaque objects form darker shadows than translucent objects?

Ans: A translucent object forms a shadow, which is not as dark as that formed by the opaque object. As the translucent object allows some light to pass through but an opaque object does not allow light to pass at all. So it forms a clear and dark shadow on the screen or on the ground.

4. Which two factors determine the size of a shadow?

Ans: The size of the shadow depends upon the distance of the object from the source of light and also on the distance of the screen from the object.

VI. Answer the questions in detail:

1. Differentiate between transparent, translucent and opaque materials. Give two examples of each.

Ans: 1) Materials that allow light to pass through completely are called transparent materials. Air, water and clear glass are examples of transparent materials.

2) Materials that allow light to pass through them partially are called translucent materials. Things like frosted glass, some plastics and butter paper are translucent. We cannot see clearly through them and objects on the other side of a translucent material appear unclear.

3) Opaque materials do not allow light to travel through them. Materials such as wood, stone and metals are opaque.

2. How is a shadow formed? What are its characteristics?

Ans: When an opaque object comes in the way of light, it gets blocked and cannot bend its path. Thus, a dark area is formed on the other side. This dark area is called a shadow. Characteristics of a shadow

1) A shadow will always be formed on the opposite side of the source of light.

2) The shadow formed does not reflect the actual colours of the object. Shadows are always dark.

3) A shadow only shows the outline of the object and not the details.

4) The size of the shadow depends upon the distance of the object from the source of light and also on the distance of the screen from the object.

VII. Out of the box:

1. Raj's father is opening a hardware shop and he wants to keep all small items such as nails, screws, nuts and bolts in medium-sized transparent containers. Why do you think he wants to use transparent containers?

Ans: By keeping them in transparent containers they will be easy to find as transparent containers allow light to pass through them and so we can easily see through them.

VIII. Post activity:

Categorize the materials which you see around you as transparent, translucent and opaque materials.

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