

Elements

- An element is a substance that cannot be broken down further.
- Each element has unique chemical and physical properties.
- Scientists categorize elements according to their chemical and physical properties.
- Elements have a name (ex: sodium) and a symbol (ex: Na).

Metals:

- Metals are normally **solid**. Only mercury exists at room temperature as a **liquid**.
- Samples of metals are often shiny (have luster).
- Metals are **malleable**. They can be hammered into foils or thin sheets.
- Metals are **ductile**. They can be drawn into wires.
- Often metals conduct **heat** and **electricity**.
- Most metals have **high** melting points and boiling points.
- Metal atoms often form **positively** charged particles when they dissolve.

Examples:	
Iron	_____
Lithium	_____
Potassium	_____
Sodium	_____
Calcium	_____
Uranium	_____
Nickel	_____
Copper	_____
Cobalt	_____
Silver	_____
Gold	_____
Platinum	_____

Nonmetals

- Nonmetals can exist as **gases** and **solids**. Only bromine is a **liquid** at room temperature.
- Nonmetals are **brittle** and cannot be rolled into **wires** or hammered into **sheets**.
- They are poor conductors of **electricity** and **heat**.
- They do not have metallic luster and do not reflect light.
- Some nonmetals exist in nature as molecules of the same type of atom. These are called **diatomic molecules**.

Nonmetals

Examples:	
Sulfur	_____
Carbon	_____
Phosphorus	_____
Bromine	_____
Iodine	_____
Nitrogen	_____
Oxygen	_____
Fluorine	_____
Chlorine	_____

Metalloids:

- Metalloids are **solid** at room temperature.
- Some metalloids have metallic characteristics and some have nonmetal characteristics.

Examples:	Arsenic _____
Silicon _____	Antimony _____
Boron _____	Germanium _____

Noble gases:

- Noble gases are called "inert" because they rarely react to form compounds with other elements.
- All are gas at room temperature.

Examples:
Helium _____
Neon _____
Argon _____
Xenon _____
Krypton _____

- Scientists use the periodic table to organize information about the elements.
- Elements in the same **group (column)** tend to have similar chemical properties.
- Group 1 elements are called **alkali** metals. Li, Na, K, Rb, and Cs are all very reactive.
- Group 2 elements are called **alkaline** earth metals. They are soft metals that are also quite reactive.

- Elements 95-118 have not been observed in **nature**.
- Scientists have artificially created them in the laboratory. Because they do not normally exist in nature, they are called **synthetic elements**.