

Lab - Lewis Electron Dot Models

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A chemical bond is a strong attractive force between atoms or ions in a compound. Electrons in the outermost orbitals, s and p, are involved in chemical bonding. The type of atoms involved determines the type of bond.

This has everything to do with ELECTRONEGATIVITY!

Ionic bond – transfer electrons and create charge as one atom gains electrons and the other atom loses

Covalent bond- shared electrons to achieve noble gas configuration

- Non polar covalent – shared electrons equally
- Polar covalent- unequal sharing of electrons

*The group number = the number of valance electrons for the representative elements (IA – VIIA)

A Lewis dot diagram- DOTS = #OF VALANCE ELECTRONS

Example:

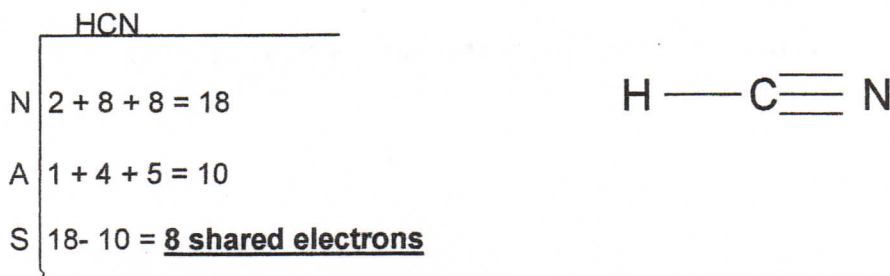
- K group IA = 1 dot; 1 valance electron
- Br group VIIA = 7 dots; 7 valance electrons

The atoms are trying to follow the octet rule to achieve stability and thus a noble gas configuration..... S^2P^6

In general:

1. Hydrogen- NO DOTS!!!
2. Follow the NAS step by step:
 - a. N= electrons needed to obtain full octet
(This equals 8! Exceptions are: H=2, Be=4, B=6)
 - b. A= valance electrons available OR actual (check out the group number)
 - c. S= N-A electrons shared
3. Draw the skeleton diagram. Put the least electronegative element in the center of the diagram (Never hydrogen)

Example: HCN



electrons (4 bonds), and nitrogen is stable with 8 electrons (3 bonds and 1 unshared lone pair of

electrons)