

Chapter 5

Light

LESSON PLAN

SPECIFIC OBJECTIVES

Students must learn about

- ❖ brief introduction of light
- ❖ sources of light
- ❖ transmission of light
- ❖ rectilinear propagation of light and its applications
- ❖ ray and beam of light
- ❖ point and extended sources of light
- ❖ image of an object
- ❖ pinhole camera, its construction and working
- ❖ shadow, its parts and formation
- ❖ eclipses and their types

Teaching Aids

Pictures/models/charts showing luminous and nonluminous objects; ray diagrams showing different types of light beams; materials used to make pinhole camera; pictures showing differentiation between umbra and penumbra, and lunar and solar eclipses.

Teaching Strategy

- ❖ Students should be encouraged to study about light and its sources. They should also be asked to study luminous and nonluminous objects with their examples and illustrations.
- ❖ Students should be asked to perform activity 1 showing a list of luminous and nonluminous objects given at page 96. They should also be asked to study the way to see nonluminous objects. They should be asked to solve check point 1 given at page 74.
- ❖ Students should be asked to study transmission of light, activity 3 in order to identify opaque, transparent and translucent objects given at page 75. They should be asked to learn definition and examples of opaque, transparent and translucent objects.

- ❖ The teacher should teach the students about rectilinear propagation of light and related activities 4 and 5 given at page 76. He/She should also teach the students about ray and beam of light along with its kinds parallel, divergent and convergent beams of light with illustrations.
- ❖ Students should be encouraged to study point and extended sources of light and image of an object. They should also be asked to study question-answer given at page 77, and also be asked to solve check point 2 given at page 77.
- ❖ The teacher should teach the students about applications of rectilinear propagation of light; pinhole camera, its construction and working, and also characteristics of the image formed by pinhole camera. He/She should also ask the students to perform activity 5 showing how to make pinhole camera given at page 79.
- ❖ Students should be asked to solve check point 3 given at page 79. They should be asked to study shadow and its formation using activity 6 given at page 80.
- ❖ Students should be encouraged to perform activity 7 showing the size of shadow given at page 80, and also be asked to study the difference between umbra and penumbra. They should be asked to learn something more showing the formation of image and shadow. They should also be asked to study the formation of shadow by a point source of light, light source smaller than the object and light source larger than the object. They should also be asked to solve check point 4 given at page 82.
- ❖ Students should be suggested to study eclipses, i.e., solar and lunar; question-answer and also asked to solve check point 5 given at page 83.
- ❖ Students should be asked to recap the chapter using wrapping it up and know these terms. They should also be asked to solve test yourself and discuss the think zone given in it.

Boost UP

- ❖ The teacher should ask each student of the class to write one source of light, and one each of luminous and nonluminous objects on the blackboard.
- ❖ The teacher should ask each student to write one each example of transparent, opaque and translucent objects. He/She should also ask the students to answer the questions related to rectilinear propagation of light.
- ❖ The teacher should ask each student of the class to discuss the difference between parallel, divergent and convergent beams of light. He/She should also ask the students to tell the differences between point and extended sources of light, and virtual and real images.
- ❖ Students should be questioned related to pinhole camera, its construction, working and its characteristics of image formation.
- ❖ Students should be asked to tell the three conditions required in order to form the shadow. They should also be asked to tell the difference between umbra and penumbra, and also the ways of formation of shadow.
- ❖ Students should be asked to tell the reason of formation of solar and lunar eclipses.

Expected Learning Outcomes

Students must be able to know the

- ❖ definition of light and its sources.

- ❖ differences between luminous and nonluminous objects.
- ❖ transmission of light, i.e., opaque, transparent and translucent objects.
- ❖ rectilinear propagation of light and its applications.
- ❖ differences between ray and beam of light.
- ❖ point and extended sources of light.
- ❖ differences between real and virtual images.
- ❖ pinhole camera, its construction, working and characteristics of image formation.
- ❖ shadow and its formation.
- ❖ differences between umbra and penumbra.
- ❖ the ways through which shadow is formed.
- ❖ eclipses, i.e., solar and lunar, in detail.

Evaluative Questions

The teacher should ask the following questions to evaluate the students.

1. Define light and write one source of light.
2. Define luminous and nonluminous objects with two examples.
3. How do we see nonluminous objects?
4. Write one opaque object through which light cannot pass.
5. Are air and glass transparent objects? Why?
6. What is the difference between ray and beam of light?
7. When does solar eclipse occur?
8. Define pinhole camera.