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| **Lesson Number: 26.1** | | |
| **Lesson Title: The discovery of the nucleus** | | |
| **Specification Reference** | | **3.8.1.1** |
| **Learning Objectives** | | |
| Qualitative study of Rutherford scattering.  Appreciation of how knowledge and understanding of the structure of the nucleus has changed over time. | | |
| **Opportunities for Assessment** | | |
| Questions on page 440 | | |
| **Starter:** | Slide #1 is an introduction to this topic and also can create a thought provoking discussion on what flaws our current model of the atom might have. Note that Rutherford’s model predated quantum mechanics and couldn’t answer questions like “Why are the electrons in shells?” | |
| **Main:** | Slides #1 and #2 quickly introduce J.J.Thomson and E.Rutherford – A good research homework  Slides #4 and #5 go through the experiment that Rutherford performed and why the result was a surprise  Slide #6 links the results to the model and how Rutherford came up with this new way of thinking – Note that it is critical for new models to explain the data and to fit in with the rest of science theory  Slide #7 introduces the idea of estimating the size of the atomic nucleus | |
| **Plenary:** | Slide #8 is a summary | |

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| **Homework:** | Question on page 440, research the life and discoveries of Ernest Rutherford or J.J.Thomson | |
| **Differentiation / Extension / S&C** | | |
| Give the results of Rutherford’s experiment and get pupils to come up with a model of their own – how can this model be used to find the size of an atom / nucleus? | | |
| **Numeracy / Literacy** | | **SMSC / Fundamental British Values** |
| General idea of statistics and frequency | | Ernest Rutherford (Page 438) research |
| **RESOURCES:** | | |
| None | | |
| **Risk Assessment** e.g. CLEAPSS card reference | | |
| None | | |
| **Working Scientifically (HSW)** | | |
| N/A | | |

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