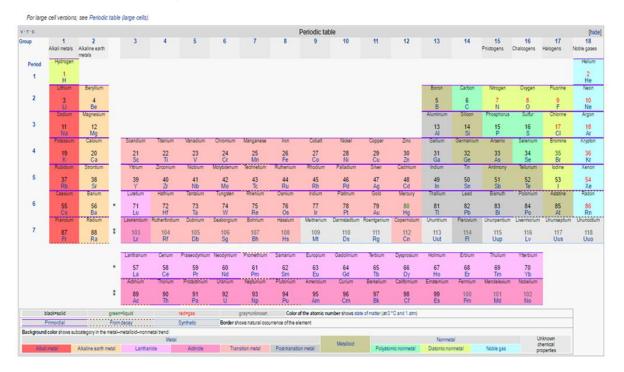
configuration. Periods also possess similar trends in electronegativity, ionization energy, atomic radii, as well as electron affinity. Moving from the left of the periodic table to the right, atomic radii decreases which causes the ionization energy to increase. As well, moving left to right, electronegativity and electron affinity increase.



#### Periodic table groups

**Alkali metals**: The alkali metals make up Group 1 of the table, and comprise lithium (Li) through francium (Fr). These elements have very similar behavior and characteristics. Hydrogen is Group 1, but it exhibits few characteristics of a metal and is often categorized with the nonmetals.

**Alkaline earth metals**: The alkaline earth metals make up Group 2 of the periodic table, from beryllium (Be) through radium (Ra). The alkaline earth metals have very high melting points and oxides that have basic alkaline solutions.

Lanthanides: The lanthanides comprise elements 57 lanthanum (La), hence

the name of the set through 71, lutetium (Lu). They, along with the actinides, are often called "the f-elements" because they have valence electrons in the f shell.

**Actinides:** The actinides comprise elements 89, actinium (Ac), through 103, lawrencium (Lr). They, along with the lanthanides, are often called "the felements" because they have valence electrons in the f shell. Only thorium (Th) and uranium (U) occur naturally with significant abundance. They are all radioactive.

**Transition metals:** The transition elements are metals that have a partially filled d subshell and comprise Groups 3 through 12 and the lanthanides and actinides.

**Post-transition metals:** The post-transition elements are aluminum (Al), gallium (Ga), indium (In), thallium (Tl), Tin (Sn), lead (Pb) and bismuth (Bi). As the name implies, these elements have some of the characteristics of the transition metals, but they tend to be softer and conduct more poorly than the transition metals.

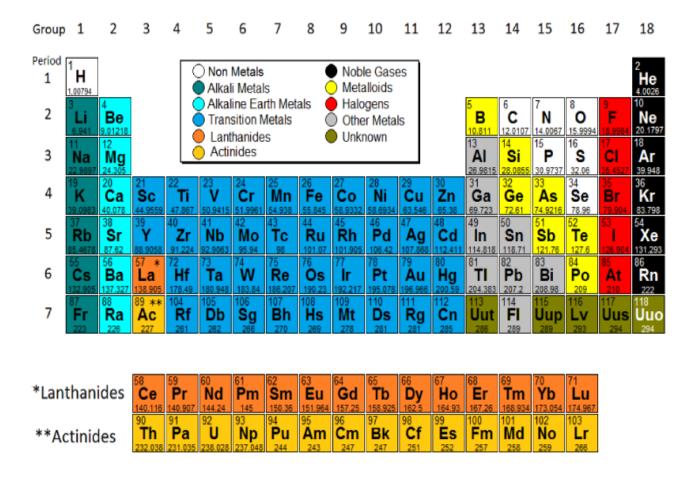
**Metalloid:** The metalloids are boron (B), silicon (Si), germanium (Ge), arsenic (As), antimony (Sb), tellurium (Te) and polonium (Po). They sometimes behave as semiconductors (B, Si, Ge) rather than as conductors. Metalloids are also called "semi-metals" or "poor metals."

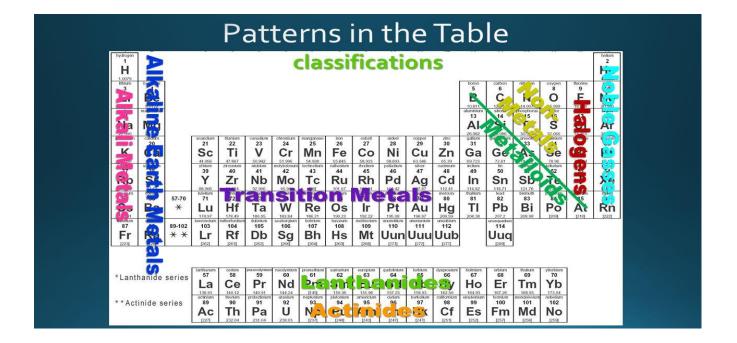
**Nonmetals:** The term "nonmetals" is used to classify hydrogen (H), carbon (C), nitrogen (N), phosphorus (P), oxygen (O), sulfur (S) and selenium (Se).

**Halogens:** The halogen elements are a subset of the nonmetals. They comprise Group 17 of the periodic table, from fluorine (F) through a statine (At). They are generally very chemically reactive and are present in the environment as compounds rather than as pure elements.

**Noble gases:** The inert, or noble, gases comprise Group 18. They are generally very stable chemically and exhibit similar properties of being colorless and odorless.

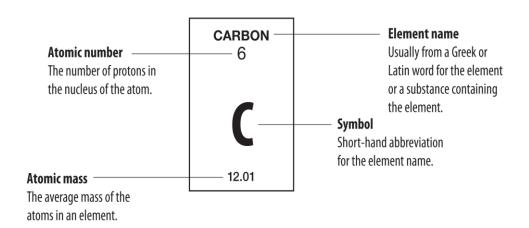
**Not:** According to their shared physical and chemical properties, the elements can be classified into the major categories of metals, metalloids and nonmetals. **Metals** are generally shiny, highly conducting solids that form alloys with one another and salt-like ionic compounds with nonmetals (other than the noble gases). The majority of **nonmetals** are coloured or colourless insulating gases; nonmetals that form compounds with other nonmetals feature covalent bonding. In between metals and nonmetals are **metalloids**, which have intermediate or mixed properties.





#### **Chemical Symbol**

The chemical symbol is an abbreviation of the element's name. Many are derived from the element's name in a language such as Latin or German. Ag is the chemical symbol for the element silver. Its symbol comes from the Latin word for silver, *argentum*. Note that the first letter in the symbol is upper case and the second is lower case. Writing symbols this way allows us to represent all of the elements without getting confused. There is a big difference between the element cobalt, with its symbol Co, and the compound carbon monoxide, written as CO.



HYDROGEN 1	PERIODIC TABLE						HELIUM 2
Н	ELEMENTS 1-20						He
1.01							4.00
LITHIUM 3	BERYLLIUM 4	<b>BORON</b> 5	<b>CARBON</b> 6	NITROGEN 7	OXYGEN 8	FLUORINE 9	NEON 10
Li	Be	В	C	N	0	F	Ne
6.94	9.01	10.81	12.01	14.01	16.00	19.00	20.18
SODIUM 11	MAGNESIUM 12	ALUMINUM 13	SILICON 14	PHOSPHORUS 15	SULFUR 16	CHLORINE 17	ARGON 18
Na	Mg	Al	Si	P	S	Cl	Ar
22.99	24.31	26.98	28.09	30.97	32.07	35.45	39.95
POTASSIUM 19	CALCIUM 20						
K	Ca						
39.10	40.08						