Chemical Bonds

16.1

Your paper should look like this…

	Chemical Bonds
Covalent Bond	
Ionic Bond	
Why bonds Form	
Valence e-	

	Chemical Bonds
Valence e- Cont…	
Lewis dot diagrams	
You Try	
16.1 Pg. 360	

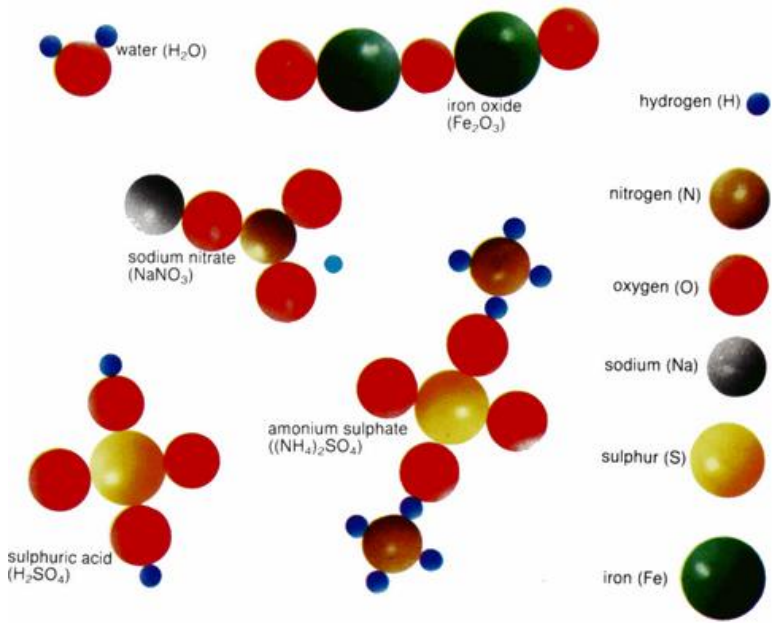
Thought…

Does most of matter exist as pure elements?

NO, most matter exists as compounds/molecules.

Why?

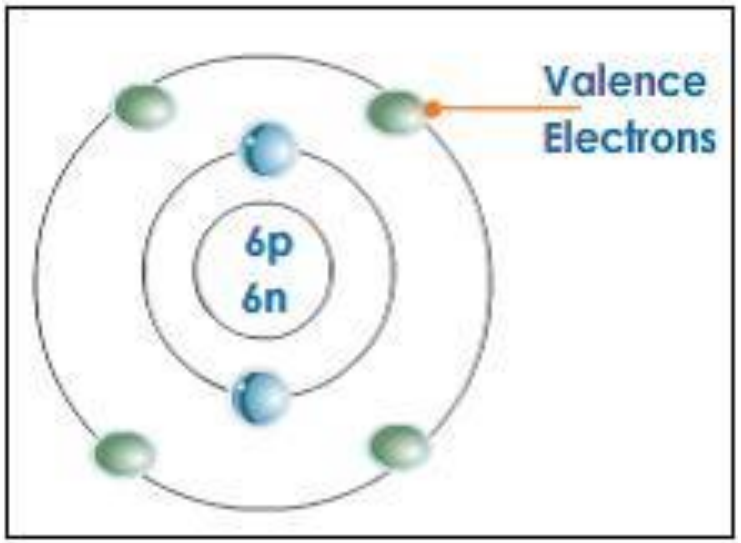
B/c most elements are chemically unstable & want to form molecules to fill outer e-shells



Concept Check

What kinds of electrons are involved in chemical bonding and chemical reactions?

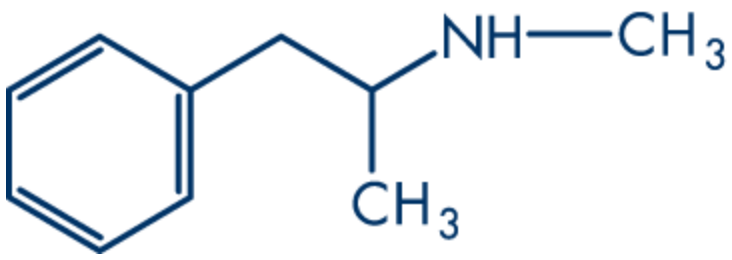
VALENCE ELECTRONS

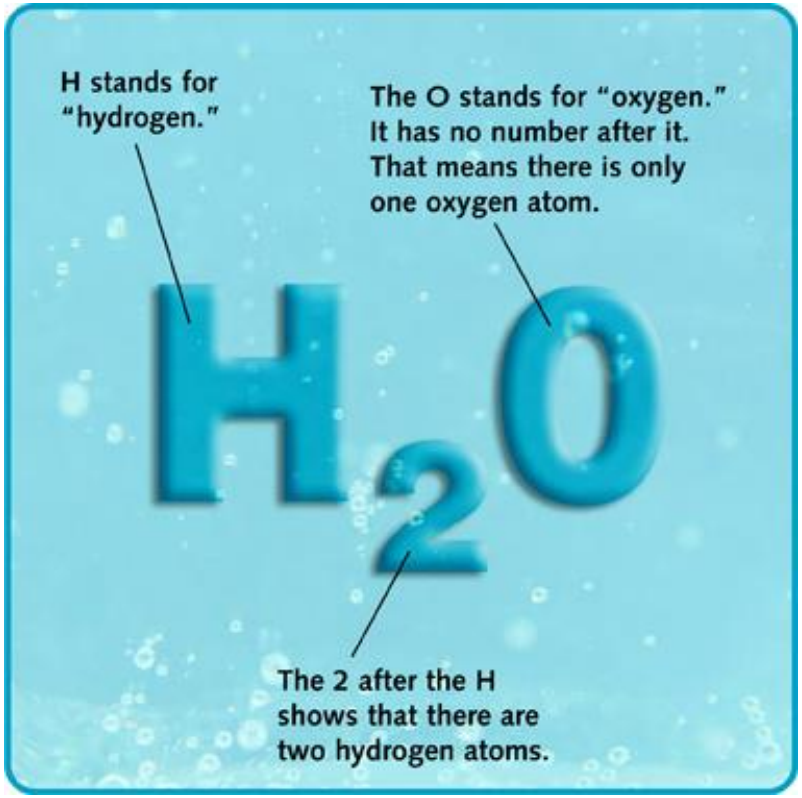


Concept Check: Chemical Formulas

How many atoms of each element are there in this chemical compound?

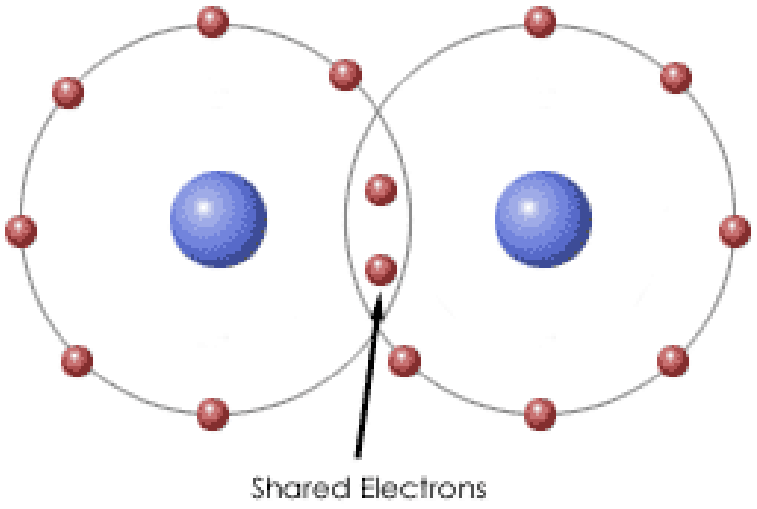
$C_{10}H_{15}N$

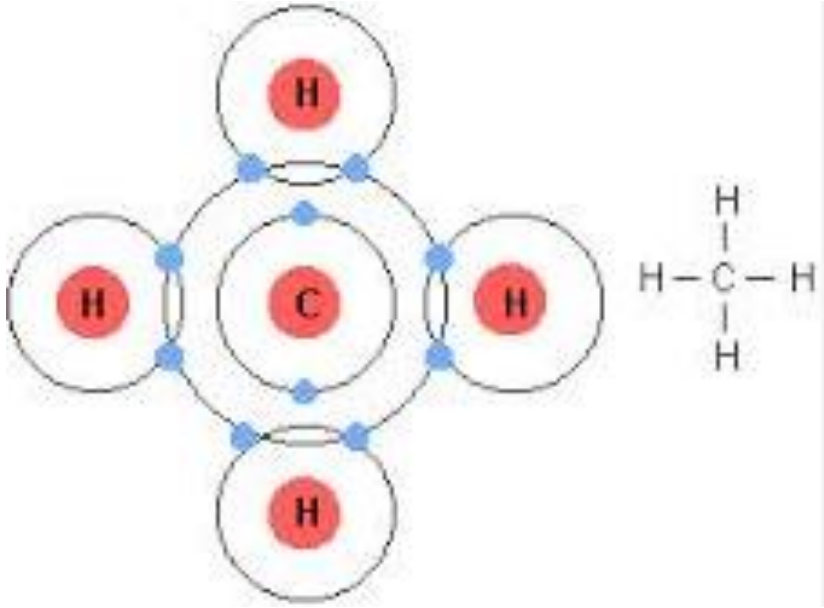




Covalent Bond

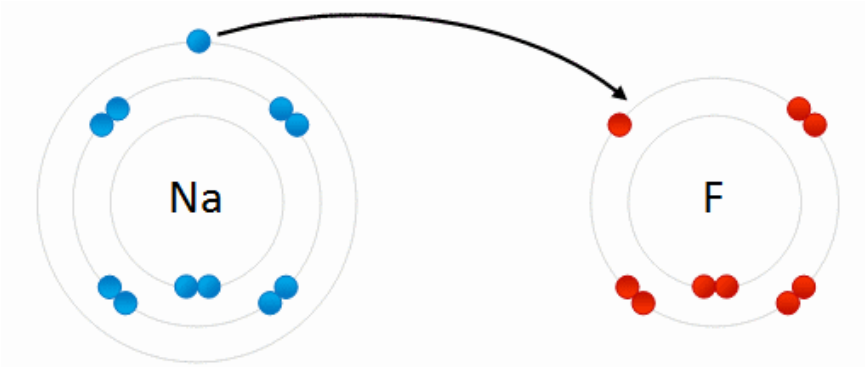
- Chemical Bond: forms when atoms transfer or share e-’s
- Covalent Bond: forms when atoms share e-’s
- Molecule formed!

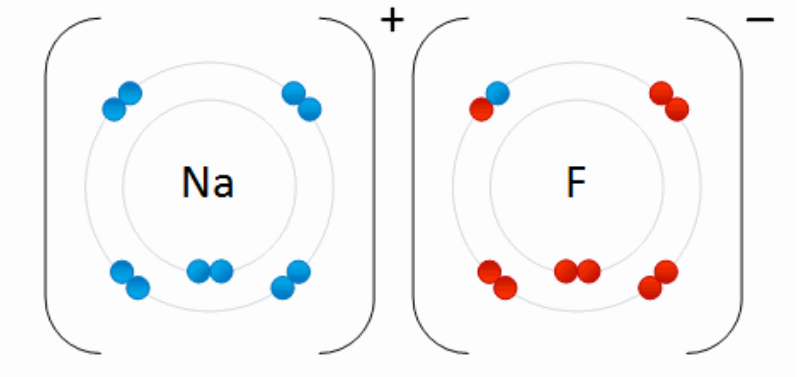




Ionic Bond

- Ion: an electrically charged atom, created by gaining or losing e-
- Ionic Bond: bond that transfers one or more e- from 1 atom to another, resulting in (+) and (-) attraction
- Molecule NOT formed!

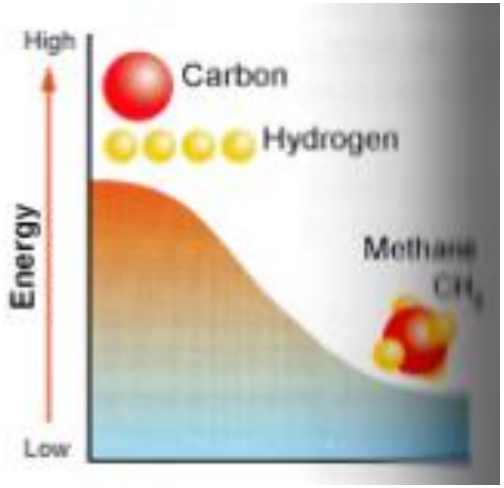


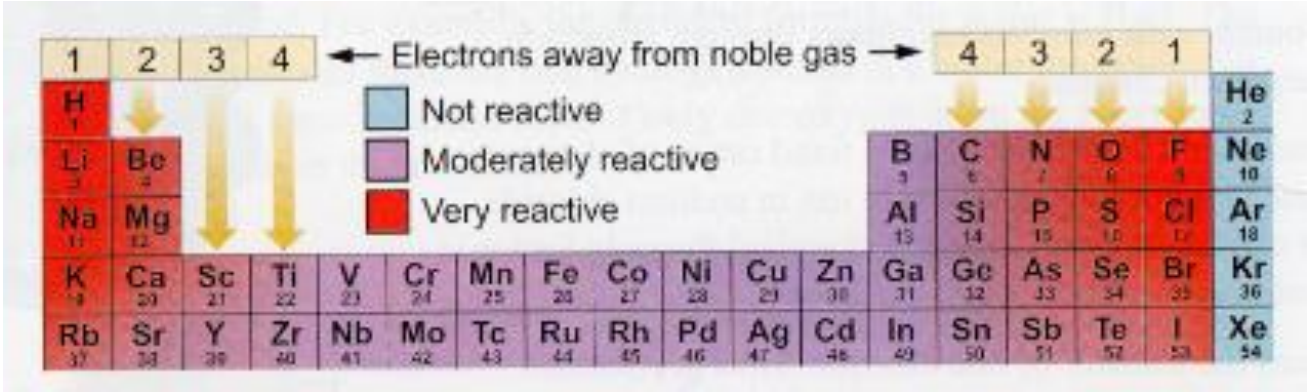


Dogs Teaching Chemistry – Chemical bonds

Why Chemical Bonds Form

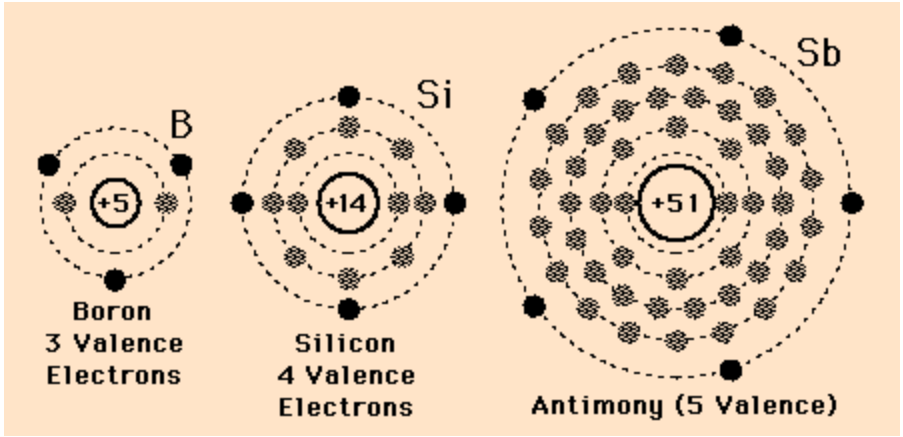
- Atoms form bonds to reach a lower energy state
- Energy is released when a bond forms
- Reactive: how likely an atom is to form a chemical bond
- The closer an element is to having the same # of e-'s as a noble gas, the more reactive it is.

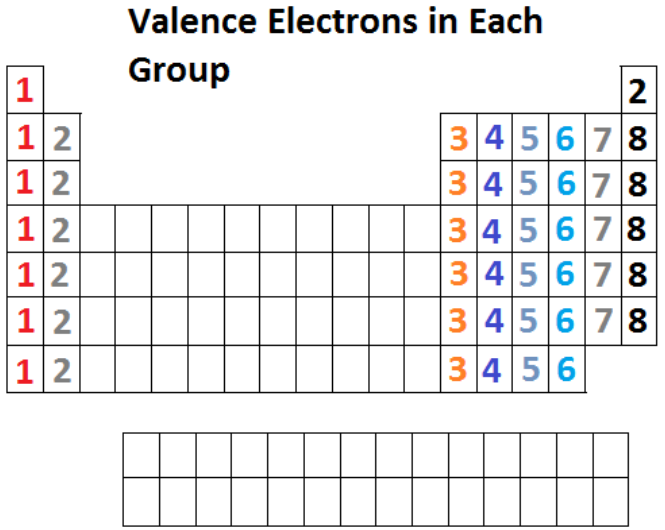




Valence Electrons

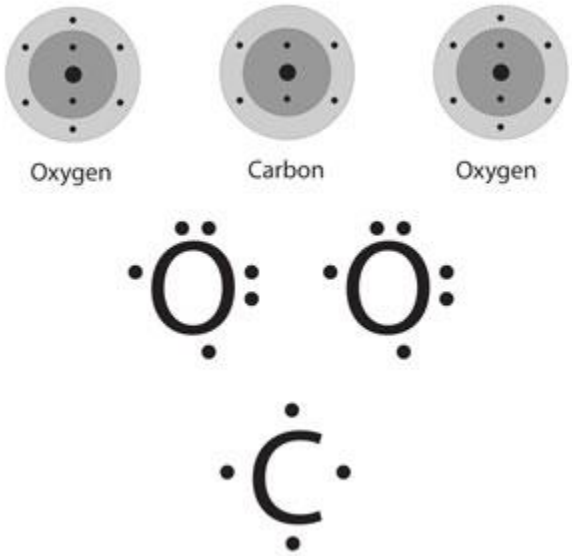
- The outer shell electrons
- Provide all “rules” for determining what elements combine and in what ratios
- <u>The Octet Rule</u>: 8 VE = happy

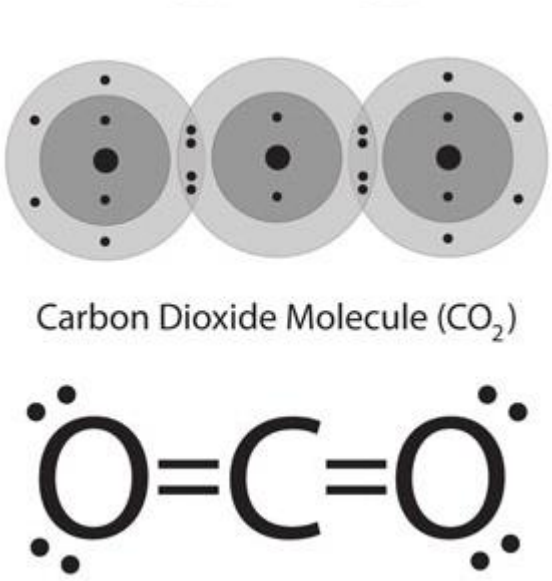




Valence Electrons

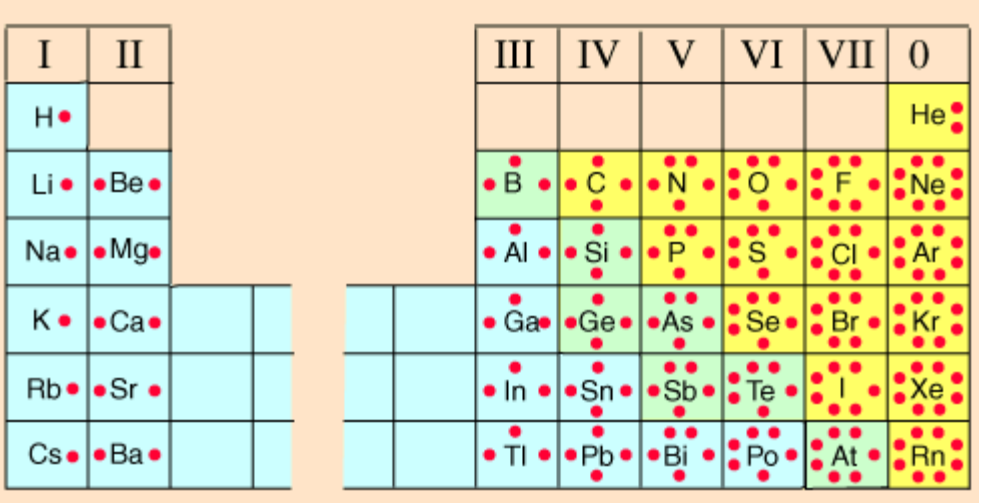
- Oxygen has ___ VE, and wants ___ e- to = 8
- Single bonds share ___ e- from each atom
- Double bonds share ___ e- from each atom



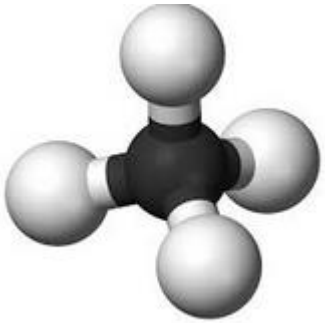


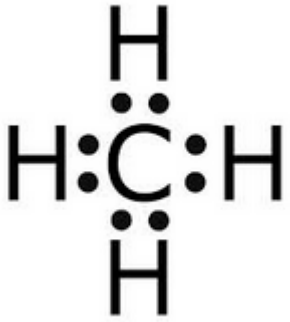
Lewis Dot Diagrams

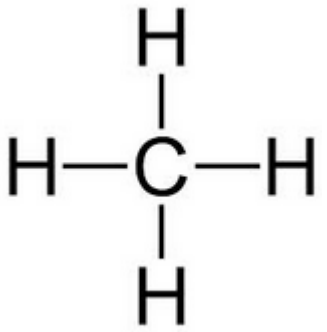
- A method for representing VE's using dots
- A dash (-) is equal to 2 shared e-
- These are all the same



CH_4

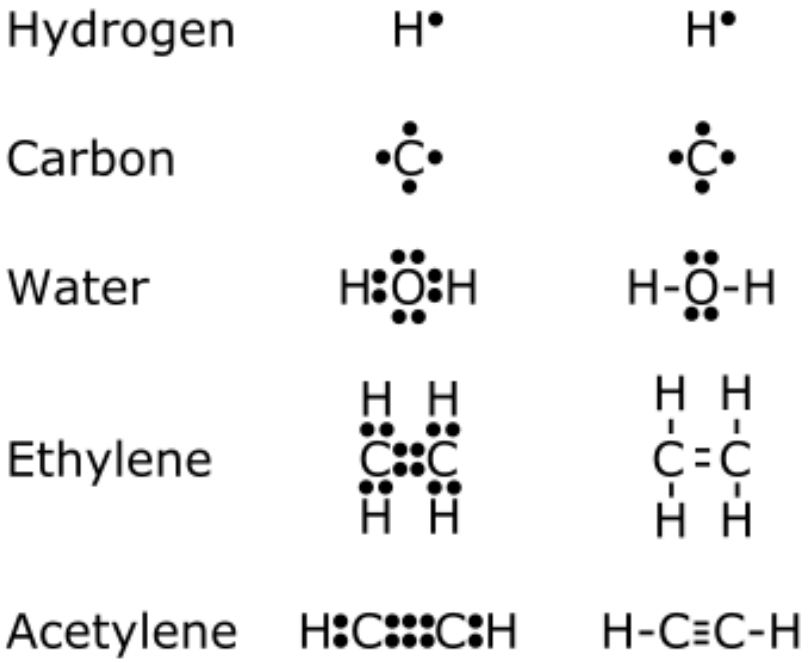






Lewis Dot Diagrams

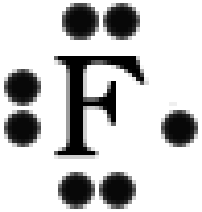
- You should be able to draw Lewis dot structures.
- Hints
  - H wants 2 e-, everything above B wants 8 e-.
  - Carbon is often the "backbone"



You Try

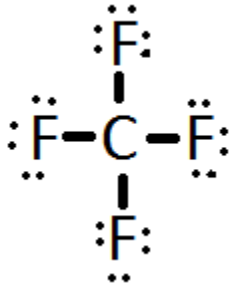
Draw Lewis Dot Structures:

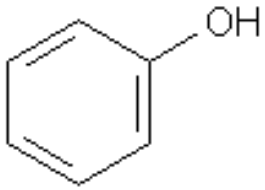
F



F_2

CF_4





phenol

Bill Nye- Chemical Reactions