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)** Unitsc) 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, mutationand describe simple protective measures against the risks
 | Video and Powerpoint:3.4 The Electromagnetic Spectrum Textbook pages:Page 106 – The Electromagnetic SpectrumPage 108 – Radio wavesPage 108 – MicrowavesPage 109 – InfraredPage 110 – Visible lightPage 110 – Ultraviolet lightPage 111 – X-raysPage 111 – Gamma rays | Page 112Questions (1) to (4)Chapter 11 Textbook Answers (PDF)Chapter 11 - exam question - pdfChapter 11 - exam question mark scheme – pdfChapter 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))