

# St. Andrews Scots Sr. Sec. School

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Session: 2024-2025 – Answer Key

**Class: VI**

**Subject: Science**

**Chapter: Light**

## CHECK POINT 1

1. False
2. True
3. False
4. True

## CHECK POINT 2

1. Dark
2. Size
3. Shadow
4. Lunar

## CHECK POINT 3

1. Reflection
2. Incident ray
3. Spherical mirror
4. Rectilinear propagation of light

## Define these terms:

1. Ray :- A narrow path of light represented by a single line.
2. Screen :- The shadow of an object is formed only on another opaque object or surface is called screen.
3. Reflection :- The sending back of light from a surface to form an image is called reflection

4. Rectilinear Propagation of light:- The phenomenon of light travelling in a straight line in a uniform medium is called rectilinear propagation of light.

## **PRACTICE TIME**

### **A. Tick the correct answer :-**

1. (b)
2. (c)
3. (a)
4. (b)

### **B. Tick the correct option:-**

1. Man made
2. Transparent
3. Opaque
4. Image

### **C. Very Short answer type:-**

1. The property of light to travel in a straight line is called rectilinear propagation of light.
2. The sun, stars and some light-emitting organisms such as glow worm, firefly, etc. are natural luminous objects.
3. The substances which allow light to pass through them partially are called translucent substances. Butter paper, greased paper, honey and ground glass are some examples of translucent substances.
4. A shadow is a dark region formed when light is blocked by an opaque object.
5. A mirror is a smooth polished surface which reflects the light.

### **D. Short answer type questions:-**

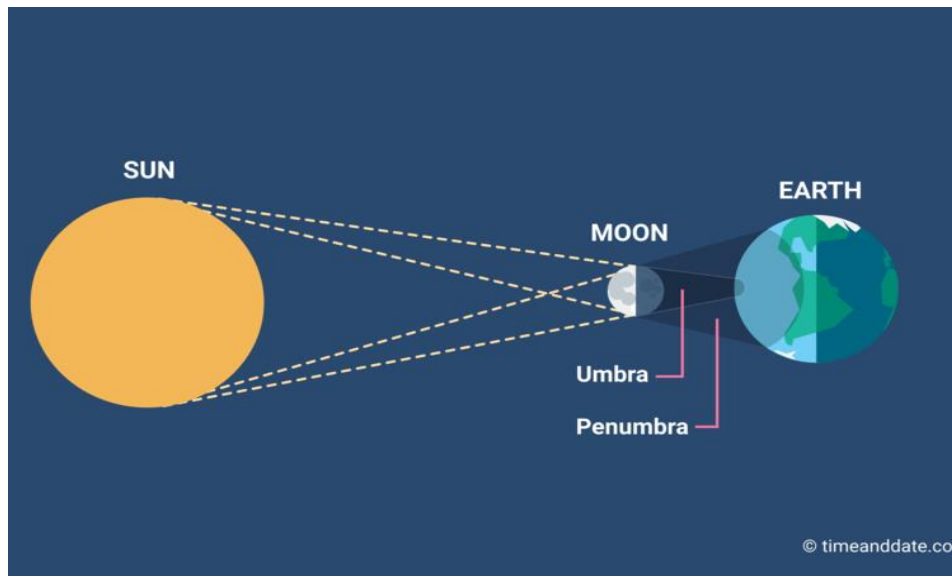
1. Characteristics of light are
  - Light is a form of energy which sensitises our eyes and enables us to see the objects around us.
  - It travels in a straight line.
  - It is the fastest travelling energy. It travels with a speed of 3,00,000 kilometres per second in vacuum.

- Sunlight, as perceived by us, is actually made up of seven different colours, combined together.
2. We can categorise objects into three different types based on the passing of light through them:
    - The substances which do not allow light to pass through them are called opaque substances, e.g., rubber, stone, brick, etc.
    - The substances which allow light to pass through them are called transparent substances, e.g., water, glass and air are some examples of transparent substances.
    - The substances which allow light to pass through them partially are called translucent substances, e.g., butter paper, greased paper, honey, etc.
  3. An eclipse is the shadow of a celestial body formed on some other celestial body, i.e., earth or moon. It is a natural phenomenon. It is of two types – solar eclipse and lunar eclipse.
  4. The phenomenon of bouncing back of light after striking a shiny and opaque surface is called reflection of light.
  5. Colour of an object depends on the colour of light that the object reflects. Shadow of an object is the dark region where no light reaches and gets back. Hence, a shadow is colourless.
  6. Differences between a shadow and an image are:
    - A shadow does not show the details of the object, whereas an image shows more or less exact details of the object.
    - A shadow is formed due to the blocking of light by an opaque object while the image is formed due to reflection of light from an opaque, smooth and shiny surface.
    - A shadow is always dark while the image shows true colours of the object.

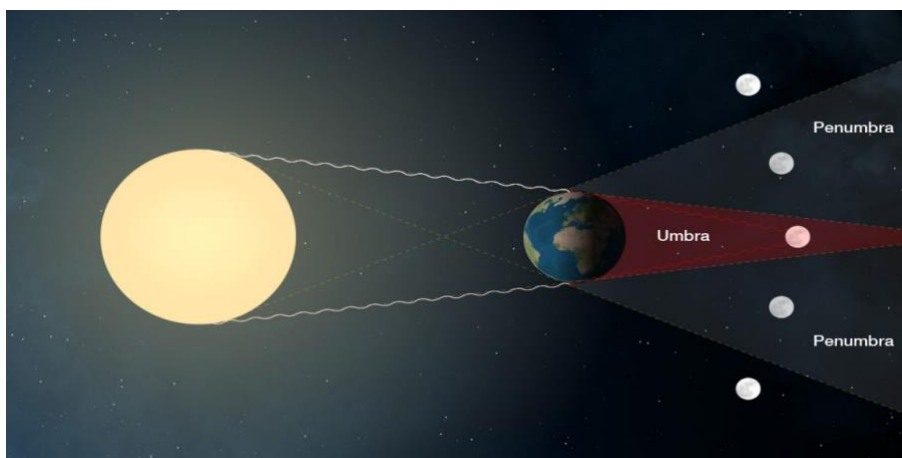
### **E. Long answer type questions:-**

1. Light travels in a straight line. It can be proved by performing the following activity:  
 Materials Required: An aluminium tube of about 30 cm length, a candle, a table and a matchbox  
 Procedure: Light the candle and place it on the table. See the candle through the tube. Now, give a small bend to the tube. Place it in between the candle and one of your eyes, keeping the other eye closed.  
 Observation: The candle is visible through the straight tube but it is not visible through the bent tube.  
 Conclusion: This is because light travels in a straight line.
2. Characteristics of a Shadow
  - A shadow is formed only when the light is blocked by an opaque object.
  - A shadow is only a dark region which does not show any colours or the details of the object.
  - A shadow may or may not resemble the actual shape of the object.
  - The size of a shadow depends on the position of the source of light with respect to the object.

- The shadow of an object is formed only on another opaque object or surface called the screen.
3. A pinhole camera is the simplest type of camera in which the image of an object is obtained through a very small hole called pinhole. This is called so because this hole is made with the help of a pin. It works on the principle of rectilinear propagation of light. The image formed by it is real and inverted. Its size depends on the distance of screen and that of the object from the pinhole.
  4. Solar eclipse: When the moon comes in between the sun and the earth, the shadow of the moon falls on the earth. When the people from the shadowed part of the earth try to see the sun, the view of the sun is partially or completely blocked for some time. This phenomenon is known as solar eclipse



Lunar eclipse: When the earth comes in between the sun and the moon, the shadow of the earth falls on the moon and the view of the moon gets partially or completely blocked for some time. This phenomenon is known as lunar eclipse.



**F. HOTS Questions :-**

1. Birds, kites and aeroplanes flying high in the sky do not cast their shadows because the screen (earth's surface) is far away from them. So umbra is not formed on the earth's surface and penumbra is too faint to be visible.
2. The moon is a nonluminous body but it appears bright as it reflects the light of the sun falling on it.
3. The earth when viewed from space, shines as a bright, blue ball due to the light of the sun falling on it. It gives out the same light that it receives from the sun.

