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| **Lesson Number: 26.2** | | |
| **Lesson Title: The properties of α, β, and γ radiation** | | |
| **Specification Reference** | | **3.8.1.2** |
| **Learning Objectives** | | |
| Their properties and experimental identification using simple absorption experiments; applications e.g. to relative hazards of exposure to humans.  Applications also include thickness measurements of aluminium foil paper and steel. | | |
| **Opportunities for Assessment** | | |
| Question on page 445 | | |
| **Starter:** | Slides #1 to #3 introduce the lesson and two of the famous scientists that have worked on radiation – a good research topic for homework | |
| **Main:** | Slide #4 recaps the absorption of radiation from GCSE and extends the knowledge slightly on absorption – discussion of the uses of absorption to monitor paper aluminium thickness is appropriate here  Slides #5 to #7 explain moving charges in magnetic fields – how much depth to go into here depends on whether the students have studied lessons 24.2 and 24.3  Slide #8 is a quick recap of deflection in an electric field from GCSE | |
| **Plenary:** | Slide #9 is a summary | |

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| **Homework:** | Questions on page 445, Research the life and discoveries of Marie Curie | |
| **Differentiation / Extension / S&C** | | |
| Go into more depth on the circular orbits of particles, why they spiral in a magnetic field, ranges of alpha and beta, discovery of the neutrino due to beta have a range of velocities | | |
| **Numeracy / Literacy** | | **SMSC / Fundamental British Values** |
| N/A | | Marie Curie and her discoveries, women in science |
| **RESOURCES:** | | |
| Demonstration:   * Alpha, Beta and Gamma sources * Geiger tube radiation detection / counting kit * Card, Aluminium and Lead of various thicknesses | | |
| **Risk Assessment** e.g. CLEAPSS card reference | | |
| Radiation hazard risk assessment:   * Follow in-house protocols on use and management of sources including:   + Do not point sources at people   + use at maximum distance (use forceps), and away from students   + Use for least amount of time possible   + Ensure all sources are counted in and out   + Do not leave sources unattended | | |
| **Working Scientifically (HSW)** | | |
| N/A | | |

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