

## Ch 11 Light Shadow & Reflection

### • EXERCISES

1. Rearrange the boxes given below to make a sentence that helps us understand opaque objects.

O W S
A K E
O P A Q
U E O
B J E C
T S M
  
S H A D

Ans:

O P A Q
U E O
B J E C
T S M
A K E
S H A D
O W S

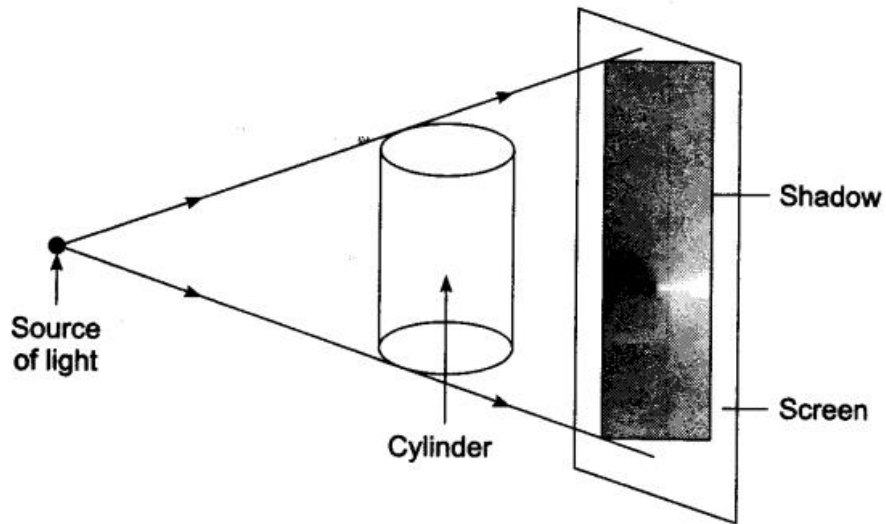
2. Classify the objects or materials given below as opaque, transparent or translucent and luminous or non-luminous:

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 fame of a gas burner, a sheet of cardboard, a lighted torch, a sheet of cellophane, a wire mesh, kerosene stove, sun, firefly, moon.

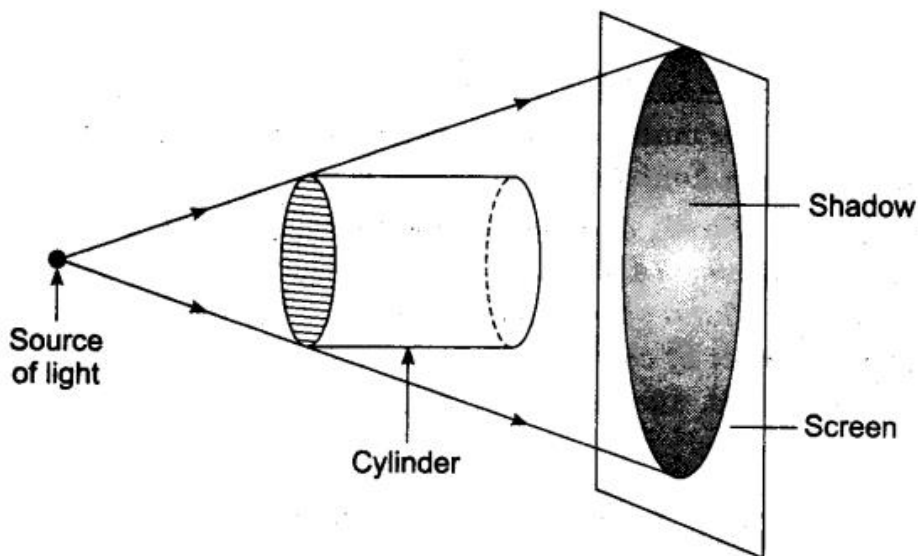
OBJECT	OPAQUE	TRANSPARENT	TRANSLUCENT	LUMINOUS	NON-LUMINOUS
Air	—	✓	—	—	✓
Water	—	✓	—	—	✓
A piece of rock	✓	—	—	—	✓
A sheet of aluminium	✓	—	—	—	✓
A mirror	✓	—	—	—	✓
A wooden board	✓	—	—	—	✓
A sheet of polythene	—	—	✓	—	✓
A CD	✓	—	—	—	—
Smoke	—	—	✓	—	✓
A sheet of plane glass	—	✓	—	—	✓
Fog	—	—	✓	—	✓
A 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	✓	—	—	—	✓

3. Can you think of creating a shape that would give a circular shadow if held in one way and a rectangular shadow if held in another 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.



**Fig. 11.9 (b)** Getting a rectangular shadow with a cylinder.



**Fig. 11.9 (a)** Getting circular shadow with a cylinder

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

**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.

#### Extra Questions

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

**Ans:**

- (1) There should be an opaque material.
- (2) There should be a source of light and screen.
- (3) The object must be placed in the path of light. Then shadow is formed on the screen.

2. Define reflection of light.

**Ans:** When light rays after striking the smooth and shiny surface return to same medium, this phenomenon is called reflection of light.

3. State difference between a luminous and a non-luminous body.

**Ans:** The bodies which emit light are called luminous bodies. Example: sun, stars, burning candle etc.

The bodies which does not emit light are called non-luminous bodies. Example: moon, earth, blackboard

4. Write difference between shadow and image.

Shadow	Image
1. Size of the shadow can be larger or smaller than that of the object.	1. Size is same as that of the object.
2. Always black irrespective of the colour of the object.	2. Shows the details of the colour of the object.
3. Can be obtained on a screen, such as a floor, a wall etc.	3. Cannot be obtained on a screen.
4. Does not show lateral inversion.	4. Shows lateral inversion.

5. How does a light ray travel?

Ans: Light ray travels in a straight line

6. Give one natural source of light.

Ans: Sun is a natural source of light.