

Optics Review

Review the following concepts in your notes and your textbook.

- What is light? (explain wave-particle duality)
- Define luminous and non-luminous
- Review the luminous sources of light (8 that we covered)
- Light as an electromagnetic wave, the electromagnetic spectrum and the visible spectrum (low energy waves and high energy waves)
- Define the following (use a diagram where necessary): light ray, geometric optics, incident rays, reflection, angle of incidence, angle of reflection, normal, transparent, translucent, opaque
- Laws of reflection, specular and diffuse reflection
- Locating images in plane mirrors (using shortcut method)
- SALT characteristics- to describe images
- Images in curved mirrors- concave and convex
- Locating images in concave mirrors (using accurate ray diagrams)
- Speed of light (c)
- Refraction, angle of refraction and rules for refraction (bending towards/away)
- Partial reflection and refraction
- Index of refraction $n = \frac{c}{v}$
 - * you should be able to rearrange this equation to solve for different variables
- Total internal reflection, critical angle
- Convex and concave lenses (converging lens and diverging lens)
- Locating images in convex lenses (converging lens) using imaging rules and describing SALT characteristics
- Lens formulas (2) Be able to use the thin lens formula (fractions) and magnification formulas. You will be provided with sign convention chart.
- Diagram of the human eye- know parts and functions & relate to camera

Questions: Try the following questions in your text!

Chapter 11 Review (p 506-507) : #, 1-6,8, 9, 11, 12, 13, 15, 19 (tricky)

Chapter 12 Review (p.542-543) 1-20

Chapter 13 Review (p. 584-585) #1-16

Applications: Understand the following:

- Cleaning with light
- Sparkling diamonds
- Retroreflectors
- Apparent depth
- identifying unknown liquids with refraction
- fibre optics
- puddle mirage
- correcting lens (near- & far-sighted.
- periscopes
- rainbows