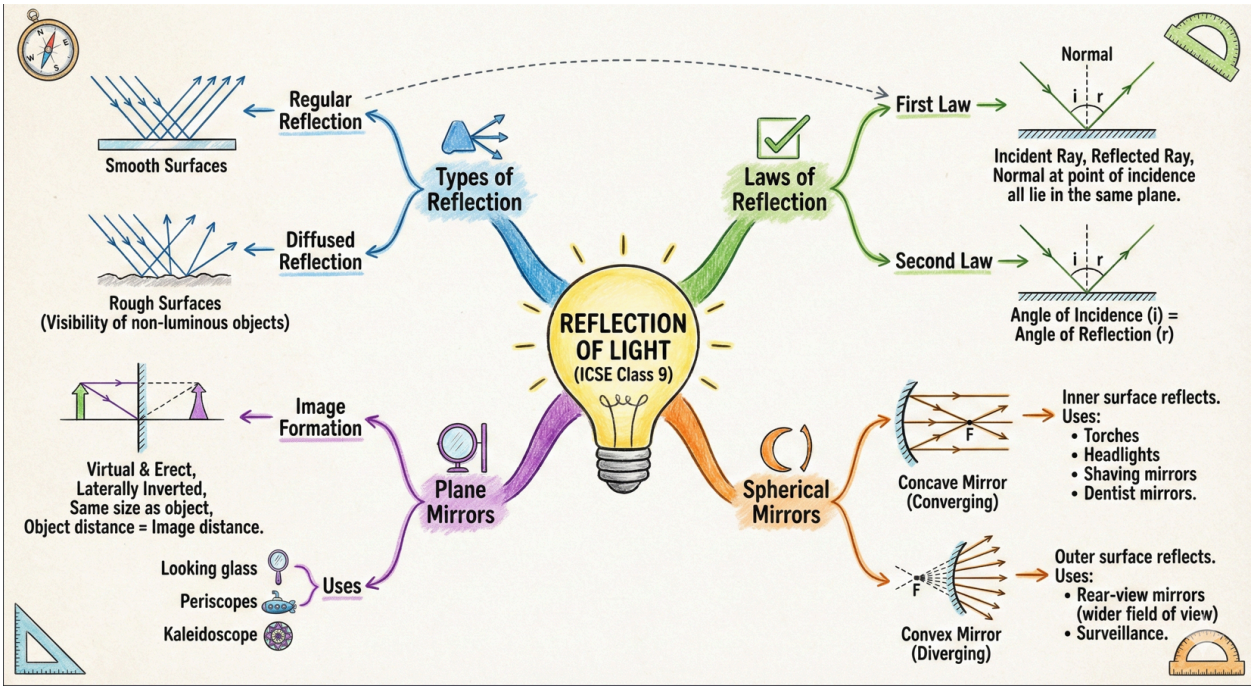
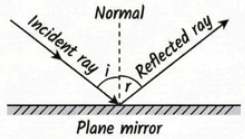
Reflection Mind Map And Formulae Sheet



ICSE Class 9: REFLECTION OF LIGHT FORMULAE & SIGN CONVENTION

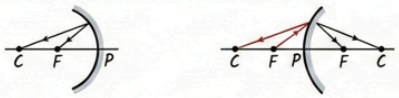
1. LAWS OF REFLECTION



Law 1: The incident ray, the reflected ray, and the normal at the point of incidence, all lie in the same plane.

Law 2: The angle of incidence (i) is equal to the angle of reflection (r). i.e., $\angle i = \angle r$

2. SPHERICAL MIRROR FORMULAE



Concave Mirror | Convex Mirror

Mirror Formula

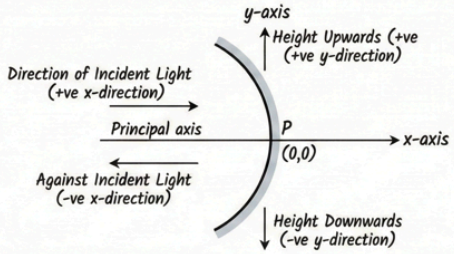
$$\frac{1}{f} = \frac{1}{v} + \frac{1}{u}$$

f=focal length
v=image distance
u=object distance

$$m = \frac{\text{Height of image } (h_i)}{\text{Height of object } (h_o)} = \frac{-v}{u}$$

$$f = \frac{R}{2}$$ R=radius of curvature

3. NEW CARTESIAN SIGN CONVENTION (Crucial Details)



Quantity	Symbol	Concave Mirror	Convex Mirror
Object distance	u	Always Negative (-ve)	Always Negative (-ve)
Image distance	v	Negative (-ve) for Real Image Positive (+ve) for Virtual Image	Always Positive (+ve)
Focal length	f	Always Negative (-ve)	Always Positive (+ve)
Radius of Curvature	R	Always Negative (-ve)	Always Positive (+ve)
Height of Object	h_o	Always Positive (+ve) (placed above axis)	Always Positive (+ve) (placed above axis)
Height of Image	h_i	Negative (-ve) for Real & Inverted Positive (+ve) for Virtual & Erect	Always Positive (+ve) (Virtual & Erect)

NOTE **Magnification (m)**: Negative (-ve) for REAL images. Positive (+ve) for VIRTUAL images.