Name:		
Deriod:		

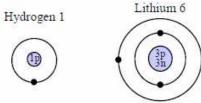
Metals, Non-Metals and Valence Electrons

Valence Electrons

Valence Electrons are the *outermost* electrons in an atom.

Each group (column) has the same number of valence electrons.

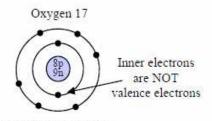
Only valence electrons are involved in chemical bonding.



1 valence electron

1 valence electron

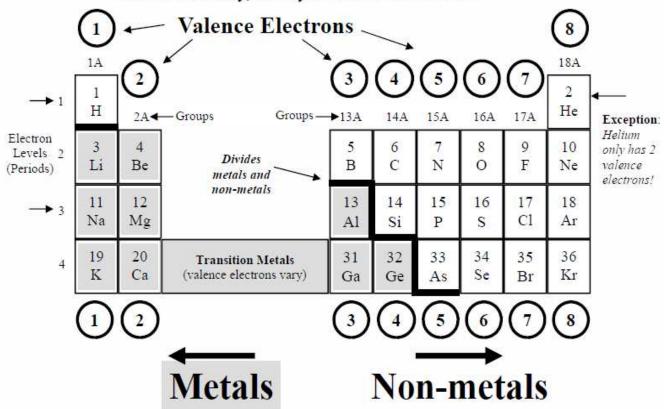
Hydrogen and Lithium are both in Group 1A—both have 1 valence electrons.



6 valence electrons

Octet Rule – Atom are more stable that have a full shell of electrons. For most atoms 8 valence electrons is full (octed = 8). For H and He this number is 2. Atoms want to have 8 valence electrons. "If I 8, I full." Only elements in Group 18A have a full octet (8 valence electrons) naturally. All other elements will lose, gain, or share to reach 8 electrons.

Elements with the same valence electrons have similar reactivity, so they tend to react the same.



Metals and Nonmetals

Metals are on the left side of the periodic table. Non-metals are on the right side. Metals and non-metals have different properties and bond differently, making different kinds of compounds.

Metals or Non-metal?

Calcium (Ca): metal (left side)

Bromine (Br): non-metal (right side)

Going Farther

Along the separation line are the semimetals or metalloids: Boron (B), Silicon (Si), Germanium (Ge), Arsenic (As), Antimony (Sb). These have properties of both metals and non-metals.

A. Elements found on the right side of the periodic table. B. Elements found on the left side of the periodic table. Valence electrons C. Says that atoms tend to be more stable with eight valence electrons. D. Electrons in the outermost electron level. Involved in chemical bonding.	How many valence electrons? Image: Calcium (Ca) _ 2	All sections mark considered essent must be complete credit on WS.
Metal or Non-metal?	Connect the element on the left with the element on the right that has similar reactivity. Chlorine Beryllium Phosphorous Potassium Elements with the same # of Magnesium Iodine same # of Sodium Aluminum have Boron Oxygen the same reactivity. Sulfur Ninogen Are these elements isotopes of one another?	
7 protons and 10 electrons. Neutral atom or ion? 15 protons and 15 electrons. Neutral atom or ion? 35 protons and 37 electrons. Neutral atom or ion? Give the element abbreviation and charge. 5 protons and 2 electrons: Element: B Charge: +3 16 protons and 18 electrons: Element: Charge: 35 protons and 36 electrons: Element: Charge: Element: # of neutrons: Mass #:	Element A: 12 protons; 12 electrons; 13 neutrons. Element B: 13 protons; 12 electrons; 13 neutrons. Are these elements isotopes of one another? Element A: 14 protons; 15 electrons; 13 neutrons. Element B: 14 protons; 14 electrons; 15 neutrons. Are these elements isotopes of one another? Element A: 12 protons; 11 electrons; 13 neutrons. Element B: 12 protons; 12 electrons; 13 neutrons. Are these elements isotopes of one another? Element A: 18 protons; 18 electrons; 18 neutrons. Element B: 18 protons; 18 electrons; 19 neutrons.	
# of electrons: # of valence electrons: It is an ion? Element: # of neutrons: Mass #: # of electrons: # of valence electrons: It is an ion?	Sulfur (S) is in row 3. Sulfur has 2 complete electron levels and 6 valence electrons in level 3. Magnesium () is in row Magnesium has complete electron levels and valence electrons in level Carbon () is in row Carbon has complete electron levels and valence electrons in level	 Label the Gr
Element: # of neutrons: Mass #: # of electrons: # of valence electrons: It is an ion?	Potassium () is in row Potassium has complete electron levels and valence electrons in level Argon () is in row Argon has complete electron levels and valence electrons in level	 Label the Gr Label the Pe Write Atomi Color the me and metallo Name the folk Metals, Alkand Noble Gr

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- roup Numbers (#1-18) riod Numbers
- ic Numbers 1-18
- etals-blue, nonmetals-red,
- bids-yellow ollowing groups: Alkali aline Metals, Halogens, Gases

