

How to 7 Video Narrative

In this video, we will talk about the properties of the groups.

One property of elements within a group is reactivity. Remember that the valence electrons determine an element's chemical properties, including reactivity. Elements that easily gain or lose valence electrons are highly reactive. Elements that do not easily gain or lose valence electrons are not very reactive.

Let's talk about some properties of the more important groups.

Group 1 elements are called the alkali metals. The alkali metals are highly reactive because they have only one valence electron. These elements are so soft that they can be cut with a knife. Hydrogen is not an alkali metal. Remember, hydrogen doesn't fit most of the Periodic Table patterns. However, hydrogen does have one valence electron.

Group 2 elements are called the alkaline earth metals. Group 2 elements all have two valence electrons. These are a group of reactive metals, but they are not as reactive as group one.

Groups 3–12 are called the transition metals. These elements are not as reactive as Group 1 and Group 2.

Group 17 elements are called the halogens. The halogens are the most reactive **nonmetals** on the Periodic table. They have seven valence electrons.

Group 18 elements are called the noble gases. These elements rarely react with other elements because they do not easily gain or lose electrons. Elements in this group have eight valence electrons, except for He, which has two.

If you were given the elements nitrogen, fluorine, and bromine, would you be able to determine which elements have similar properties? You can if you use the Periodic Table!

We know that nitrogen is located in Group 15 and on Period 2. It has five valence electrons. Fluorine is located in Group 17 and Period 2. It has seven valence electrons. And bromine is located in Group 17 and Period 4. It has seven valence electrons. So which elements have similar properties? Here is a hint: Elements in the same group have similar properties. Which of these elements are in the same group? That's right! Fluorine and bromine have similar properties because they are located in the same group.

Okay, let's hear it one more time: Elements in the same group have similar properties.