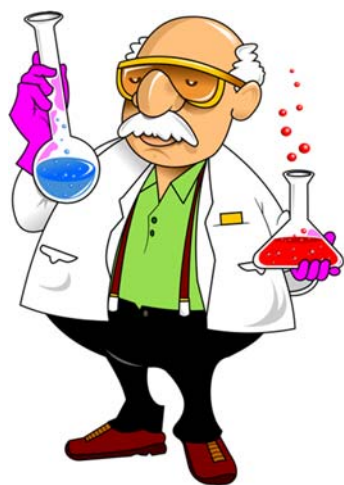


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The Puzzle Solvers: Pioneers of the Periodic Table

The development of the periodic table is a remarkable journey that involved the contributions of several key scientists. Like detectives solving a complex puzzle, these scientists played pivotal roles in organizing the elements and uncovering the hidden patterns within them. In this reading passage, we will explore the lives and contributions of some of these prominent scientists, including Mendeleev and Moseley.

Dmitri Mendeleev: The Father of the Periodic Table

Dmitri Mendeleev, a Russian chemist born in 1834, is often credited as the father of the modern periodic table. Mendeleev was a visionary who recognized the need for a systematic organization of the elements. His significant contributions include:

- **Periodic Law:** Mendeleev proposed the periodic law, which states that when elements are arranged in order of increasing atomic mass, their properties exhibit periodicity, meaning they repeat at regular intervals.
- **Organizing the Elements:** Mendeleev arranged the known elements into a table based on their atomic mass and chemical properties. He left gaps for undiscovered elements, predicting their properties and even naming them. His predictions were remarkably accurate, cementing his legacy.
- **Grouping by Properties:** Mendeleev grouped elements with similar chemical properties into columns, or groups, on his table. He recognized the significance of these groups and their relationship to the periodicity of the elements.

Henry Moseley: The Proton Pioneer

Henry Moseley, an English physicist born in 1887, made significant contributions to the periodic table in the early 20th century. Moseley's work focused on understanding the atomic structure of elements and their arrangement on the periodic table. His notable achievements include:

- **Atomic Number:** Moseley proposed that the fundamental property determining an element's position on the periodic table was its atomic number, not atomic mass. He demonstrated that elements should be ordered by increasing atomic number, leading to a more accurate organization of the elements.

Name _____

- **Reordering the Table:** Moseley's insight into the importance of atomic number revolutionized the periodic table. Elements were rearranged based on their atomic number, which aligned their positions with their chemical properties more accurately.
- **Confirmation of Periodicity:** Moseley's work confirmed the periodic law and provided a better understanding of the periodicity of elements. It also resolved some inconsistencies that had existed in earlier versions of the periodic table.

Other Notable Contributors

While Mendeleev and Moseley made pioneering contributions, several other scientists played essential roles in the development of the periodic table:

- **Antoine Lavoisier:** A French chemist known for his work on the conservation of mass and the development of the modern chemical nomenclature.
- **John Newlands:** An English chemist who proposed the "law of octaves," an early attempt to organize the elements.
- **Glenn T. Seaborg:** An American chemist who extended the periodic table to include the actinide series and played a key role in synthesizing transuranium elements.
- **Marie and Pierre Curie:** The Curies discovered and isolated the radioactive elements radium and polonium, contributing to our understanding of radioactivity.

