



Covalent Bonds


Mrs. Cronin

Sycamore Canyon School

02/24/2020



Today you will need

- A copy of a periodic table out.
 - 2 different colors (of pencil or pen).
- 



“What do I Write Down for Notes”?

□ Please write down the items underlined and draw the examples shown.



Today's Goals

- You will be able to:
 - Describe a covalent bond in terms of electron sharing and types atoms involved.
 - Determine the number of bonds formed in an covalent compound.
 - Compare and contrast ionic and covalent bonds.

What is a Covalent Bond?

- Atoms could become more stable* by sharing electrons.
- **Remember: Stable = full set of valence electrons.*
- A covalent bond is formed when **electrons are shared** between **non-metal** atoms.
These non-metal atoms could be 2 atoms of the same element!



How Bonds are Formed?

The # of covalent bonds formed
=
the # of electrons needed for
each element to have a full set of
valence electrons.

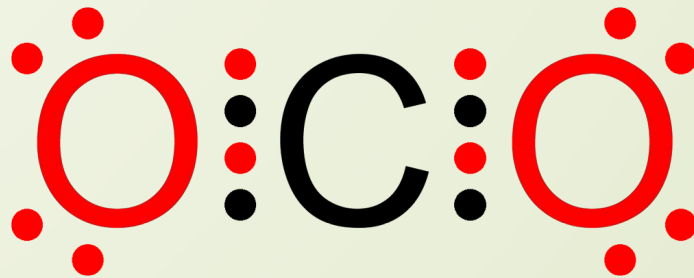


Examples

- Covalent bonding in water and Ammonia
- Please look at the front board and write down the example after I'm done explaining it 😊

Double Bonds

- Double Bond = When 2 atoms share two pairs of electrons
- Example: Carbon and 2 oxygens (Carbon Dioxide)



Count the number of valence electrons for each element...now they have 8 valence electrons each.

Triple Bond

- Triple bonds: When atoms share three pairs of electrons.
- Example: Two nitrogen atoms



Count the number of valence electrons for each element...now they have 8 valence electrons each.

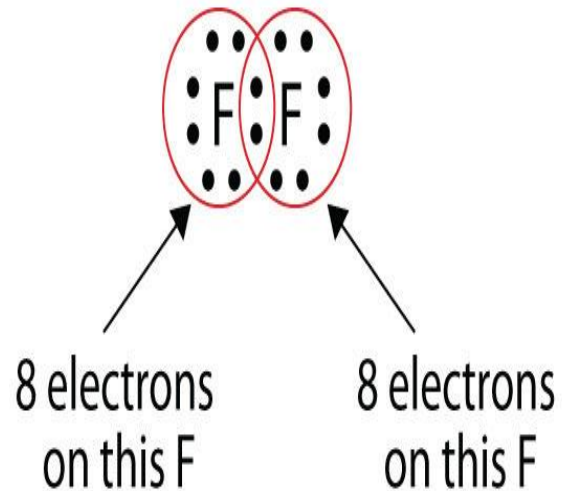


Properties of Covalent Compounds

- Lower melting points and boiling point:
 - The forces holding the atoms together are less strong in covalent compounds than in ionic compounds
- Do not conduct electricity.
 - There are no free floating particles.
- Electrons are shared between atoms, but some atoms pull the electrons closer to their nucleus.
 - This pull causes a slight electrical charges in covalent compounds.

Non-Polar Bonds

- Recall that in covalent bonds, one atom may pull the shared electrons more than the other atom.
- Non-Polar bonds: A covalent bond in which electrons are shared equally.
 - Example: Fluorine Molecule.



Polar Bonds

- Polar bond: A covalent bond in which electrons are shared **un**equally.
- Example: Hydrogen Fluoride Molecule





Naming Covalent Compounds

- Use prefixes to show the number of atoms present. Exception is the first element...if its only one of that element, you just say element's name for the first element.
- Examples:
 - Carbon Monoxide (CO)...NOT Monocarbon Monoxide
 - Carbon Dioxide (CO₂)...NOT Monocarbon Dioxide



Your Task – Due Tomorrow (use notes from today and Feb 5)

- Complete a table, comparing ionic and covalent bonds in terms of:
 - Loss/Gain/Sharing of electrons
 - Types of atoms involved
 - Characteristics
 - Naming
- At least one example for each type of compound (ionic and covalent) with Lewis dots