

LET'S BOND

Chemical Bonding Notes

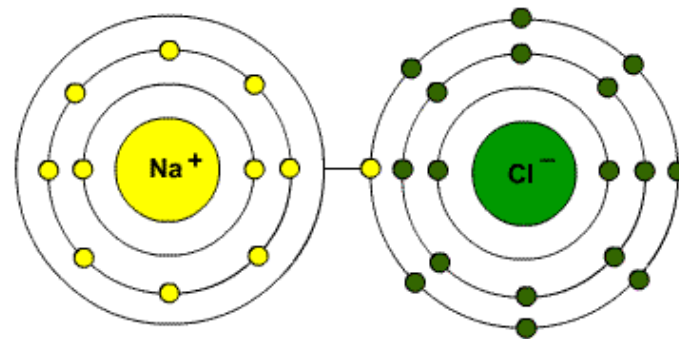
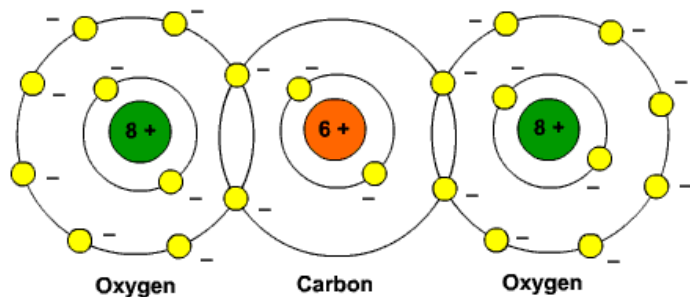
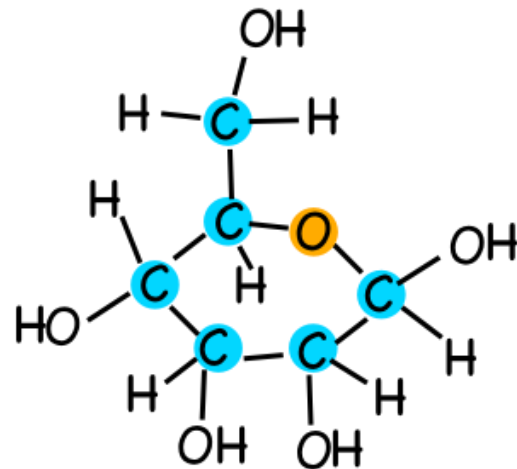
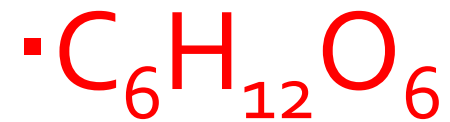
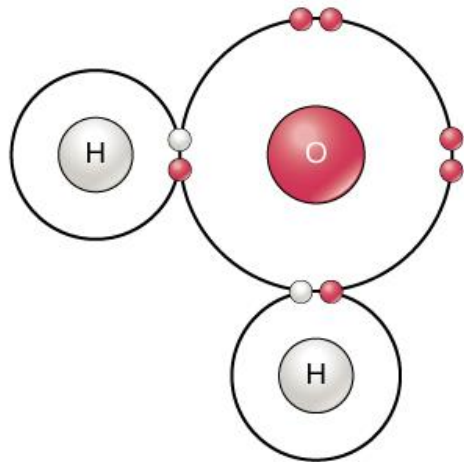
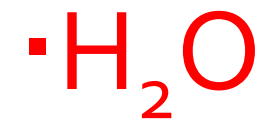
IONS- WHEN AN ATOM ISN'T NEUTRAL

- **An ion** is an atom that has a charge
- When an atom has **different** numbers of Protons (+) and Electrons (-) it has a positive or negative charge and is considered an ion
- An atom with more protons than electrons is a **positive ion**
- An atom with more electrons than protons is a **negative ion**

CHEMICAL BONDING

- Just like the 26 letters of the alphabet combine to form words, the 118 elements combine to form compounds
- A compound is formed when 2 or more elements chemically combine (go through a chemical change)

EXAMPLES OF COMPOUNDS



CHEMICAL BONDING

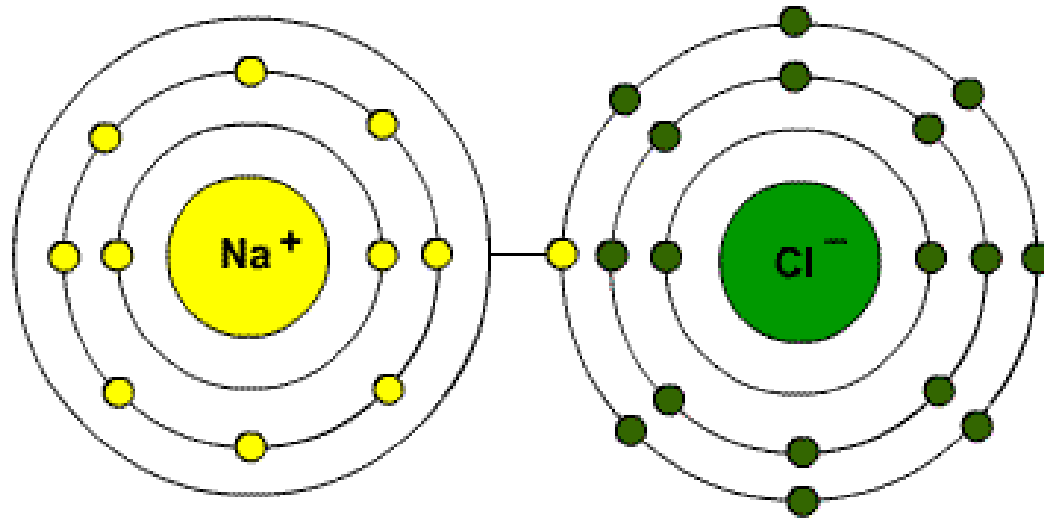
- Atoms chemically bond in an attempt to feel stable like noble gasses
- They do this by
 - Filling their valence shells OR
 - Getting rid of their electrons in their valence shell

WHO WANTS TO BE A NOBLE GAS?

- Every atom!
- Since all atoms want to resemble noble gasses they have a few options, go up or down
- Atoms with few valence electrons may lose electrons in order to go backwards

WHO WANTS TO BE A NOBLE GAS

- Losing one or two electrons means they will have an empty outer shell



- The atom that loses electrons becomes **positive**
- The atom that gains electrons becomes **negative**

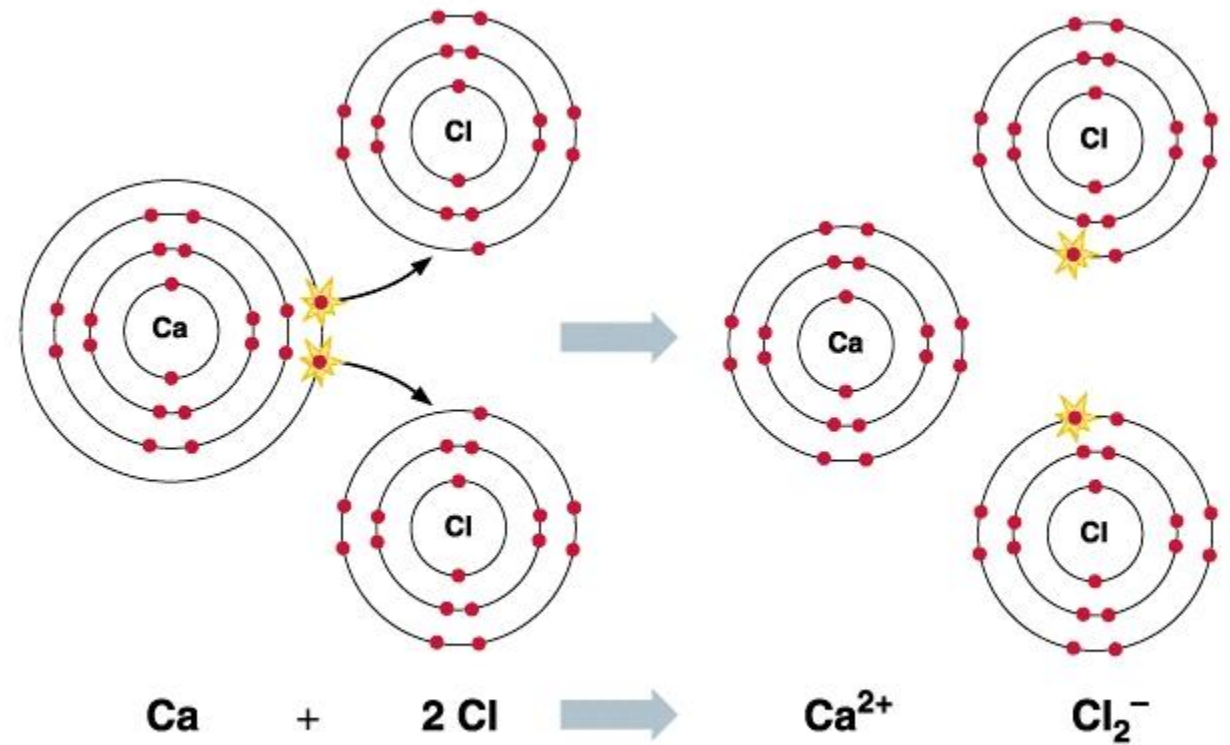
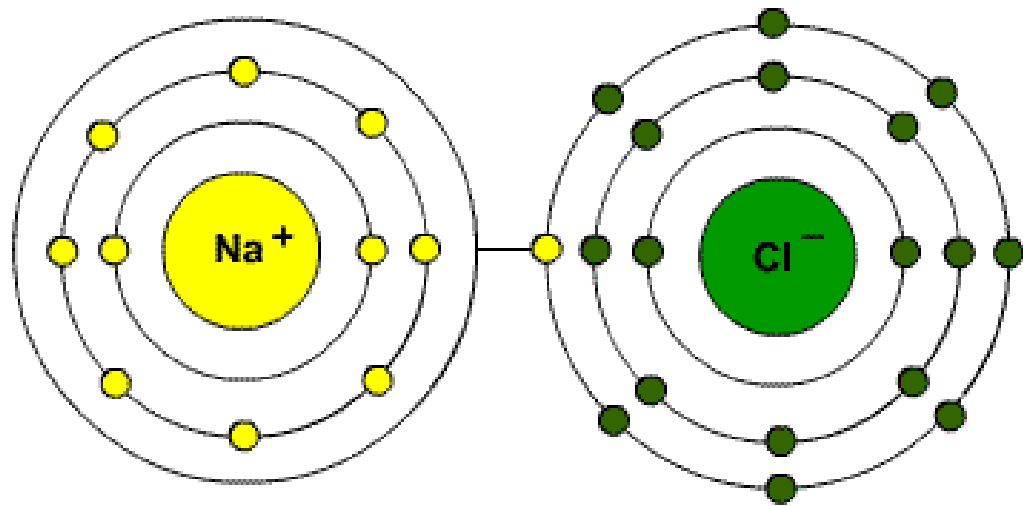
IONIC BONDING- LOSE AN ELECTRON

- When an atom transfers an electron to another atom in order to become more stable the atoms form an Ionic Bond
- Number of electrons **lost** must be equal to the number of electrons **gained**

IONIC BONDING- LOSE AN ELECTRON

- In Ionic Bonds **metals LOSE** electrons and **nonmetals GAIN** electrons
- The atoms in an ionic compound are held together by **strong attractions** of positive and negative **ions**

IONIC BOND EXAMPLES



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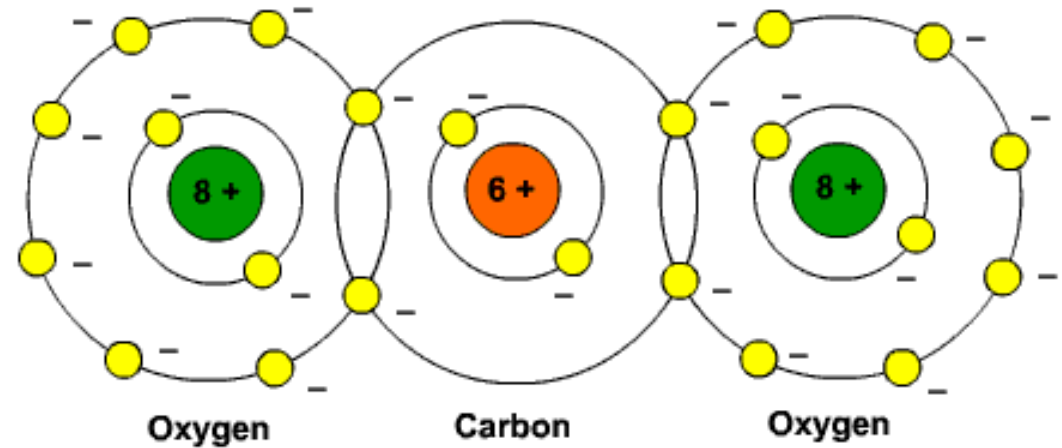
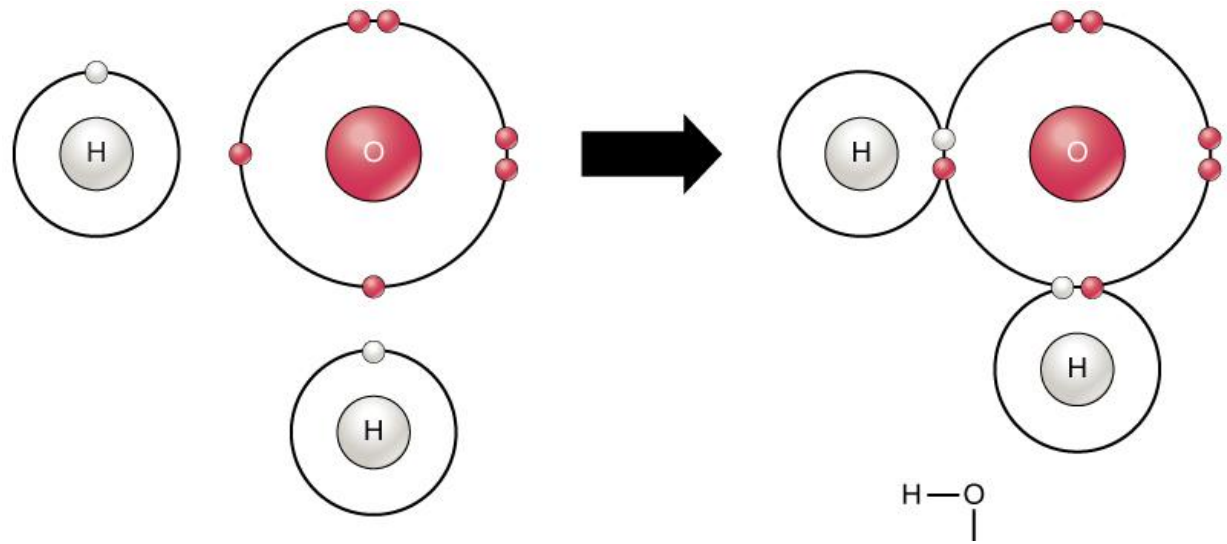
PROPERTIES OF IONIC BONDS

- Great conductors of electricity when dissolved in water
- Have high melting points
- Most are **solids** at room temperature

COVALENT BONDING- SHARING AN ELECTRON

- Covalent bonds are formed when two or more atoms share electrons
- Occurs between two or more non-metals
- A molecule is an individual group of covalently bonded atoms.
 - Ex. Two hydrogen atoms bond with one oxygen atom to form one water **molecule**

COVALENT BOND EXAMPLES



PROPERTIES OF COVALENT BONDS

- Poor conductors of electricity
- Have **low** melting points
- Mostly liquids and gases at room temperature (any that ARE solid feel like plastic)