In 1863 there were 56 known elements with a new element being discovered at a rate of approximately one per year. Other scientists had previously identified periodicity of elements. John Newlands described a Law of Octaves, noting their periodicity according to relative atomic weight in 1864, publishing it in 1865. His proposal identified the potential for new elements such as germanium. Another person to prose a periodic table was Lothar Meyer, who published a paper in 1864 describing 28 elements classified by their valence, but with no prediction of new elements.

D.I. Mendeleev also attempted to classify the elements according to their chemical properties. He noticed patterns that led him to postulate his periodic table. He made the following table, and by adding additional elements following this pattern, developed his extended version of the periodic table.

On 6 March, 1869, Mendeleev made a formal presentation to the Russian Chemical Society, entitled The dependence between the properties of the atomic weights of the elements, which described elements according to both atomic weight and valence.

Mendeleev published his periodic table of all known elements and predicted several new elements to complete the table. Only a few months after, Meyer published a virtually identical table. They both constructed their tables in a similar manner by listing the elements in a row or column in order of atomic weight and starting a new row or column when characteristics of the elements began to repeat.

There are many ways the periodic table can be used. The table can be used to find the atomic number. The atomic weight is also indicated in the table. The orbital arrangement of electrons is shown for each of the elements.

The table enables us to recognize families of elements. And at last, the table can be used to predict the properties of the elements. The fact that the Periodic Table can assist in predicting properties of elements has helped in the discovery of missing elements.