

Chapter 10 – Quick Revision Sheet

The Human Eye

Human Eye

The human eye is a natural optical instrument that helps us see objects by forming images on the retina.

Parts of Human Eye

Names:

- Cornea
- Pupil
- Ciliary muscles
- Optic nerve
- Iris
- Eye lens
- Retina

Cataract

Cataract is a condition in which the eye lens becomes cloudy or opaque, leading to blurred and unclear vision.

Cause:

- Ageing
- Injury or damage to lens

Treatment:

- Removal of cloudy lens by surgery
- Replacement with artificial lens

Defects of Vision

Defect	Problem	Image Position	Correction
Myopia (Near-sightedness)	Distant objects not clear	In front of retina	Concave lens
Hypermetropia (Far-sightedness)	Near objects not clear	Behind retina	Convex lens
Presbyopia	Age-related near vision problem	Varies	Bifocal lens

Refraction Through Prism

Definition:

Refraction through a prism is the bending of light when it passes through a triangular glass prism.

Key Point:

Light bends towards normal (air → glass) and away from normal (glass → air)

Dispersion of Light

Dispersion is the splitting of white light into its component colours.

Order (VIBGYOR): Violet, Indigo, Blue, Green, Yellow, Orange, Red

Rainbow Formation

Rainbow is a natural spectrum formed in the sky due to dispersion of sunlight by water droplets.

Process:

- Refraction
- Dispersion
- Internal reflection
- Refraction

Scattering of Light

Scattering is the deviation of light from its straight path due to particles in the atmosphere.

Tyndall Effect

Scattering of light by colloidal particles.

Example:

Sunlight in dusty room