**Converging/ concaving mirrors**

Concave (converging) and convex (diverging) mirrors

* Spherical mirrors can be thought of as a portion of a sphere which was sliced away and then silvered on one side to form a reflecting surface.
* Concave mirrors were silvered on the inside of the sphere and convex mirrors were silvered on the outside of the sphere.

**Concave mirror Convex mirror**

R

f

C F V

Principal axis

* **Principal axis (P.A.)** - a line passing through the center of the sphere and attaching to the mirror in the exact center of the mirror.
* **Center of curvature (C)** – the point in the center of the sphere from which the mirror was sliced.
* **Vertex (V)** – the point on the mirrors surface where the principal axis meets the mirror.
* **Focal point (F)** – midway between the vertex and the center of curvature.
* **Radius of curvature (R)** – the distance from the vertex to the center of curvature. The radius of the sphere from which the mirror was cut
* **Focal length (f)** – the distance from the mirror to the focal point.
* **Focal plane** – when several groups of parallel rays coming from different directions hit the mirror. They each form a focal point. All these points create a focal plane

**Finding images in a converging mirror**

* The properties of the formed image will depend on the location of the object.
* However there are 3 simple rules to follow that will simplify the process.

**Rules**

1. A ray that is parallel to the principal axis (P.A.) is reflected through the focal point (F)
2. A ray that passes through the focal point (F) is reflected parallel to the principal axis (P.A.)
3. A ray that passes through the center of curvature (C) is reflected back along the same path (through C)

C F

3

2

1

Larger

Inverted

Behind C

Real