**Year 8 Science**

**History of Understanding the ATOM**

**Introduction:**

We now know a lot about the little particles that everything in the world is made up of – atoms. For example, we know that an atom has a solid middle (called a **nucleus**) which has **protons** and **neutrons** in it, and that moving around this nucleus are **electrons**. But we did not always know this. Our understanding has developed through the research and experiments of many scientists.

To summarize, in a fun way, what we know about the atom watch this **Ted Ed** video:

<https://www.ted.com/talks/just_how_small_is_an_atom>

Below is a list of 5 important scientists that helped us understand what an atom is.

|  |  |
| --- | --- |
| H.G.J. Moseley | Niels Bohr |
| John Dalton | J.J. Thompson |
| Earnest Rutherford |  |

**Task**

Using the internet complete the following tasks.

1. Using the blank timeline below, put the scientists in order and give an approximate year(s) for their discovery/contribution to atomic science. (4 marks)

1930

1800

1. By doing some research, create a summary of these scientist’s contributions to understanding the atom. Fill in the table below (10 marks).

|  |  |  |
| --- | --- | --- |
| **Name of Scientist** | **Nationality**  **(what country?)** | **What they discovered about the atom**  **or parts of the atom? (list some dot points)** |
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1. In the space below compare John Dalton’s **“Billiard Ball Model”** of the atom with J.J. Thompson’s **“Plumb Pudding Model”** of the atom. You can use diagrams to help your answer. Make sure you explain how they were different from each other. (4 marks)
2. In the space below compare Earnest Rutherford’s **“Planetary Model”** of the atom with Niels Bohr’s **“Atomic Model”** of the atom. You can use diagrams to help your answer. Make sure you explain how they were different from each other. (4 marks)

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **Marksheet** | |  | Name: | | | | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| **Year 8 Science Australian Curriculum** | | | Date: | | | | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
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| Assessment Description: | | 5 | = Well Above | | | |  |
| **History of the Atom Research Task** | | 4 | = Above standard | | | |  |
| 3 | = At standard | | | |  |
| 2 | = Below standard | | | |  |
| 1 | = Well below standard | | | |  |
|  |  |  |  |  |  |  |  |
| **Achievement Standard** | | **Achievement** | | | | | **Comments** |
| **1** | **2** | **3** | **4** | **5** |
| HE1 | examine the different science knowledge used in occupations |  |  |  |  |  |  |
| HE2 | explain how evidence has led to an improved understanding of a scientific idea |  |  |  |  |  |  |
| HE3 | describe situations in which scientists collaborated to generate solutions to contemporary problems |  |  |  |  |  |  |
| IS8 | use appropriate language and representations to communicate science ideas, methods and findings in a range of text types |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| Overall comments: | | **Assessment Grade:** | | | | |  |
|  |  | (on balance) | | | | |
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