Chapter 4

Light Energy

LESSON PLAN

SPECIFIC OBJECTIVES

Students will learn about

- introduction to formation of images by mirrors
- reflection of light
- regular and diffused reflection
- terms related to reflection of light
- laws of reflection
- mirrors and images formed by them
- images formed by a plane mirror and its uses
- speed of light
- constituent colours of white light from the sun
- primary colours
- secondary colours (colour addition)
- appearance of colour of an opaque object
- appearance of colour of a transparent object

Teaching Aids

Pictures/charts/models/animation based on light, reflection of light, its kinds; mirrors, i.e., curved and plane mirrors, and their images and related characteristics; primary and secondary colours; formulae used in solving numerical problems related to reflection of light and mirror.

Teaching Strategy

- The teacher should teach the students about introduction of light in brief. He/She should teach the students about reflection of light and the activity 1 related to it given at page 59.
- The teacher should teach the students about the difference between regular and diffused reflection and related diagrams. He/She should also teach them about the terms related to reflection of light, i.e., incident ray, reflected ray, angle of reflection, normal, point of incidence, angle of incidence and related diagram also.

- The teacher should ask the students to study laws of reflection and practice the numerical examples related to it, and related question-answer given at page 60.
- Students should be encouraged to study mirrors and their types, i.e., plane and curved mirrors, along with the images formed by them. They should also be asked to study differences between real and virtual images given in Table 4.1 at page 61.
- Students should be suggested to study the image formed by a plane mirror and to perform activity 2 showing the formation of lateral inversion by the plane mirror given at page 62 along with its related diagram and something more at page 62.
- Students should be encouraged to perform activity 3 showing the position and nature of image formed by a plane mirror given at page 62, characteristics of images formed by plane mirror, uses of plane mirrors, question-answer and its related numerical example given at page 63. They should also be asked to solve check point 1 given at page 63.
- The teacher should ask the students to study speed of light in different media and related question-answer given at page 64. He/She should also ask the student to study Table 4.2 showing speed of light in some transparent media given at page 64.
- Students should be encouraged to study constituent colours of white light from the sun.
- The teacher should ask the students to study primary and secondary colours. He/She should also ask the students to learn Table 4.3 showing primary and secondary colours given at page 66.
- Students should be asked to learn something more related to complimentary colours given at page 66. They should be asked to perform activity 4 showing the formation of secondary colours using primary colours.
- The teacher should encourage the students to study appearance of colour of an opaque object and of a transparent object. He/She also ask the students to solve check point 2 given at page 67.
- Students should be encouraged to recap the whole chapter using wrapping it up and know those terms. They should also be asked to discuss the think zone given in it.

Boost UP

- The teacher should ask each student of the classroom one-by-one to tell the definition of light and reflection of light.
- Students should be asked to tell the differences between regular and diffused reflections. They should also be asked to tell the definition of different terms related to reflection of light and to draw its figure.
- The teacher should ask the students to tell laws of reflection, and also to solve the numericals based on laws of reflection of light.
- Students should be questioned about mirrors, i.e., plane and curved mirrors, the images formed by mirror; differences between real and virtual images, and the nature of image formed by a plane mirror.
- The teacher should ask the students to tell few uses of plane mirrors. He/She should also arise few questions to the students related to speed of light; constituent colours of white light from the sun; primary and secondary colours; appearance of colour of an opaque object and a transparent object.

Expected Learning Outcomes

Students will be able to know the

- basic introduction of formation of images by mirrors.
- definition of reflection of light.
- differences between regular and diffused reflections.
- definition of terms related to reflection of light.
- laws of reflection of light and the formula used in it in order to solve the numerical problems.
- mirrors, i.e., plane and curved mirrors, their images, i.e., real and virtual.
- nature of images formed by a plane mirror and its uses.
- speed of light.
- constituent colours of white light from the sun.
- primary and secondary colours.
- appearance of colour of an opaque object and a transparent object.

Evaluative Questions

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

1. Define reflection of light.
2. Mention the laws of reflection of light.
3. What is the difference between real and virtual images?
4. Write the differences between incident and reflected rays.
5. Write the nature of image formed by a plane mirror.
6. What is speed of light?
7. How does white light form?
8. Name the three primary colours.