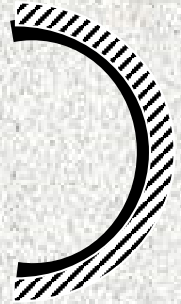
Types of mirror

When we draw a ray diagram we represent a mirror by drawing a line with dashes on the silvered (non-shiny) side. Most mirrors are flat and these are called **plane** mirrors. They give non-distorted lifelike images.

A plane mirror

Some mirrors are **curved**. These give distorted images.



A concave mirror

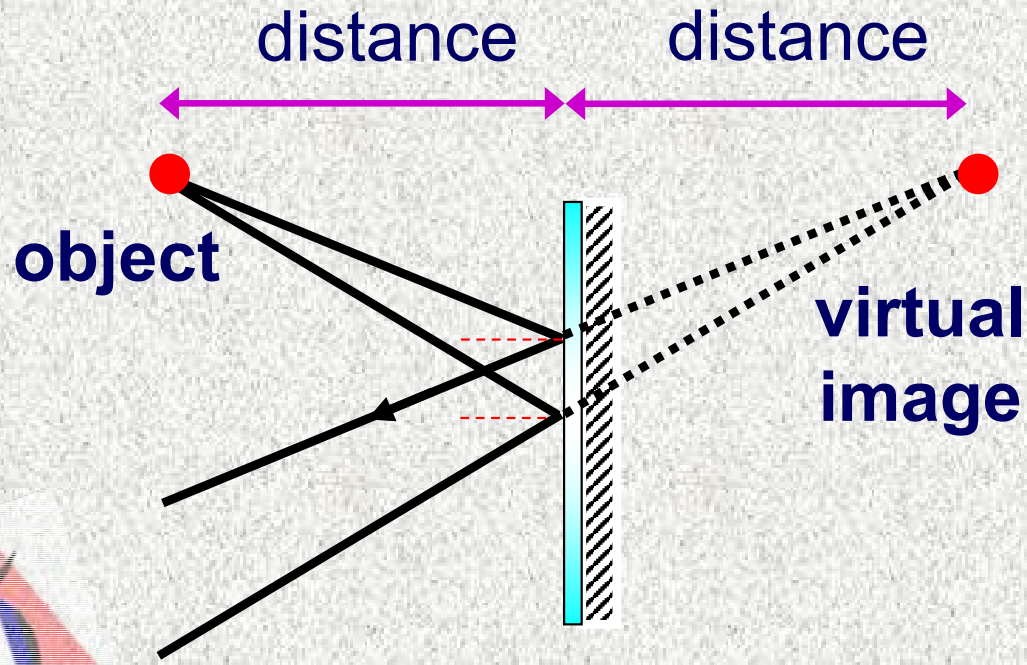
If a mirror curves inwards then it is a **concave** mirror; if it curves outwards it is a **convex** mirror.

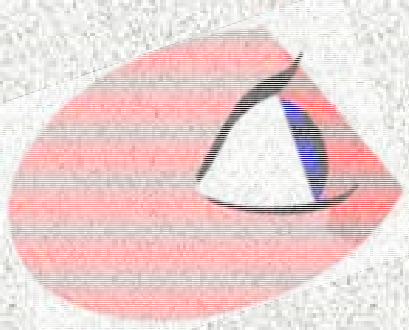
A convex mirror

Virtual images

When you look at a mirror you see a virtual image that appears to be behind the mirror.

The image appears to be the same size as the original object and the same distance behind the mirror as the object is from the mirror.

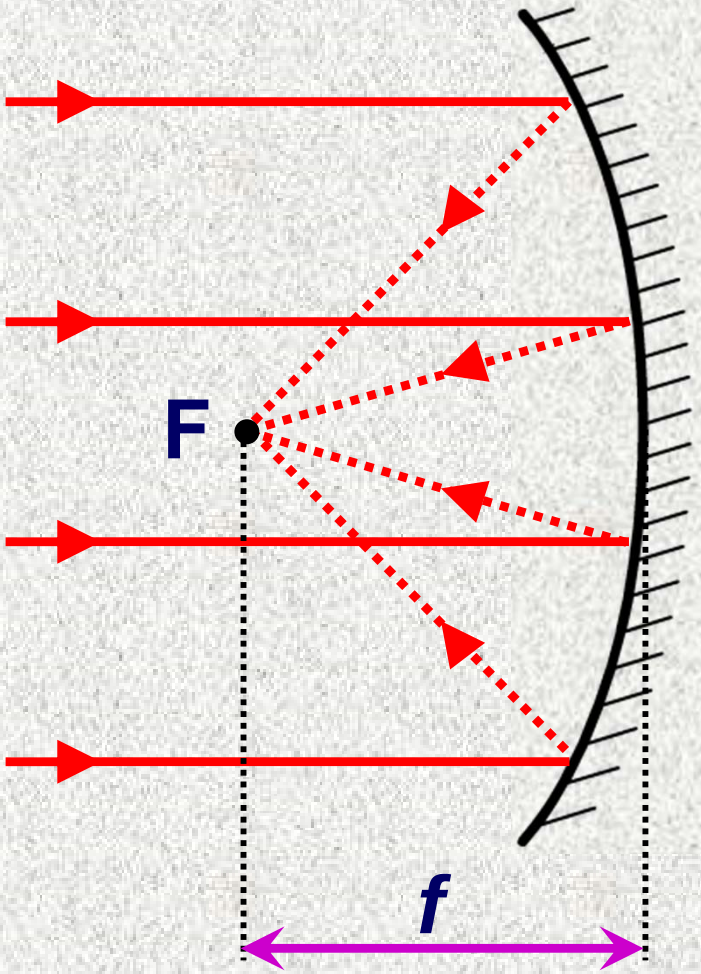




Concave mirrors

Concave mirrors reflect rays of light to a focal point **(F)**.

Concave mirrors are **converging** mirrors, as the rays of light converge to a **focus**. If a light source is placed at the focus they produce a beam of **parallel light rays**.



The distance between the mirror and the focal point is called the **focal length** (***f***). The more curved the mirror is the closer the focus is to the lens.

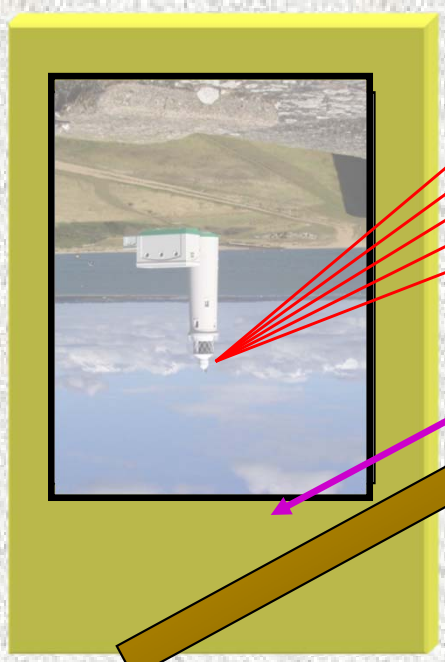
Focal length of concave mirrors

Finding f of a concave mirror.

Use a ruler to measure the distance between the lens and the screen – this is the focal length (f).

Hold the mirror in the other hand and move it closer to the screen until a clear image appears.

Chose a distant object (to get parallel rays of light).



Hold a plain white screen in one hand.

Uses of concave mirrors

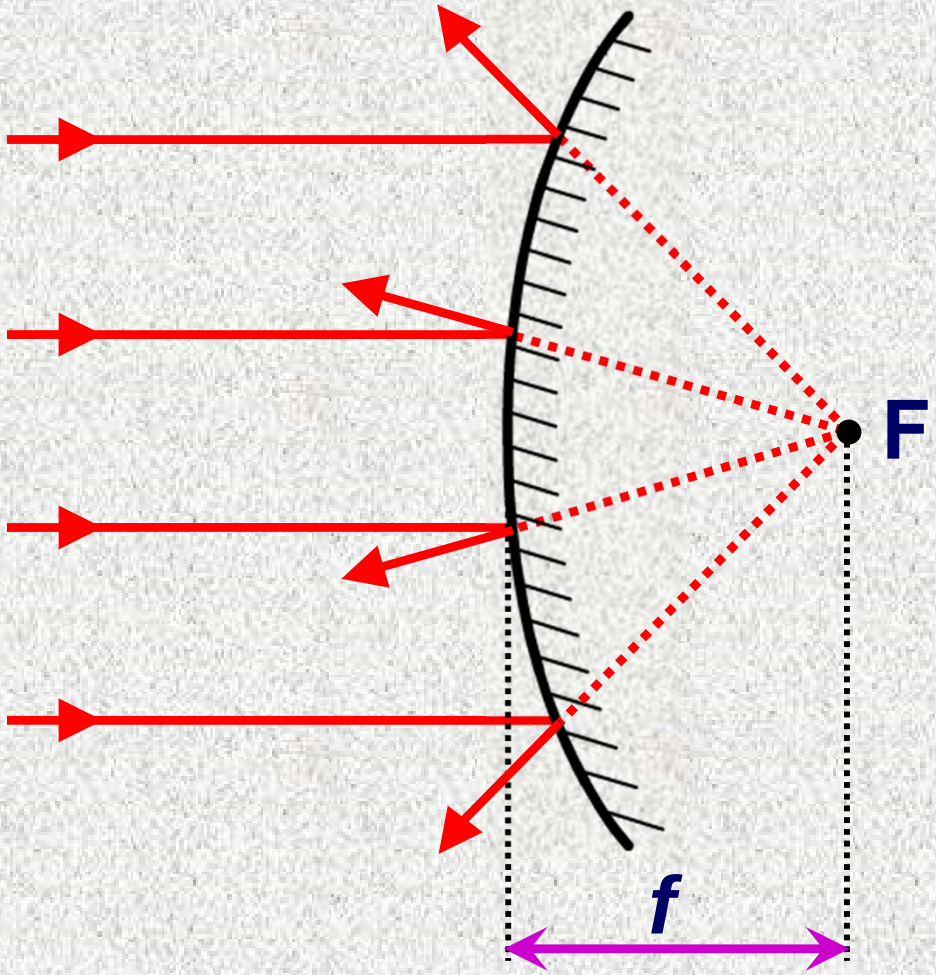
Concave reflectors are used to focus signals from distant satellites.

Concave mirrors are used in allowing them to be more powerful for their size.

Convex mirrors

Convex mirrors reflect rays of light away from a focal point.

Convex mirrors are **diverging** mirrors. The parallel are reflected so they appear to have come from a spot called the focus.



Uses of convex mirrors

Convex mirrors are often used to see around corners, here in a busy corridor.

The rear view mirror in a car is a convex mirror to widen the field of view.

Summary activities

Glossary

- **concave mirror –** A mirror that curves in at the centre.
- **convex mirror –** A mirror that curves out at the centre.
- **incident ray –** The light ray that strikes a surface.
- **law of reflection –** When light is reflected, the angle of incidence equals the angle of reflection.
- **lateral inversion –** The reversal of an image in a mirror, which means that the left-hand side appears on the right and the right-hand side appears on the left.
- **normal –** A line on a ray diagram drawn at right angles to the surface being hit by the light ray.
- **plane mirror –** A mirror with a flat surface.
- **reflected ray –** The light ray bounced back from a surface.
- **ray diagram –** A diagram that shows what happens to light rays during processes such as reflection.