Edexcel International GCSE Physics 4PH1 Learning Plan

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| **Unit: 3 Waves** | | **Chapter: 12. Light Waves** | | **Hours: 6** |
| Content coverage | Learning outcomes | Resources | Assessment | |
| Section 3: Waves  a) Units  d) Light and Sound | **3.14** know that light waves are transverse waves and that they can be reflected and refracted  **3.15** use the law of reflection (the angle of incidence equals the angle of reflection)  **3.16** draw ray diagrams to illustrate reflection and refraction  **3.17** *practical: investigate the refraction of light, using rectangular blocks, semi-circular blocks and triangular prisms*  **3.18** know and use the relationship between refractive index, angle of incidence and angle of refraction:  *N* = sin I / sin r  **3.19** *practical: investigate the refractive index of glass, using a glass block*  **3.20** describe the role of total internal reflection in transmitting information along optical fibres and in prisms.  **3.21** explain the meaning of critical angle *c*  **3.22** know and use the relationship between critical angle and refractive index:  sin *c* = 1 *n* | Video and Powerpoint:  3.2 Reflection and refraction  3.3 Total internal refection and lenses  Textbook pages:  Page 113 – Seeing the light  Page 114 – Reflection  Page 115 – Refraction  Page 115 – **Practical** – *Investigate the refractive index for glass*  Page 117 – Total internal reflection  Page 118 – **Practical** – *Investigate total internal reflection*  Page 119 – **Practical** – *Investigate total internal reflection in prisms*  Page 119 – Using total internal reflection  Page 120 – Bicycle and car reflectors  Page 120 – Optical fibres  Page 121 – The endoscope  Page 121 – Optical fibres in telecommunications | Page 122  Questions (1) to (7)  Chapter 12 Textbook Answers (PDF)  Chapter 12 - exam question - pdf  Chapter 12 - exam question mark scheme – pdf  Chapter 12 - Talking paper video | |

Videos – [www.igcsesciencecourses.com](http://www.igcsesciencecourses.com)

Textbook Ref: Edexcel International GCSE (9-1) Physics Student Book - Pearson (Arnold, Johnson, Woolley))