

Non-Metals

Metals

Metalloids

[Properties of Metals

- Metals are good conductors of heat and electricity.
- Metals are shiny.
- Metals are ductile (can be stretched into thin wires).
- Metals are malleable (can be pounded into thin sheets).
- A chemical property of metal is its reaction with water which results in corrosion.



[Properties of Non-Metals]



Sulfur

- Non-metals are poor conductors of heat and electricity.
- Non-metals are not ductile or malleable.
- Solid non-metals are brittle and break easily.
- They are dull.
- Many non-metals are gases.

[Properties of Metalloids]



Silicon

- Metalloids (metal-like) have properties of both metals and non-metals.
- They are solids that can be shiny or dull.
- They conduct heat and electricity better than non-metals but not as well as metals - semiconductors.
- They are ductile and malleable.

Families on the Periodic Table

- Elements on the periodic table can be grouped into families based on their **chemical** properties.
- Each family has a **specific name** to differentiate it from the other families in the periodic table.
- Elements in each family **react** differently with other elements.

Periodic Table of the Elements

* Lanthanide Series
* Actinide Series

ALKALI METALS

Group 1

- Hydrogen is **not** a member, it is a **non-metal**
- All are metals and solid at room temp
- 1 Valence Electron
- Soft and silvery, shiny
- **Very** reactive, esp. with water
- Conduct electricity

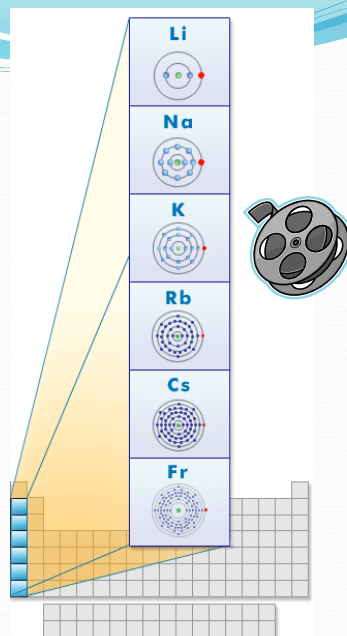
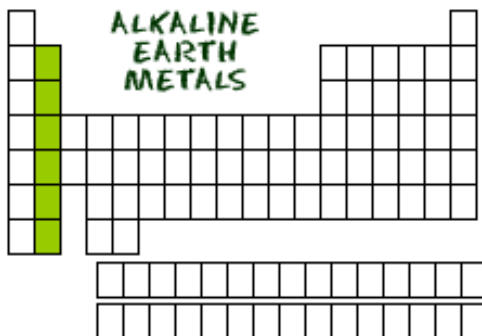


Image: <http://www.learner.org/interactives/periodic/groups2.html>

ALKALINE EARTH METALS



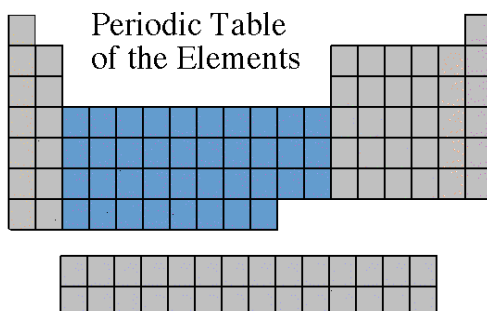
ALKALINE
EARTH
METALS

Group 2



- Metals
- Solids at room temp
- 2 electrons in the outer shell
- White, silvery, and malleable
- Reactive, but less than Alkali metals
- Conduct electricity

TRANSITION METALS



Periodic Table
of the Elements



- Metals
- Almost all are solids at room temp (Hg)
- Good conductors of heat and electricity.
- 1 or 2 Valence Electrons
- Less Reactive than Alkali and Alkaline Earth
- Can bond with many elements in a variety of shapes.

BORON FAMILY



Periodic Table of the Elements

Group 3

- 3 electrons in the outer shell
- Most are metals
- Boron is a **metalloid**
- Reactive
- Solid at room temp

CARBON FAMILY



Periodic Table of the Elements

Group 4

- 4 electrons in the outer shell
- Contains 3 metals, 2 metalloids, and 1 **non-metal** Carbon (C)
- Reactivity varies
- Solids at room temp

NITROGEN FAMILY



Group 5

Periodic Table of the Elements

- 5 electrons in the outer shell
- Can share electrons to form compounds
- Contains 2 metals, 2 metalloids, and 2 **non-metals**
- Reactivity Varies
- Nitrogen is the only gas at room temp, rest are solids

OXYGEN FAMILY

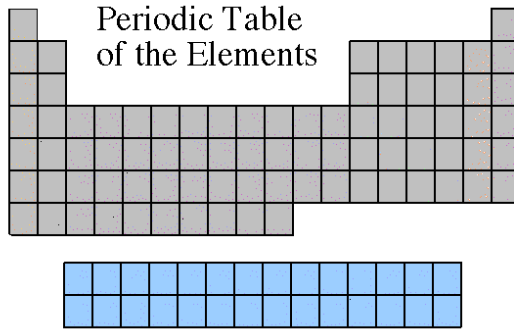


Group 6

Periodic Table of the Elements

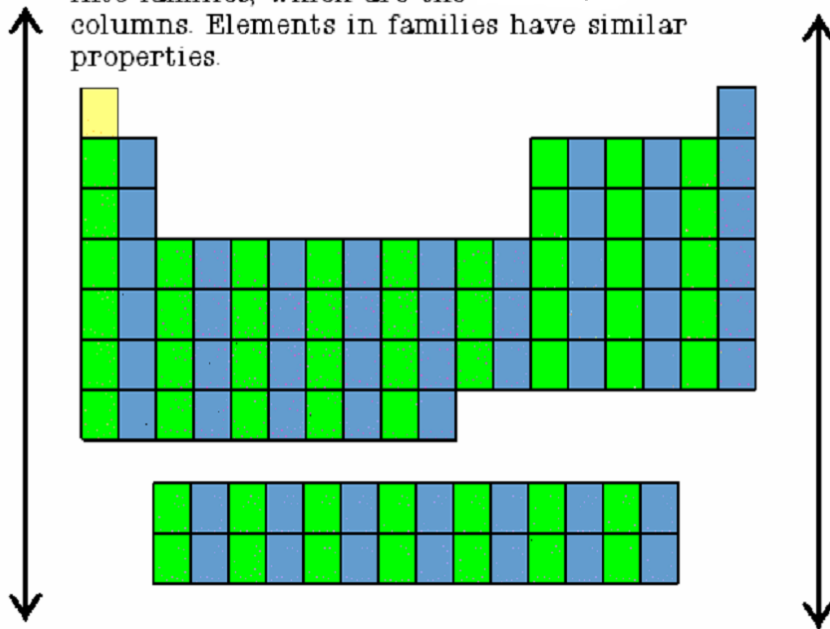
- 6 electrons in the outer shell
- Contains 2 metals, 1 metalloid, and 3 **non-metals**
- Reactive
- Oxygen is a gas, the rest are solids at room temp

Rare Earth Metals

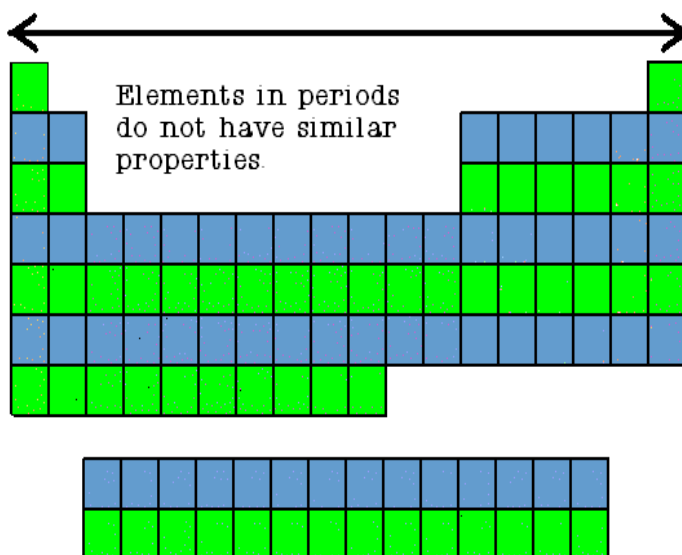


- Some are Radioactive
- The rare earths are silver, silvery-white, or gray metals.
- Conduct electricity

Elements in the periodic table are also grouped into families, which are the columns. Elements in families have similar properties.



The elements are also categorized into periods, or horizontal rows.



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Families

- Columns of elements are called groups or families.
- Elements in each family have similar but not identical properties.
- For example, lithium (Li), sodium (Na), potassium (K), and other members of family 1A are all soft, white, shiny metals.

Periods

- Each horizontal row of elements is called a period.
- The elements in a period are not alike in properties.
- In fact, the properties change greatly across even given row.
- The first element in a period is always an extremely active solid. The last element in a period, is always an inactive gas.