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: Wavesa) Unitsd) 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 refraction3.3 Total internal refection and lenses Textbook pages:Page 113 – Seeing the lightPage 114 – ReflectionPage 115 – RefractionPage 115 – **Practical** – *Investigate the refractive index for glass*Page 117 – Total internal reflectionPage 118 – **Practical** – *Investigate total internal reflection*Page 119 – **Practical** – *Investigate total internal reflection in prisms*Page 119 – Using total internal reflectionPage 120 – Bicycle and car reflectorsPage 120 – Optical fibresPage 121 – The endoscopePage 121 – Optical fibres in telecommunications | Page 122Questions (1) to (7)Chapter 12 Textbook Answers (PDF)Chapter 12 - exam question - pdfChapter 12 - exam question mark scheme – pdfChapter 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))