

LESSON PLAN**SPECIFIC OBJECTIVES**

The students will learn about

- ✧ light and its characteristics
- ✧ sources of light
- ✧ luminous and nonluminous objects
- ✧ opaque, transparent and translucent objects
- ✧ rectilinear propagation of light
- ✧ brief concept of rays and beams
- ✧ shadow and its characteristics; umbra and penumbra
- ✧ eclipses; mirrors and reflections; pinhole camera, its construction and working
- ✧ differences between an image and a shadow

TEACHING AIDS

Pictures/charts/models/animation on sources of light – bulb, candle, CFL, etc.; organisms showing bioluminescence; a ray of light, a beam of light, divergent beam, convergent beam; shadow of an object, shadow showing penumbra and umbra; solar and lunar eclipses; plane mirror, curved mirror; reflection of light from plane mirror, reflection from water surface; pinhole camera, pinhole camera in nature.

LESSON PLAN

- ✧ The teacher will start the chapter with Gear Up and discuss with the students what makes things visible in darkness.
- ✧ Teacher should define concept of light and its characteristics.
- ✧ Teacher should discuss different sources of light.
- ✧ Teacher should define luminous and nonluminous bodies and make students perform Activity 1 in the class.
- ✧ The teacher should discuss different types of objects based on passage of light through them, i.e., transparent, opaque and translucent objects by demonstrating Activity 2.
- ✧ The teacher should explain the rectilinear propagation of light with the help of the Activity 3.

- ✧ The teacher should define a ray of light, a beam of light, a divergent beam and a convergent beam.
- ✧ Now, teacher should define shadow and its characteristics.
- ✧ Teacher should perform activities 4, 5 and 6 in the class to explain the characteristics of a shadow.
- ✧ The teacher should tell about umbra and penumbra of a shadow.
- ✧ Now, teacher should discuss the formation of eclipses and explain how solar and lunar eclipses occur.
- ✧ Now, teacher should define mirror and discuss the types of mirrors, i.e., plane and curved mirrors.
- ✧ The teacher should also define reflection and explain the reflection of light by plane mirror by performing Activity 7.
- ✧ The teacher should perform Activity 8 to explain the formation of an image on a curved metal surface.
- ✧ The teacher should tell students about pinhole camera, its construction and working, i.e., formation of image by a pinhole camera and its nature.
- ✧ Teacher should explain differences between an image and a shadow.
- ✧ Students should be asked to solve Check Points 1, 2 and 3.
- ✧ At last, the teacher will sum up the lesson by going through the points given under the head 'Wrap Up Now'.
- ✧ The teacher will help the students to solve the questions given in exercises under the head 'Practice Time' and will also discuss the topics given under the head 'Formative Tasks'.

BOOST UP

- ✧ The teacher should call students one-by-one and ask them to write one example each of luminous and nonluminous objects.
- ✧ The teacher should ask the students to tell one example each of opaque, transparent and translucent objects.
- ✧ Teacher may give the examples of sundial and X-ray photographs while teaching formation of shadows.
- ✧ Teacher should explain that water surface acts as mirror and reflects the light falling on it.

EXPECTED LEARNING OUTCOMES

The students understand and know the

- ✧ concept of light and its characteristics.
- ✧ luminous and nonluminous objects.
- ✧ opaque, transparent and translucent objects.
- ✧ rectilinear propagation of light.
- ✧ formation of shadow and its characteristics; formation of eclipses.

- ✧ mirror and its types, reflection from plane mirror.
- ✧ image formation by pinhole camera.
- ✧ differences between an image and a shadow.

EVALUATIVE QUESTIONS

The teacher may ask the following questions for evaluating the learning and understanding of students:

1. What makes things visible and helps us to see?
2. What is the difference between luminous and nonluminous bodies?
3. Give two examples each of transparent and translucent objects.
4. How is a shadow formed? Mention three characteristics of a shadow.
5. What is meant by solar eclipse?
6. Define reflection.
7. What is pinhole camera?