



INDIAN SCHOOL AL WADI AL KABIR

Class: VI	DEPARTMENT: SCIENCE 2020 -21	DATE: 29-11-2020
WORKSHEET NO.: 12 WITH ANSWERS	TOPIC: LIGHT, SHADOWS AND REFLECTIONS	NOTE: A4 FILE FORMAT
NAME OF THE STUDENT	CLASS & SEC:	ROLL NO.

I. OBJECTIVE TYPE QUESTIONS:

1. Which of the following material allows light to pass through it?
a) Copper
b) Wood
c) Glass
d) rubber
2. Which of the following is a non-luminous object?
a) Sun
b) Star
c) moon
d) Tube light
3. Which of the following is not always necessary to observe a shadow?
a) Sun
b) Screen
c) Source of light
d) Opaque object
4. Shadow of a red object will be:
a) Red
b) Black
c) Blue
d) Green
5. Natural luminous object among the following is:
a) Tube light
b) Bulb
c) Moon
d) Stars
6. Shadows give us information about:
a) Shape of source
b) Shape of object
c) Surface
d) Size of object
7. Which of the following can never form a circular shadow?
a) A ball
b) A flat disc
c) A shoe box
d) An ice cream cone

For question numbers 8 to10, two statements are given- one labeled Assertion (A) and the other labeled Reason (R).

Select the correct answer to these questions from the codes (i), (ii), (iii) and (iv) as given below

- i) Both A and R are true and R is correct explanation of the assertion.
- ii) Both A and R are true but R is not the correct explanation of the assertion.
- iii) A is true but R is false.
- iv) A is false but R is true

8. **Assertion (A):** Opaque object forms a shadow when light falls on it.
Reason (R) : Opaque objects do not allow light to pass through it.

i) Both A and R are true and R is correct explanation of the assertion.

9. **Assertion (A):** Pinhole camera images do not have the colour of the object.
Reason (R) : The image formed in pin hole camera is small and inverted but shows the exact detail of the object.

iv) A is false but R is true

10. **Assertion (A) :** A burning candle cannot be seen through a bended tube .
Reason (R) : Light rays can bend in a bend tube .

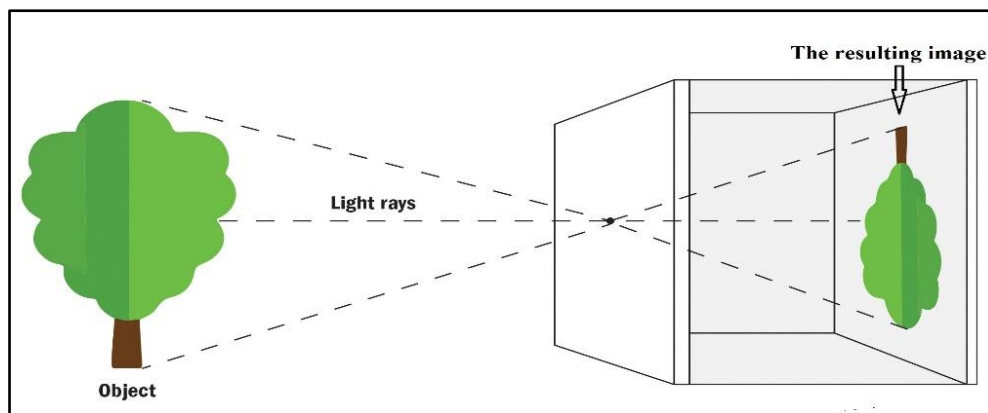
iii) A is true but R is false.

II. BASIC CONCEPTS LEVEL QUESTIONS:

1. Name the most important source of light for the earth. [Hint: Sun]
2. What is light? [Hint- A form of energy which enable us to see things around us]
3. What are the conditions required for the formation of a shadow? [Hint-source of light, an opaque object and a screen]
4. Why can you see the table and chair in a room during daytime? [Hint- when light falls on the object, gets reflected and reaches our eyes]
5. What do you mean by reflection of light? [Hint- The bouncing back of light with the change in direction]
6. Choose the transparent, translucent and opaque materials from the following:
 Cardboard, Tracing paper, Clear glass, Water, Air, Brick wall, Aluminium sheet
 [Hint: Opaque -Cardboard, Brick wall, Aluminium sheet. Translucent -Tracing paper
 Transparent - Clear glass, Water, Air]
7. Name two natural sources of light and two man-made sources of light. [Hint: Natural- Sun and stars. Man-made- Bulb and candle]
8. Why is the moon not considered as a luminous body? [Hint: It shines by reflecting the sunlight falling on it]

III.INTERMEDIATE LEVEL QUESTIONS:

1. Explain why, we often see bright circular patches of light on the ground under tree on a sunny day. [Hint- These circular images are, in fact, pinhole images of the Sun. The gaps between the leaves, act as the pin holes]
2. Why is it not advised to observe the sun directly during a solar eclipse? [Hint-The rays From the sun can cause permanent eye damage and blindness]
3. Define eclipse? [Hint- An eclipse occurs when one object in space blocks an observer from seeing another object in space. This happens when one heavenly body cast its shadow on another.]
4. Observe the figure and answer the questions that follow:



- a) Name the device given in the figure. [Hint: A pinhole camera]
 - b) On what principle does it work? [Hint: Light travels in a straight line]
 - c) What is the nature of the image formed by the given device. [Hint- Inverted image]
5. Distinguish between:
- a. Transparent, translucent and opaque objects [Hint: Transparent- object through which we can see clearly. Translucent- object through which we can see, but not very clearly. Opaque- object through which we cannot see through.]
 - b. Luminous and non-luminous objects [Hint: Luminous- objects that produce their own light. Non-luminous- objects that do not produce their own light]

- c. Image and Shadow [Hint: Image- It is formed when the light is reflected from the object and reaches our eyes and gives information about the object like the colour and features. Shadow- A shadow is formed when an object blocks the light. It is always black in colour. It does not show the feature or colour of the object. It is always formed on a screen.]
6. What do you mean by rectilinear propagation of light? [Hint: The property of light travelling in a straight line]

IV. ADVANCED LEVEL QUESTIONS:

1. Can an object form two or more shadows at the same time? How? [Hint: Yes, Multiple shadows will be formed when there are more sources of light]
2. Can you think of creating a shape that would give a circular shadow if held in one way and rectangular shadow if held in the other way? [Hint- When the object is a cylinder]
3. Why is the shadow of an aeroplane flying high in the sky not seen on the ground? [Hint: The ground will not act as screen for the aeroplane due to its high distance from the ground]
4. Why we cannot see through a 'T' shaped or an 'N' shaped pipe? [Hint- Light travels in a Straight line and cannot bend]
5. On a sunny day, does a bird or an aeroplane flying high in the sky cast its shadow on the ground? Under what circumstances, can we see their shadow on the ground? [Hint: No, they do not cast any shadow on the ground because they are very high in the sky. They can cast shadow only if they are at some lower height, i.e. if they are near to the ground, we can see their shadows.]
6. Using a pinhole camera, a student observes the image of two of his friends, standing in sunlight, wearing yellow and red shirts, respectively. What will be the colours of the shirts in the image?[Hint: Colours of the shirts will remain same. We see them on the screen because pinhole camera forms the image of the object having same colour but upside down. So, yellow shirt will form yellow image and red shirt will form red image.]

V-EXEMPLAR QUESTIONS:

1. A student covered a torch with red cellophane sheet to obtain red light. Using the red light, she obtains a shadow of an opaque object. She repeats this activity with green and blue light. Will the colour of the light affect the shadow? Explain. [Hint: The colour of light will not affect the shadow, because shadow is the dark patch formed when an opaque object obstructs the path of light and hence no light reaches in the shadow region]
2. A student had a ball, a screen and a torch in working condition. He tried to form a shadow of the ball on the screen by placing them at different positions. Sometimes the shadow was not obtained. Explain. [Hint: Some of the reasons can be- The screen is away from the ball, the torch is kept away from the ball, the beam of light from the torch is falling parallel to the screen on the ball]