

## Chapter-16 Light

1. *Suppose you are in a dark room. Can you see objects in the room? Can you see objects outside the room? Explain.*

*We can see any object, when light reflected by that object reaches our eyes. But in the dark room, no light is reflected by the object so we are unable to see objects in dark room. If there is light present outside the room, then we can see the objects outside the room.*

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2. *Describe an activity to show that the incident ray, the reflected ray and the normal at the point of incidence lie in the same plane.*

*Place a plane mirror on the table. Take a paper sheet and make a small hole in its centre. Make sure that the light in the room is not bright. Hold the sheet normal to the table. Take another sheet and place it on the table in contact with the vertical mirror. Draw a normal line on the second sheet from the mirror. Now, light a torch on the mirror through the small hole such that the ray of light falls on the normal at the bottom of the mirror. When the ray from this hole is incident on the mirror, it gets reflected in a certain direction. You can easily observe the incident ray, reflected ray and the normal to the mirror at the point of incidence on the sheet placed on the table. This shows that the incident ray, the reflected ray, and the normal to the surface at the point of incidence all lie in the same plane.*

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3. *Describe the construction of a kaleidoscope.*

*Three rectangular mirror strips of dimensions 15cm x 4cm ( $l \times b$ ) are joined together to form a prism. This prism is fixed into a circular cardboard tube. The circular cardboard tube should be*

*slightly longer than the prism. This circular tube is now closed at one end with a cardboard disc. This disc has a hole in it through which we can see. At the other end of the circular tube, a plane glass plate is fixed. It is important that this glass plate touches the prism mirrors. On this glass plate, several small and broken pieces of coloured glass are placed. This end is now closed by a round glass plate allowing enough space for the coloured glass pieces to move.*

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4. *Gurmit wanted to perform Activity 16.8 using a laser torch. Her teacher advised her not to do so. Can you explain the basis of the teacher's advice?*

*Laser light is harmful for the human eyes, because its intensity is very high. It can cause damage to the retina and lead to blindness. Hence, it is advisable not to look at a laser beam directly.*

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5. *Explain how you can take care of your eyes.*

*We can take care of eyes by:*

- i. Visit an eye specialist regularly.*
  - ii. Avoid reading in dim light and very bright light.*
  - iii. Avoid direct exposure of sunlight to the eye.*
  - iv. Clean your eyes with cold water quickly if dust particles or small insects enter your eye. Do not rub your eyes.*
  - v. Maintain a distance of at least 25 cm between the book and your eyes while reading.*
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