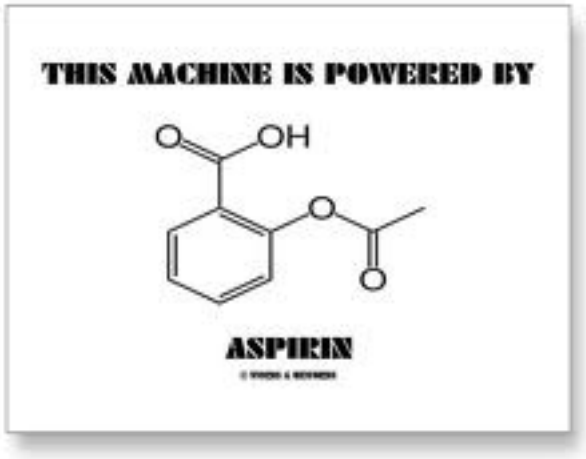
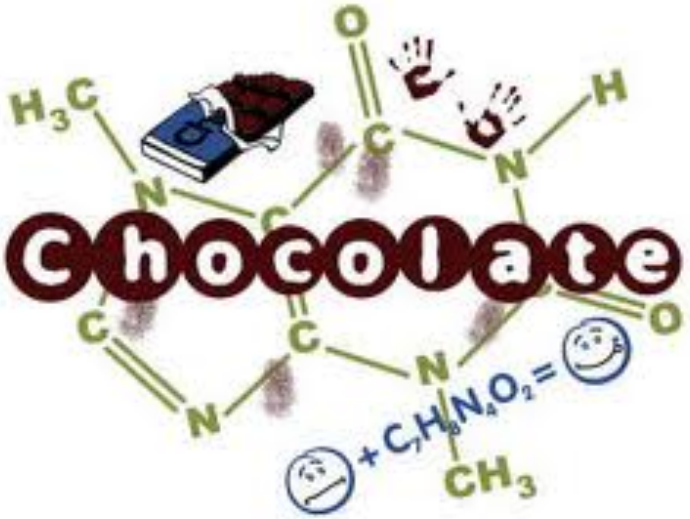
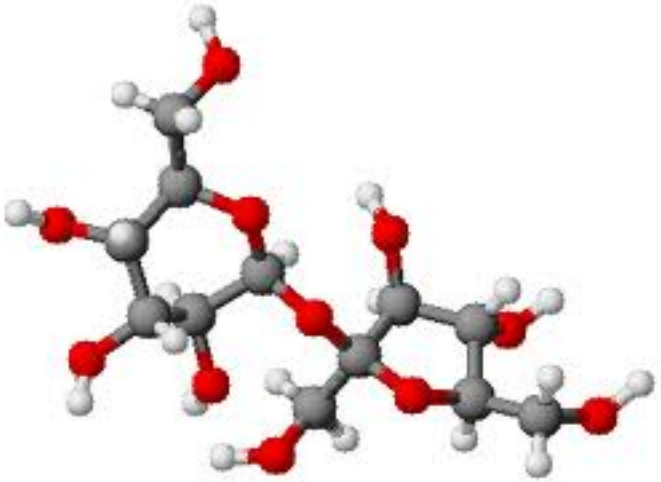
Molecules

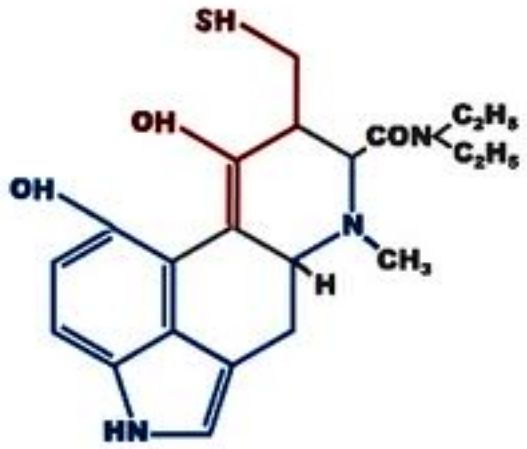

THIS MACHINE IS POWERED BY
OH
ASPIRIN


Chocolate
$+C_7H_8N_4O_2=$
CH_3

Molecules

- The smallest particle of a substance
- Composed of 2 or more atoms held together by chemical bonds



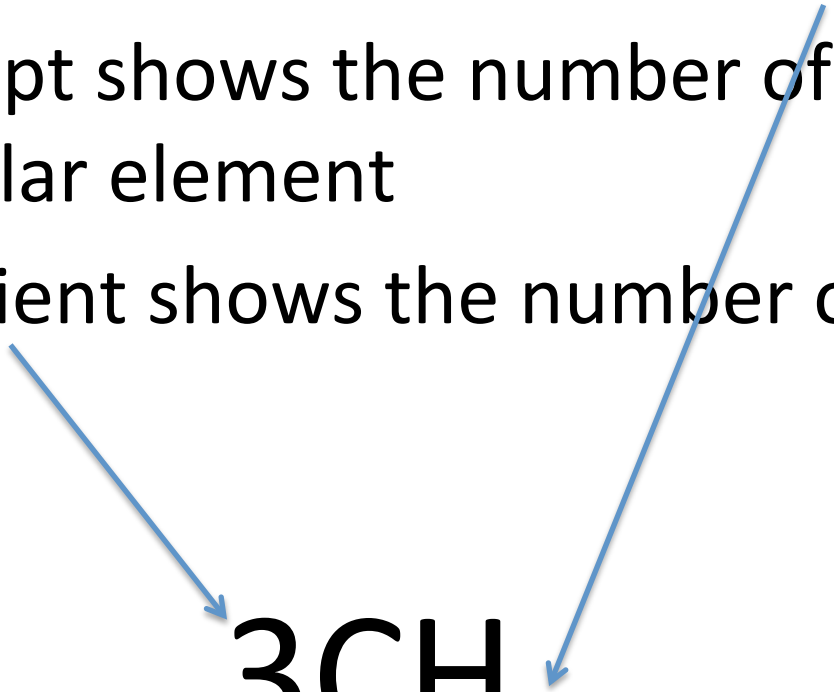


Common Molecules

- H_2O – water
- CH_4 – Methane
- $C_9H_8O_4$ – Aspirin
- $C_8H_{10}N_4O_2$ - Caffeine

Chemical Formulas

- Subscript shows the number of atoms of a particular element
- Coefficient shows the number of molecules

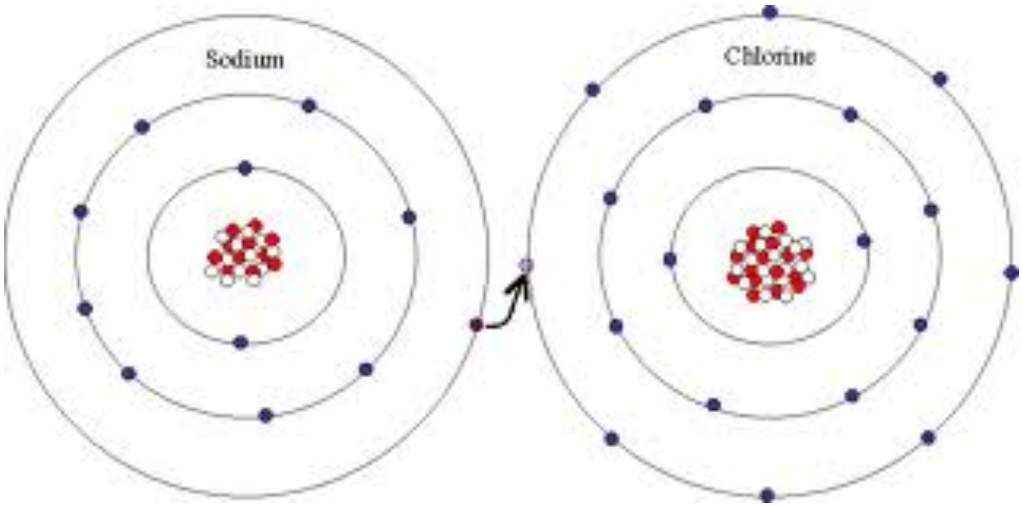


$$3CH_4$$

3 methane molecules
1 carbon atom and 4 hydrogen atoms for each methane molecule
3 carbons atoms and 12 hydrogen atoms
15 total atoms.

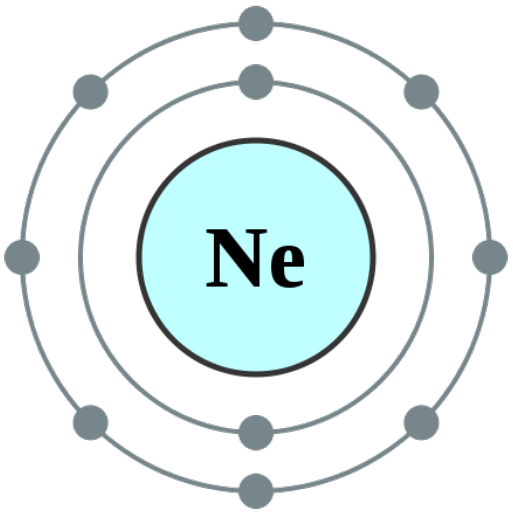
Chemical Bonds

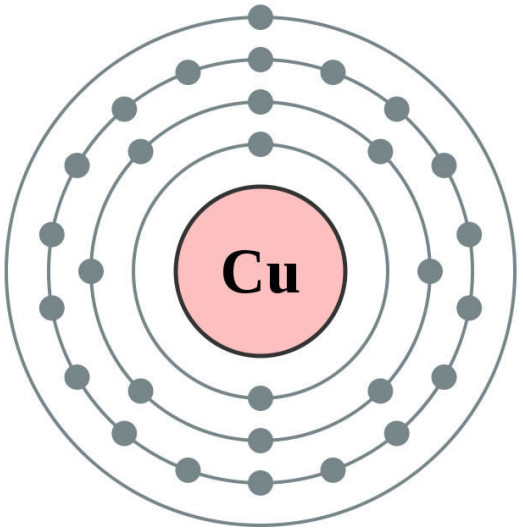
- Force that hold two atoms together.



Valence Shells

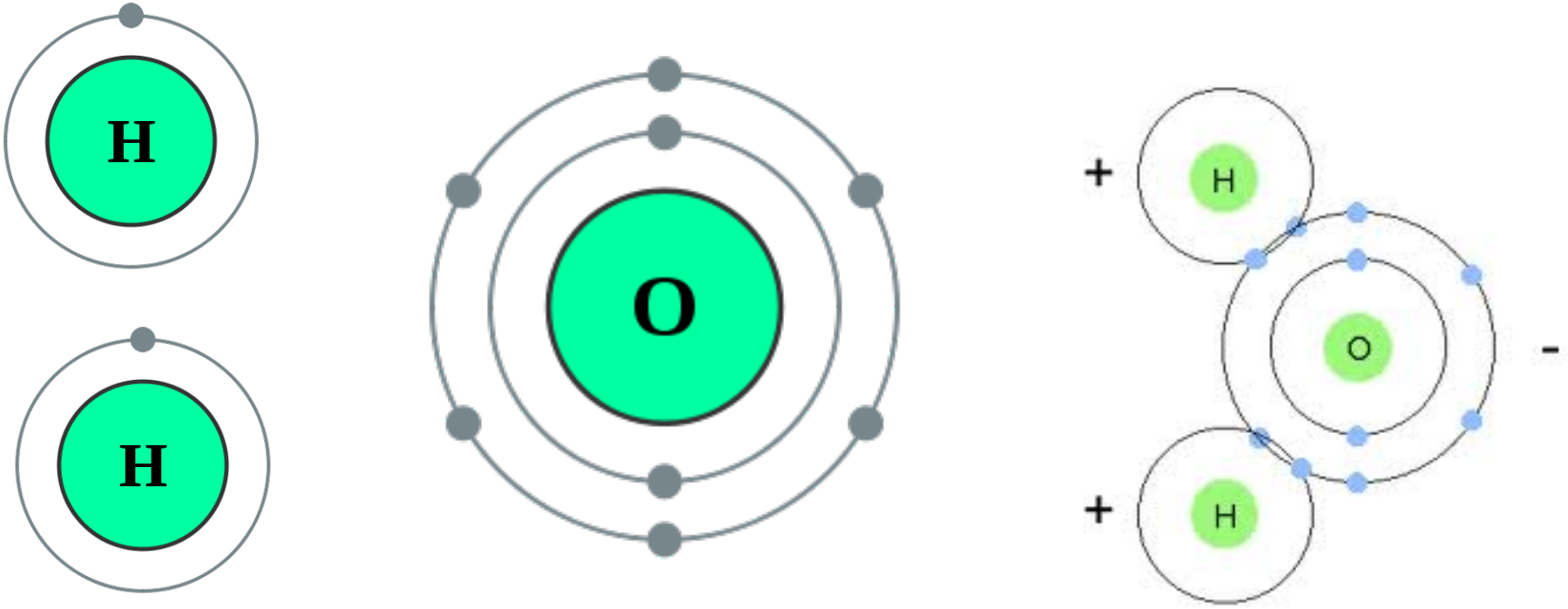
- If the valence shell of an atom is full, it is stable and does not react easily with other atoms
- Unstable atoms react with other atoms to become stable.





Covalent Bond

- Formed when two atoms share an electron
- Weaker than ionic bonds

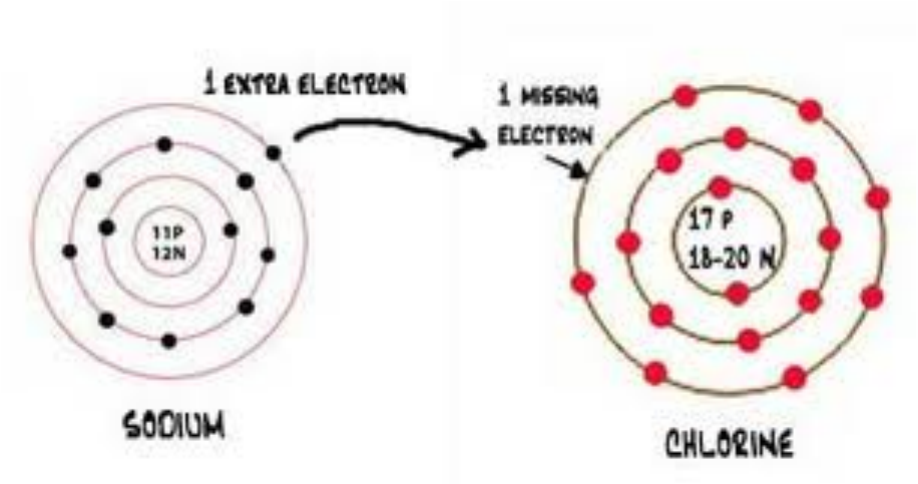


Examples of Covalent Bonds

- Carbon dioxide – CO_2
- Water - H_2O
- Methane - CH_4
- Hydrogen molecule – H_2

Ionic Bonds

- When one atom loses an electron to another atom, the losing atom becomes a positive ion and the gaining atom becomes a negative ion and the two atoms are bonded by attraction.



Examples of Ionic Bonds

- Salt – NaCl
- Magnesium Oxide – MgO
- Calcium Chloride – CaCl
- Sodium Fluoride – NaFl