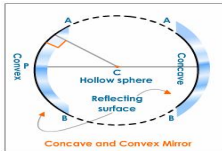


# Spherical Mirror

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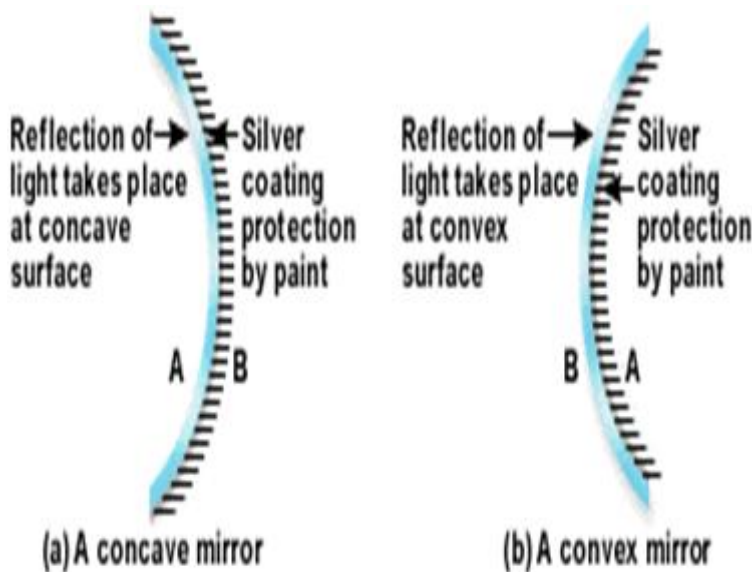
## What are Spherical Mirrors?



Spherical mirrors are mirrors whose surfaces form a part of a hollow sphere.

The spheres can be made of [glass](#) or any polished metal surface.

### Types of spherical mirrors:



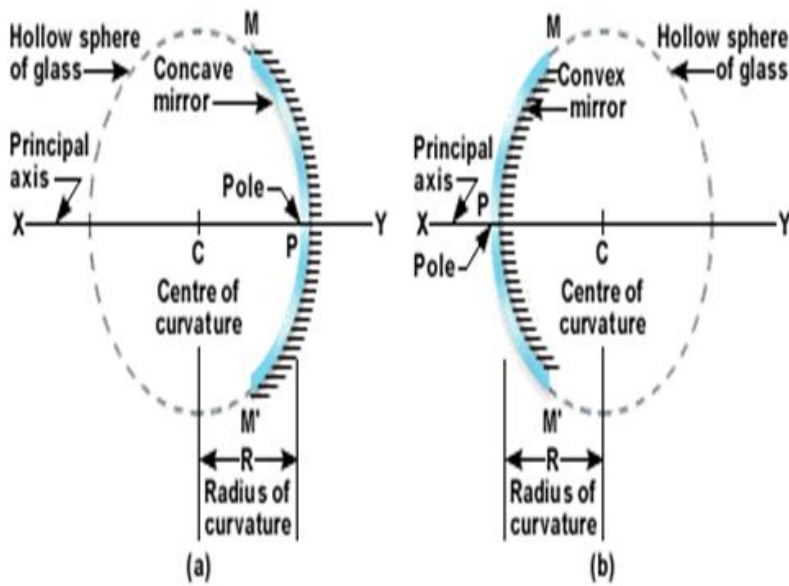
### Convex mirror:

If the mirror coating is on the inside of the spherical surface, then the spherical mirror is called a convex mirror. The most commonly occurring examples of convex mirrors are the passenger-side mirrors of cars. These type of mirrors have wider fields of view than equivalent flat mirrors, and the objects that appear in them generally look smaller (and, therefore, farther away) than they actually are.

### Concave mirror:

If the mirror coating is on the outside of the spherical surface, then the spherical mirror is called a concave mirror. The most commonly occurring examples of concave mirrors are [shaving mirrors](#) and makeup mirrors. As is well-known, these types of mirrors magnify objects that are placed close to them.

# Some characteristics of convex and concave mirrors



## 1. Center of curvature :

The center of curvature of the mirror is defined as the center of the hollow sphere from which the mirror has been cut.

It is represented by the letter C.

In a convex mirror, C is behind the mirrored surface.

On the other hand, for a concave mirror, C is in front of the mirror.

## 2. Radius of curvature :

The radius of curvature is the radius of the sphere from which the mirror (either convex or concave) is made.

It is represented by the letter R.

In the figure, the distance CP is the radius of curvature of the two mirrors.

## 3. Pole of a mirror :

The central point on the surface of a spherical mirror is called the pole of the mirror. It is represented by the letter P.

The pole of a mirror can be found by drawing a straight line from the center C to the furthest point on the surface from C. Where the line cuts the mirror, you will find the pole P.

## 4. Principal axis of a mirror :

- The principal axis of a mirror is a straight line that passes through the center of curvature C and the pole P of the mirror.
- In the figure, line XY is the mirrors' principal axis.
- The principal axis of a spherical mirror functions similar to the normal line of the plane mirror. A ray of light passing along the principal axis will be reflected back along the same path.

## 5. Aperture of a mirror :

- The aperture of a mirror is the portion of the hollow spherical surface from which [reflections](#) from the mirror take place.
- In the figure, the distance  $MM'$  is the aperture of the mirror.

## 6. Focal Length of a mirror :

- When parallel rays of light coming from an infinite distance fall on either a concave or a convex mirror, they are reflected back to a point on the principal axis  $XY$ .
- The focus is where an image is formed of an object that is placed at a far distance.

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## Reference links:

- <http://www.wisegeek.com/what-is-glass.htm>
- [http://www.absoluteastronomy.com/topics/Refractive\\_index](http://www.absoluteastronomy.com/topics/Refractive_index)

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