

## Graphing Periodic Trends

The Periodic Table is arranged according to Periodic Law. The Periodic Law states that when elements are arranged in order of increasing atomic number, their physical and chemical properties show a periodic pattern. These patterns can be discovered by examining the changes in properties of elements on the Periodic Table. The properties that will be examined in this lesson are: atomic size, ionic radius, electronegativity and ionization energy.

Procedure:

In your groups, graph each of the properties listed. Note each group member must complete at least 2 graphs. For those with fewer than 4 in a group, members will have to produce more than 2 graphs each.

### Graph 1

For elements 3-38 make a graph of atomic radius as a function of atomic number. Plot atomic number on the X-axis and the atomic radius on the Y-axis. Use a colored pen or pencil to draw a vertical line that represents the beginning of each period.

### Graph 2

For elements in Group 1, make a graph of atomic radius as a function of atomic number. Make a second line on the same graph that will represent Group 2.

### Graph 3

For elements 3-38, make a graph of the ionization energy. Plot atomic number on the X-axis and energy on the Y-axis. Use a colored pen or pencil to draw a vertical line that represents the beginning of each period.

### Graph 4

For elements in Group 1, make a graph of ionization energy as a function of atomic number. On the same graph make a second line to represent Group 2.

### Graph 5

For elements 3-38, make a graph of the ionic radius. Plot atomic number on the X-axis and the ionic size on the Y-axis. Use a colored pen or pencil to draw a vertical line that represents the beginning of each period.

### Graph 6

For elements in Group 1, make a graph of ionic size as a function of atomic number. Make a second line on this same graph that will represent Group 2.

### Graph 7

For elements 3-38, make a graph of the electronegativity. Plot atomic number on the X-axis and the electronegativity on the Y-axis. Use a colored pen or pencil to draw a vertical line that represents the beginning of each period.