PHYSICS

CLASS NOTES FOR CBSE

Chapter 09. Reflection of Light

We are unable to see anything in a dark room. Sunlight helps us to see objects. An object reflects light that falls on it. This reflected light, when received by our eyes, enables us to see things.

01. Reflection of Light

A polished surface, reflects light falling on it. Laws of reflection of light.

(i) The angle of incidence is equal to the angle of reflection, and

(ii) The incident ray, the normal to the mirror at the point of incidence and the reflected ray, all lie in the same plane.

These laws of reflection are applicable to all types of reflecting surfaces including spherical surfaces.

02. Spherical Mirrors

A spherical mirror, whose reflecting surface is curved inwards, that is, faces towards the centre of the sphere, is called a concave mirror. A spherical mirror whose reflecting surface is curved outwards, is called a convex mirror.

The surface of the spoon curved inwards can be approximated to a concave mirror and the surface of the spoon bulged outwards can be approximated to a convex mirror.

(a) Concave mirror *(b) Convex mirror*

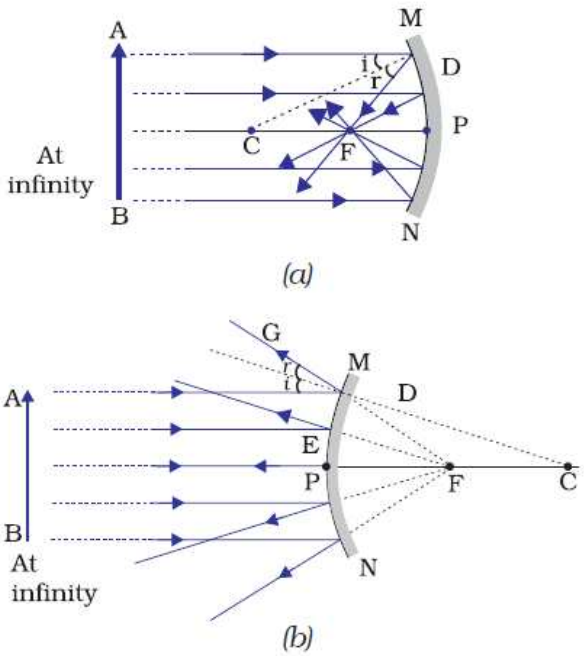

Fig.
(a) Concave mirror
(b) Convex mirror

For spherical mirrors of small apertures, the radius of curvature is found to be equal to twice the focal length. We put this as R = 2f . This implies that the principal focus of a spherical mirror lies midway between the pole and centre of curvature.

03. Image Formation by Spherical Mirrors

Table Image formation by a concave mirror for different positions of the object

Position of the object	Position of the image	Size of the image	Nature of the image
At infinity	At the focus F	Highly diminished, point-sized	Real and inverted
Beyond C	Between F and C	Diminished	Real and inverted
At C	At C	Same size	Real and inverted
Between C and F	Beyond C	Enlarged	Real and inverted
At F	At infinity	Highly enlarged	Real and inverted
Between P and F	Behind the mirror	Enlarged	Virtual and erect