

CHAPTER OVERVIEW

11: Electromagnetic Waves

In this chapter, we explain Maxwell's theory and show how it leads to his prediction of electromagnetic waves. We use his theory to examine what electromagnetic waves are, how they are produced, and how they transport energy and momentum. We conclude by summarizing some of the many practical applications of electromagnetic waves.

- 11.1: Prelude to Electromagnetic Waves
- 11.2: Maxwell's Equations and Electromagnetic Waves
- 11.3: The Electromagnetic Spectrum
- 11.4: The Propagation of Light
- 11.5: The Law of Reflection
- 11.6: Refraction
 - 11.6.1: Total Internal Reflection
 - 11.6.2: Dispersion
- 11.7: Polarization
- 11.8: Electromagnetic Waves (Exercises)
- 11.9: The Nature of Light (Exercises)
- 11.10: Geometric Optics and Image Formation
 - 11.10.1: Prelude to Geometric Optics and Image Formation
 - 11.10.2: Images Formed by Plane Mirrors
 - 11.10.3: Spherical Mirrors
 - 11.10.4: Images Formed by Refraction
 - 11.10.5: Thin Lenses
 - 11.10.6: The Eye
 - 11.10.7: The Camera
 - 11.10.8: The Simple Magnifier
 - 11.10.9: Microscopes and Telescopes
 - 11.10.E: Geometric Optics and Image Formation (Exercises)

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