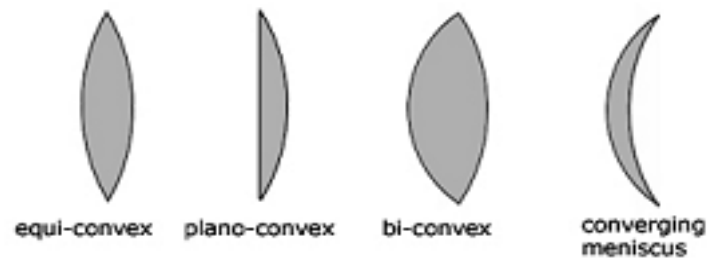


3-4 Chromatic dispersion

The term **Chromatic dispersion** describes how refractive index changes with wavelength for a particular medium

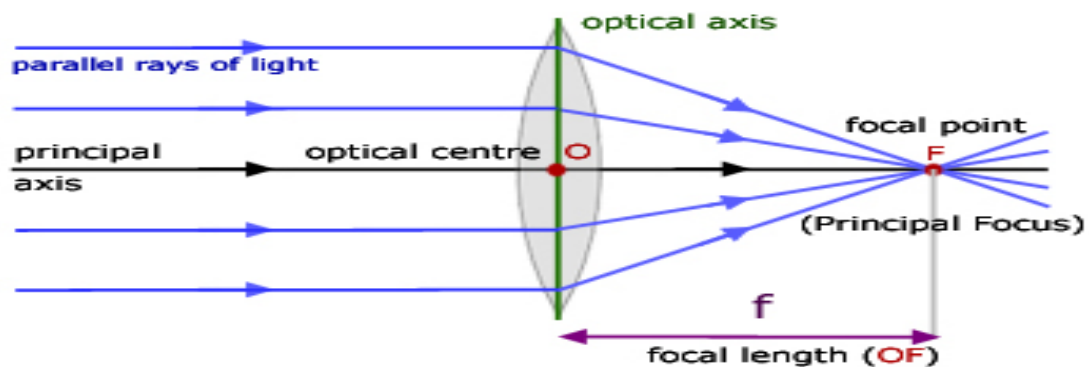
4- Convex Lenses

Types of lens



All four types of convex lens are converging lenses. That is, they bring parallel rays of light to a focus, producing a real image.

4-2. Basic ray diagram



The basic ray diagram for a convex lens introduces a number of important terms

principal axis - the line passing through the centers of curvature of the lens

focal length - the horizontal distance between the principal focus and the optical center of the lens

optical center - an imaginary point inside a lens through which a light ray is able to travel without being deviated

center of curvature - the center of the sphere of which the lens surface is part

4-3 Power of a lens

The power P of a lens is the inverse of its focal length f . Since f is measured in meters 'm' the units of lens power are m^{-1} .

$$P = \frac{1}{f}$$

The power also depends on the type of lens. **Convex** lenses have **positive** powers, while **concave** lenses all have **negative** powers

To understand ray diagrams it is important to know something about images. Images come in two categories :

real images - are produced from actual rays of light coming to a focus (eg a film projected onto a screen)_

virtual images - are produced from where rays of light appear to be coming from (eg a magnifying glass image)

note - the lens is considered to be so thin as to be represented by the axis of the lens(green)_

