

Intermediate Science 8
Unit 2: Optics
Chapter 4 Outline



Know the following Terms:

Transparent	Translucent	Opaque	Ray
Reflection	Normal	Incident Ray	Reflected Ray
Angle of Reflection	Angle of Incidence	Specular Reflection	Diffuse Reflection
Object	Image	Virtual image	Real image
Principle Axis	Focal Point	Center of Curvature	
Angle of Refraction			

Know the following:

1. Classify objects as transparent, translucent and opaque
2. The ray model of light
3. The Law of Reflection (find measurements of angles)
4. Distinguish between Specular and Diffuse Reflection
5. Characteristics of an image in a plane mirror
6. Draw an image produced in a plane mirror
7. Estimate angles of incidence and reflection
8. Describe three types of mirrors. Include:
 - (i) plane
 - (ii) concave
 - (iii) convex
9. Provide examples of each type of mirror
 - (i) bathroom mirror (plane)
 - (ii) inside of a metal spoon (concave)
 - (iii) safety mirror on the front of a school bus (convex)
10. Draw the ray diagrams for a concave mirror at the following locations
 - 1) object between focal point and mirror
 - 2) object between focal point and 2x focal length
 - 3) object beyond 2x focal length
11. State the properties of images produced in #10. Remember SPOT
 - S – size (Larger or Smaller than object)
 - P – position (Closer or Further away from mirror or optical centre)
 - O – orientation (upright or inverted)
 - T – type (Real or Virtual)
12. Draw the ray diagrams for a convex mirror and identify the properties of the image.
13. Label a diagram showing refraction

14. Know how light behaves when it is refracted
 - refracted light bends toward the normal when it enters a more dense medium
 - the speed of light decreases as it travels from one medium to another of greater density, and vice versa.
15. Estimate angles of incidence and refraction. Include:
 - (i) as light moves from a less dense medium to a more dense medium
 - (ii) as light moves from a more dense medium to a less dense medium
16. Be able to explain “why an object is not where you think it is in water”.
17. Distinguish between Reflection and Refraction