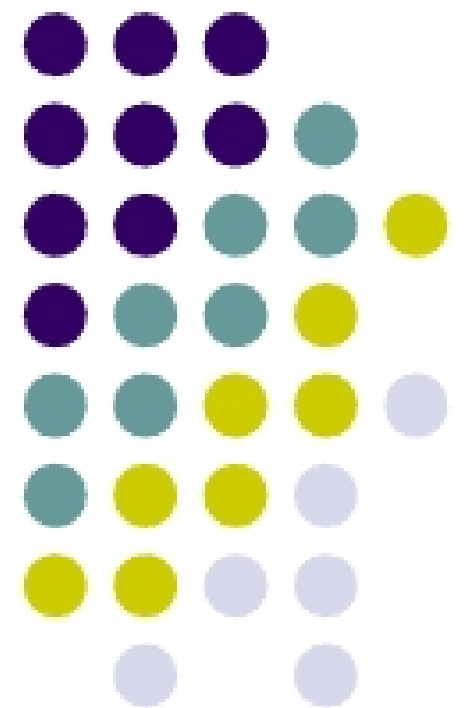


Chapter 36

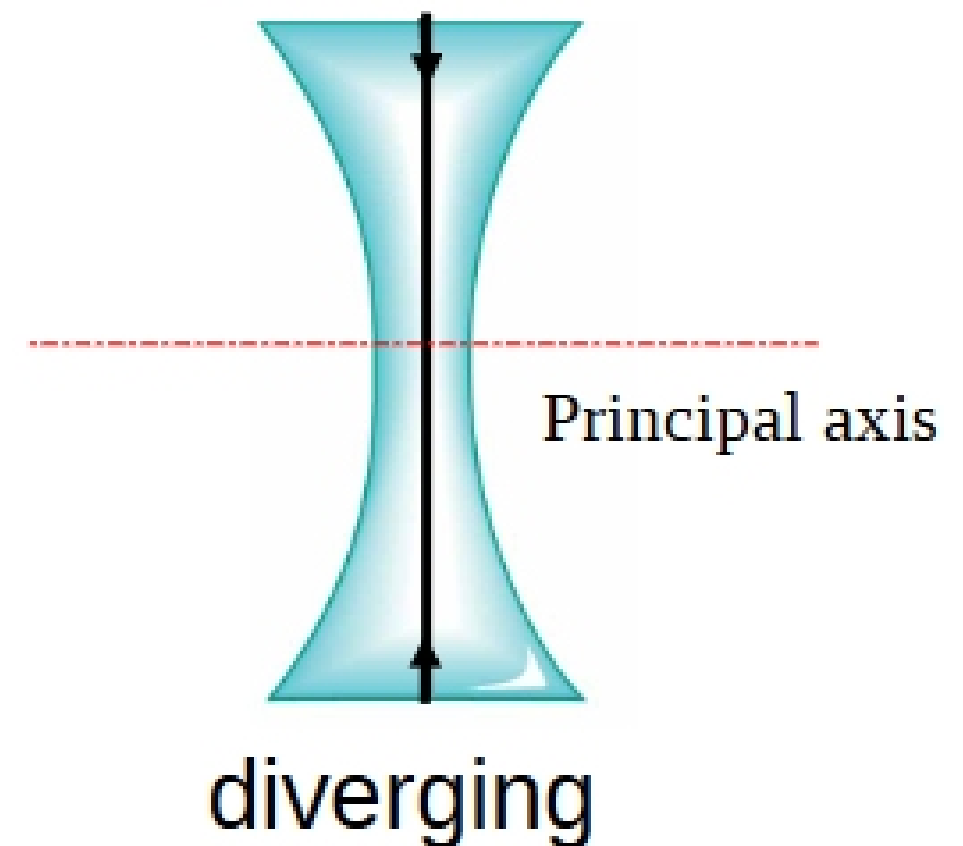
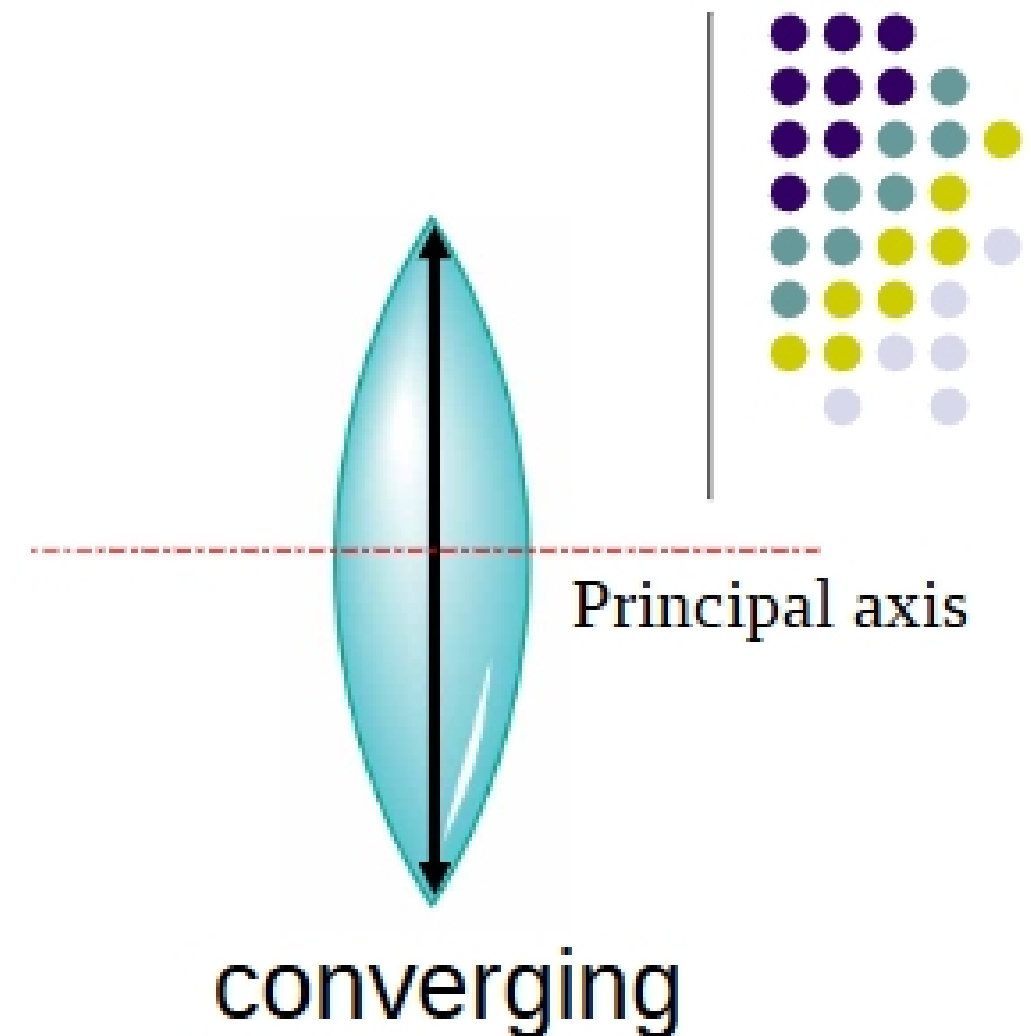
Image Formation 2

1. Thin Lens
2. Multi lens/mirror system

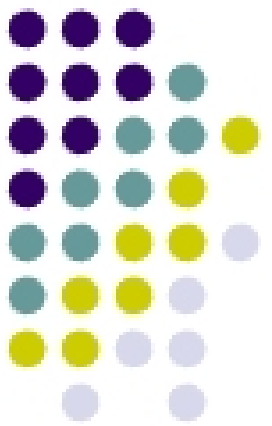


Thin lenses

- Lenses are commonly used to form images by refraction.
- We discuss about spherical lenses only. They are part of two spheres.
- There are two types of lenses
 - Converging
 - Diverging
- When the thickness of the lens is negligible, the lens is called thin lens.
- Principal axis: the line that goes through the two centers of the two spheres.
- Paraxial rays are those close to the principal axis.
- Lenses are used in optical instruments
 - Cameras
 - Telescopes
 - Microscopes



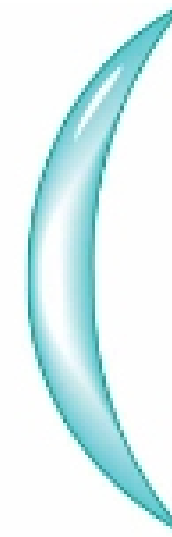
Converging and diverging Lens Shapes



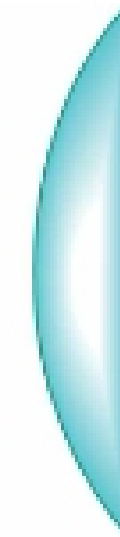
- **Converging:**
 - positive focal lengths
 - thickest in the middle



Biconvex

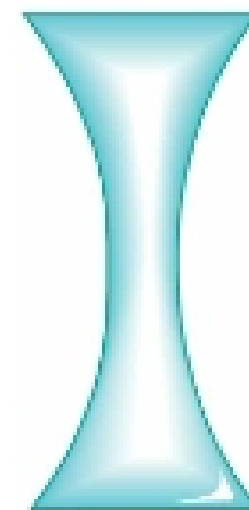


Convex-concave

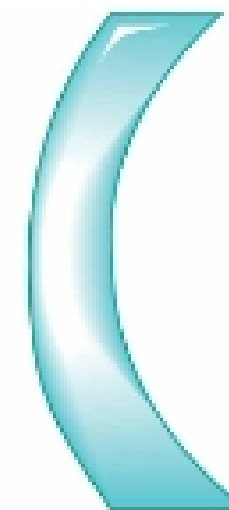


Plano-convex

- **Diverging:**
 - negative focal lengths
 - thickest at the edges



Biconcave



Convex-concave



Plano-concave