Edexcel International GCSE Physics 4PH1 Learning Plan

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| **Unit: 3 Waves** | | **Chapter: 10. Properties of Waves** | | **Hours: 5** |
| Content coverage | Learning outcomes | Resources | Assessment | |
| **Section 3: Waves**  **a)** Units  **b)** Properties of waves | **3.1** use the following units: degree (o), hertz (Hz), metre (m), metre/second (m/s), second (s).  **3.2** explain the difference between longitudinal and transverse waves  **3.3** know the definitions of amplitude, wavefront, frequency, wavelength and period of a wave  **3.4** know that waves transfer energy and information without transferring  matter  **3.5** know and use the relationship between the speed, frequency and wavelength of a wave: wave speed = frequency × wavelength  *v* = *f* × *λ*  **3.6** use the relationship between frequency and time period: frequency = 1/time period  *f* = 1/*T*  **3.7** use the above relationships in different contexts including sound waves and electromagnetic waves  **3.8** explain why there is a change in the observed frequency and wavelength of a wave when its source is moving relative to an observer, and that this is known as the Doppler effect  **3.9** explain that all waves can be reflected and refracted. | Video and Powerpoint:  3.1 General Wave Properties  3.2 Reflection and Refraction  Textbook pages:  Page 97 – What are waves?  Page 99 – Describing waves  Page 100 – The wave equation  Page 101 – The ripple tank  Page 101 – Wavelength and frequency  Page 102 – Reflection  Page 103 – Refraction  Page 104 – The Doppler Effect | Page 105  Questions (1) to (5)  Chapter 10 Textbook Answers (PDF)  Chapter 10 - exam question - pdf  Chapter 10 - exam question mark scheme – pdf  Chapter 10 - 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))