Edexcel International GCSE Physics 4PH1 Learning Plan

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| **Unit: 3 Waves** | | **Chapter: 11. The Electromagnetic Spectrum** | | **Hours: 4** |
| Content coverage | Learning outcomes | Resources | Assessment | |
| **Section 3: Waves**  **a)** Units  c) The electromagnetic spectrum | **3.10** know that light is part of a continuous electromagnetic spectrum that includes radio, microwave, infrared, visible, ultraviolet, x-ray and gamma ray radiations and that all these waves travel at the same speed in free space.  **3.11** know the order of the electromagnetic spectrum in terms of decreasing wavelength and increasing frequency, including the colours of the visible spectrum.  **3.12** explain some of the uses of electromagnetic radiations, including:   * radio waves: broadcasting and communications * microwaves: cooking and satellite transmissions * infrared: heaters and night vision equipment * visible light: optical fibres and photography * ultraviolet: fluorescent lamps * x-rays: observing the internal structure of objects and materials, including for medical applications * gamma rays: sterilising food and medical equipment.   **3.13** explain the detrimental effects of excessive exposure of the human body to electromagnetic waves, including:   * microwaves: internal heating of body tissue * infrared: skin burns * ultraviolet: damage to surface cells and blindness * gamma rays: cancer, mutation and describe simple protective measures against the risks | Video and Powerpoint:  3.4 The Electromagnetic Spectrum  Textbook pages:  Page 106 – The Electromagnetic Spectrum  Page 108 – Radio waves  Page 108 – Microwaves  Page 109 – Infrared  Page 110 – Visible light  Page 110 – Ultraviolet light  Page 111 – X-rays  Page 111 – Gamma rays | Page 112  Questions (1) to (4)  Chapter 11 Textbook Answers (PDF)  Chapter 11 - exam question - pdf  Chapter 11 - exam question mark scheme – pdf  Chapter 11 - 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))