

Year 8 – Waves – Light

Name of unit	
Expected Outcomes • Students will understand that light travels as a transverse wave and does not need a medium. • Students will describe how light is reflected, refracted, and absorbed. • Students will investigate how we see objects and how images are formed. • Students will explain colour in terms of reflection, absorption, and transmission. • Students will explore how lenses and filters affect light.	
Developmental Focus Opportunities • Practical investigation: Using mirrors, lenses, and ray boxes to study light behaviour. • Visual reasoning: Drawing ray diagrams to explain reflection and refraction. • Scientific explanation: Describing how we see and how light interacts with materials. • Application of models: Using wave and particle models to explore light phenomena.	
Key Learning Points	Powerful Knowledge
• Light travels in straight lines and can be reflected and refracted. • Reflection follows the law of angle of incidence = angle of reflection. • Refraction occurs when light changes speed at material boundaries. • We see objects when light enters the eye; different colours result from light interaction with surfaces.	• Understanding how vision, lenses, and optical devices work. • Applying knowledge of light in real-world contexts (e.g. cameras, glasses, fibre optics). • Developing a conceptual foundation for electromagnetic waves and their uses. • Appreciating the importance of light in technology, safety, and health.
Subject-Specific Vocabulary	Reading Opportunities
• Light wave • Reflection • Refraction • Incident ray • Reflected ray • Angle of incidence • Angle of reflection • Lens	• Texts explaining the human eye and vision correction. • Case studies on optical inventions (e.g. microscopes, telescopes). • Articles on how animals use light differently (e.g. night vision, camouflage).

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• Colour spectrum • Absorption	
Possible Misconceptions	Cross-Curricular Links
• Believing light needs a medium to travel. • Thinking the angle of reflection is always different from the angle of incidence. • Confusing reflection with refraction. • Thinking black objects emit darkness instead of absorbing light.	• Art: Exploring light, shadow, and colour theory. • Maths: Measuring angles in ray diagrams. • DT: Designing optical devices or models.