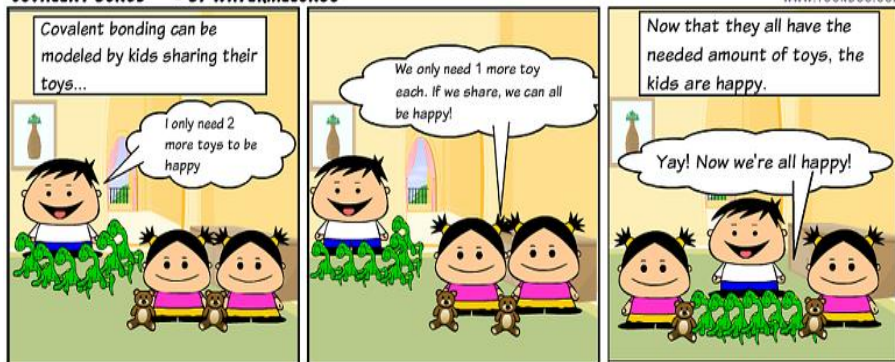


# Chemical Bonding (Ionic, Covalent and Metallic)

COVALENT BONDS - BY WATERMELON56

WWW.TOONDOO.COM



Name \_\_\_\_\_

Test Date \_\_\_\_\_

\_\_\_\_\_ is the attraction between the nucleus and valence electrons of different elements.

Atoms bond to become more \_\_\_\_\_ !

What are the 3 bond types

- 1)
- 2)
- 3)

## Ionic Bonding

Definition	Role of the Electrons	Example

The simplest combining ratio of ions in a compound that does not exist independently is called a \_\_\_\_\_.

Dot Diagrams for Ionic Compounds

Ex: NaCl

Ex 2: CaBr<sub>2</sub>

Determining the formula unit (Remember that the compound is neutral)

Potassium and Fluorine

Calcium and Iodine

Magnesium and Nitrogen

Define crystal lattice:

Define lattice energy:

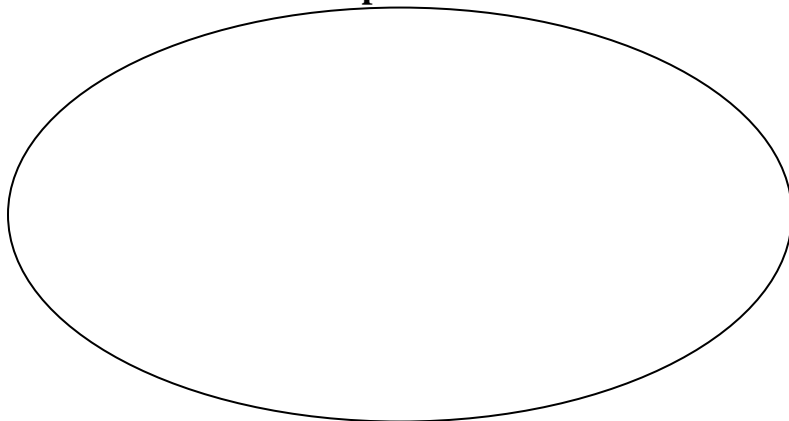
## Properties of Ionic Compounds



## Metallic Bonding

Definition	Role of the Electrons	Example

## Properties of Metallic Compounds







c. CO<sub>2</sub>

d. N<sub>2</sub>

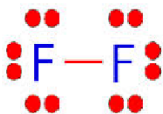
**Define these:**

**Bond Length:** \_\_\_\_\_  
\_\_\_\_\_

**Bond Angle:** \_\_\_\_\_  
\_\_\_\_\_

**Bond Strength:** \_\_\_\_\_  
\_\_\_\_\_

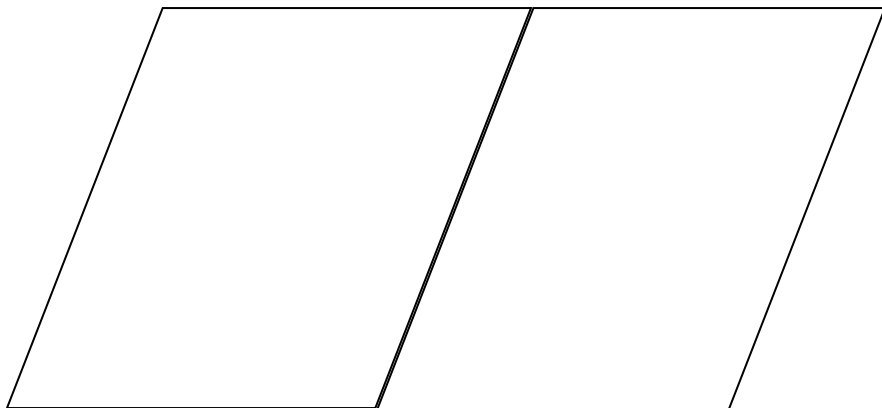
What is the relationship between bond length and bond strength?



\*The rule that states that each element wants 8 electrons in the outer energy level to be stable is called the \_\_\_\_\_.

The following elements are exceptions to this rule:

Other Types of Covalent Bonds:



## Molecular Polarity

equal sharing of electrons between atoms in a compound, no positive or negative poles exist \_\_\_\_\_

unequal sharing of electrons within a molecule positive and negative ends exist \_\_\_\_\_

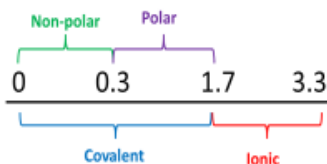
**Memorize this Diagram!!**

**Try It:**

Determine the BOND Polarity:

Answers:

- |    |    |
|----|----|
| 1) | 5) |
| 2) | 6) |
| 3) | 7) |
| 4) | 8) |



## Molecular Geometry (Shapes)

VSPER \_\_\_\_\_

\*\*\*\*The five shapes you need to know are...\*\*\*\*

Name	How to identify?	Drawing

Examples:



## Molecular Polarity

Polar molecule:

Molecular polarity:

What does Polarity Depend upon?

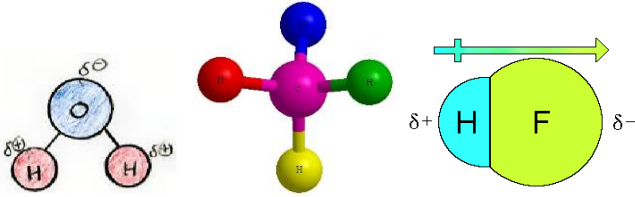
1)

2)

3)



Polar or non-polar?



Think about it: Review Questions for studying on your own

- 1) What shapes are ALWAYS polar molecules?
- 2) What guarantees that a compound will be polar?

Helpful hints:

## Intermolecular Forces

The glue that holds the compounds together

The 3 intermolecular forces are

- 1)
- 2)
- 3)

Type	Definition	Example Compound

Try it!

- $\text{H}_2\text{O}$
  
- $\text{SCl}_2$
  
- $\text{PF}_3$

Relating properties to IMF's:

1. Stronger bonds/imf's  $\rightarrow$
2. Weaker bonds/imf's  $\rightarrow$
3. Solubility  $\rightarrow$