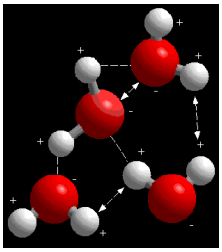
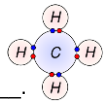
Chemical Bonds



Key Definitions



Compounds-formed when two or more atoms are _____.

Chemical Formula-shorthand for a compound. It shows the exact _____of each _____ in a compound.

Chemical Bond-the _____ that holds atoms in a compound together.

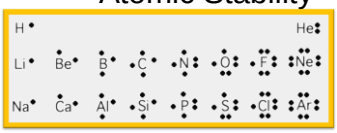
Ion-when an _____,

it is _____, it has a _____.

COUNTING ATOMS IN COMPOUNDS

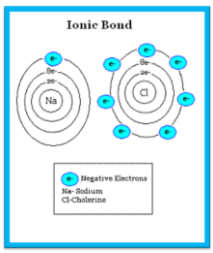
- K_2CO_3
- $Sr_3(PO_4)_2$
- $3N_4O_{10}$
- $2(NH_4)_3N$

Atomic Stability



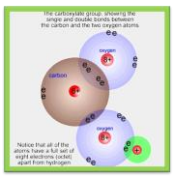
- An atom is _____ when its outer _____ is "_____".
- Electron dot diagrams show only the _____ in the _____of an atom.
- Noble gases are _____. Electron dot diagrams of noble gases show _____ _____

Atomic Stability



- Atoms try to become stable by _____ electrons, _____ electrons, or _____ electrons from their outer energy level.
- They do this by _____ with other atoms.

Types of Chemical Bonding

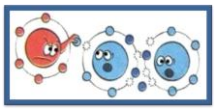


When elements form a compound, they are held together with a _____

Ionic bonding-forms when an atom has _____ _____.

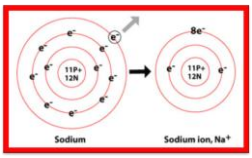
Covalent bonding-forms when atoms _____.

Oxidation Numbers



- Metals have _____ electrons in their outer energy level. They tend to _____ during bonding.
- The metal atom is no longer electrically _____.
- It has more _____.
- It has a _____charge.

Example



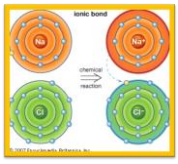
Sodium has ____ protons and _____ electrons.

It is electrically _____.

Sodium is now an _____ with a _____.

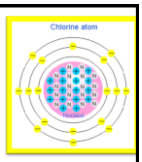
If sodium _____ an electron, it now has 11 protons and ___ electrons.

Sodium's _____ _____ is _____.



- Nonmetals tend to _____ _____ from metal to complete their outer energy level.
- The nonmetal atom is no longer electrically neutral.
- It has more _____ than protons.
- It has a _____ charge.

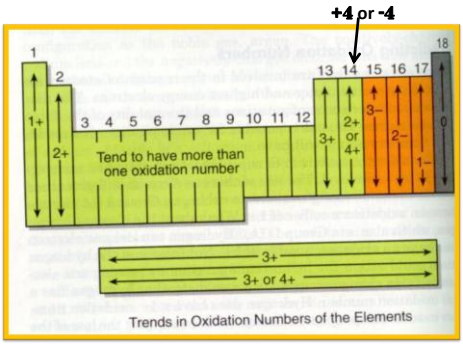
Chlorine has _____ protons and _____ electrons.



It is electrically _____.

If chlorine _____ an electron, it now has 17 protons and _____ electrons.

Chlorine is now an _____ with a_____ charge.
Chlorine's _____ _____ is____ .



Check your understanding

1. What is the oxidation number for oxygen?
2. What is the oxidation number for potassium?
3. What is the oxidation number for phosphorus?
4. What is the difference between an ionic bond and a covalent bond?
5. What elements and how many atoms are in the compound CH_3COOH?
6. What elements and how many atoms are in the compound $Ca(C_2H_3O_2)_2$?