

SCIENCE
ACTIVITY-15
LIGHT

Class: VII

Duration-30 minutes

Nature of activity: Group

Learning Outcome: Students will be able to show that the image formed by a concave mirror may be real or virtual.

What we have to do?

To observe the image of a candle flame formed by a concave mirror when a candle is placed at different distances from the mirror.

What do we require?

A mirror stand, a concave mirror, a screen with a stand (about 20 cmx 15 cm), a candle, match box, a scale for measuring distances.

What do I need to know?

When the reflecting surface bulges inwards then it is known as a concave mirror and when it bulges out, it is known as a convex mirror.

Teacher's Activity: The teacher will arrange ten kits. Each kit will have the following things – a mirror stand, a concave mirror, a screen with a stand (about 20 cmx 15 cm), a candle, match box, a scale for measuring distances. Teacher will give instructions regarding the activity.

How will you proceed?

Student's Activity:

1. Find the approximate focal length of the concave mirror by focussing sunlight on a sheet of paper.
2. Fix the concave mirror on the stand and place it on a table.
3. Keep a lighted candle on the table at a distance of about thrice the focal length of the mirror.
4. Also, keep the screen on the table. Ensure that the screen does not obstruct the light from the candle falling on the mirror,
5. Try to obtain the image on the screen. For this move the screen forward, backward and sideways till a sharp image of the flame is obtained.

What have you observed?

Image formed by a concave mirror for an object placed at various sources from it

Distance of the object from the mirror	Smaller/larger than the object	Character of the image Inverted/erect	Character of the image Real/virtual

What have you learned?

- We learned that the image formed by a concave mirror can be _____ or _____ in size than the object.
- As the object is moved towards the mirror, the image moves _____ from the mirror.
- We also see that when the candle flame is too close to the mirror its image is _____ and _____ in size than the candle flame itself. This image is however not formed on a screen .It is a _____ image. We therefore conclude that the image formed by a concave mirror may be _____ or _____.

What more can we do?

- Repeat the above activity using a convex mirror in place of a concave mirror and record the observations in a table similar to the above table.
- List the uses of concave and convex mirrors in your everyday life.

Extended learning worksheet

Answer the following questions:

1. What type of mirror is the:

- (a) Back-side of a shining steel spoon? _____.
- (b) Inside –surface of a shining steel spoon? _____.

2. Which mirror is used:

- (a) As a shaving mirror? _____.
- (b) As rear-view mirror in vehicles? _____.

3. What is the nature and size of the image when an object is placed too close to the mirror?

4. For which position of the object does a concave mirror produces a virtual, erect and magnified image?

5. Give one use of concave and convex mirror.
