Grade 8 - Unit 3 – **Light and Optical Systems** Concepts

Thoughts About Light

Archimedes
(Warships)

Pythagorus
(Eyes – Light Source)

Euclid
(Reflected)

Al-Haytham
(Optics)

Sir Isaac Newton
(Prism)

Ole Romer
(Speed of Light)

Albert Michelson
(Light Speed)

The Theory of Light

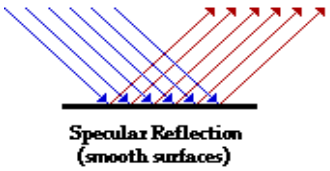
LIGHT TRAVELS IN STRAIGHT LINES
LIGHT CAN BE REFLECTED
LIGHT CAN BEND
LIGHT IS A FORM OF ENERGY

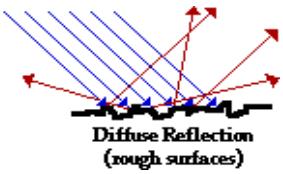
Light Rays → Transparent / Translucent / Opaque

Luminous (Light Source)

REFLECTION

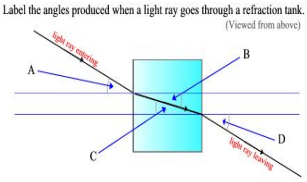
LAW OF REFLECTION – The Angle of Incidence, of the light hitting a plane mirror, equals the Angle of Reflection, of the light being reflected by the mirror.



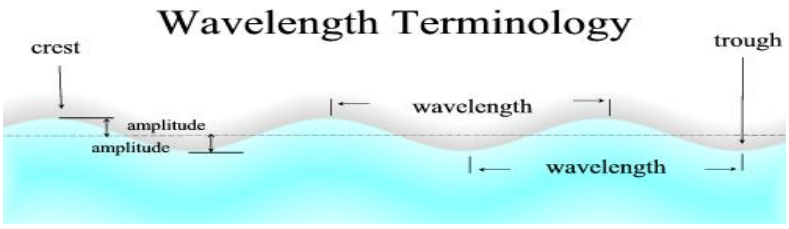


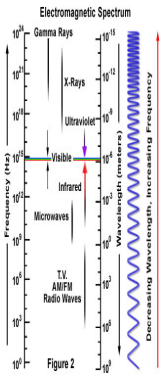
REFRACTION

LAW OF REFRACTION - The Angle of Incidence of the light entering a medium of greater or less density will have an Angle of Refraction that will increase or decrease from the normal, because the light is bent (slows down or speeds up)



Wave Model of Light



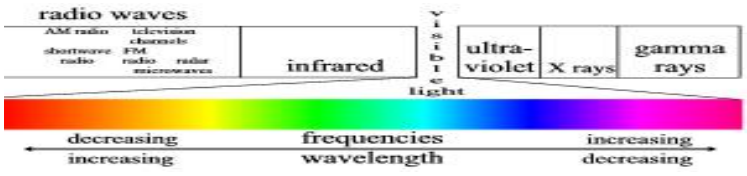


Light Sources

Natural ◆——◆ Artificial

Colours of Light
ROYGBIV

The Electromagnetic Spectrum



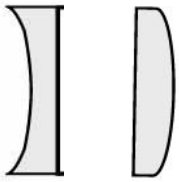
Devices Using Light

Mirrors

Concave Convex

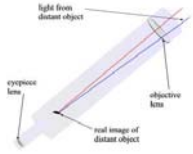
Lenses

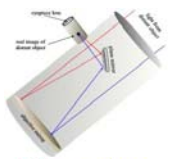
Concave Convex



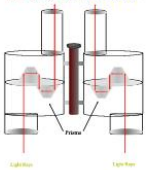
Microscopes

Telescopes





Binoculars



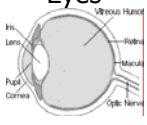
Television
Computer
Laser

Analog Images

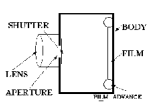
Digital Images (Pixels)

Image Formation

Eyes



Camera



Stadium Image

Resolution

CCD