

**Hydrogen** belongs to no definite group. It forms compounds by either donating an electron like an alkali metal or accepting an electron like a halogen.

**Alkali Metals** are very reactive and readily form compounds but are not found free in nature. They form salts and alkali (acid-neutralizing) compounds such as baking soda. In pure form, they are very soft metals which catch fire on contact with water.

**Alkali Earth Metals** are reactive and readily form compounds but are not found free in nature. Their oxides are called alkali earths. In pure form, they are soft and somewhat brittle metals.

**Halogens** are reactive nonmetals and readily form compounds but are not found free in nature. They combine with alkali metals to form salts (halogen means salt-former).

**Noble Gases** are inactive, or inert. Each atom has exactly the number of electrons it needs to have a full outer shell, so these atoms almost never bond with other atoms. That is why these are all gases.

**Transition Metals** are typical metals: they are strong, shiny, malleable (they can be hammered into shape), flexible (in thin sheets or wires), and they conduct both heat and electricity.

**Poor Metals** are usually soft  
and have low melting  
temperatures.

**Metalloids** are partly like metals and partly like nonmetals. For example, they are semiconductors, which means they conduct electricity in some conditions.

B, Si, Ge, As, Sb, and Te are metalloids.



**Nonmetals**, in their solid state, are usually brittle (they break rather than bend) and they are insulators of both heat and electricity.

**Rare Earth Metals** are all soft metals. They are chemically similar to scandium and yttrium and are difficult to separate from each other.

**Actinide Metals** are all radioactive heavy metals. They are used mainly for their radioactive properties.

**Superheavy Elements** are all radioactive and short-lived. They are never found in nature and have no uses except atomic research.