

6.3 The Periodic Table

By 1864, chemists had identified _____ unique elements. They were identified based on their physical and chemical properties.

Antoine Lavoisier (French, late 1700's) had grouped the elements into 4 groups: _____, _____, _____, and "_____".

In the mid 1800's, _____ tried to use the known properties of elements to make a tool which organized them on more than just their mass.

One important discovery in this area was made by John Dalton. He discovered that in a molecule like H_2O , the mass of oxygen used was _____ the mass of hydrogen used. This means that oxygen has 16 times the mass of hydrogen (because in H_2O there are 2 hydrogen atoms for every 1 oxygen atom).

When Mendeleev was making his table, he wrote out the information on cards (much like the activity you did last class).

When properties of elements _____, he began a new row. Hence the name "Periodic Table"

The Periodic Table can be read in a number of ways. If you are looking at the rows, these are called _____. If you are looking at columns, these are called _____.

Like always, other scientists were trying to do the same thing. The reason Mendeleev's idea worked best was because he

_____ when the properties of the next heaviest element did not match the properties above it in the column.

Based on this idea, Mendeleev predicted the properties of several elements before they were even discovered. Three

examples were _____, _____, and

_____.

One group of elements that was difficult to detect at first were

the _____. These gasses do not react with anything, which made them hard to detect. The first that was

discovered was _____. Because of the power of the table, scientists knew there must be more. Soon neon, krypton, and

xenon were discovered. They are called _____ because nobility was considered perfect, and since these elements didn't react, they must already be perfect.

Of course, even the most genius scientists make mistakes. Mendeleev's table had some mistakes. But it was a key tool in early chemistry. The modern periodic table that you seen in the back of the textbook came together in _____.