

# Chemistry Cycle Sheet

April 27, 2020 thru May 1, 2020

**Goals:** TLW recognize and determine intermolecular forces (IMFs). Introduction to Nomenclature.

**Monday:** Class @1:00 – 2:15 PM  
Intermolecular Forces

**Homework:** Do worksheet  
“Molecular Geometry II”

**Tuesday:** No meeting. Watch Videos

**Homework:** Do worksheet  
“Intermolecular Forces”

**Wednesday:** No Meeting. Watch Videos.

**Homework:** Do warm up #105 and #106

**Thursday:** Class @1:00 – 2:15 PM  
Polyatomic Ions and Nomenclature  
Checkup #82

**Homework:** Do warm up #107

**Friday:** No meeting. Watch Videos

**Homework:** Do warm up #108

## Vocabulary

<b>reactants</b>	exothermic	chemical reaction
<b>products</b>	endothermic	chemical equation
<b>catalyst</b>	<b>coefficients</b>	stoichiometry
kinetics	<b>mole</b>	activation energy
oxidation	molar mass	limiting reactant

## Know the following

the general rules for chemical bonds  
ionic and covalent bonds  
the properties of ionic, covalent and metal substances  
nonpolar and polar covalent bonds  
the driving force behind chemical bonding  
Lewis structural formulas  
determine the possible bonds  
predict the bond type



## Intermolecular Forces

Intermolecular forces (IMF's) refer to the attraction between the individual molecules or polyatomic ions of a substance.

### Types:

Ion-Ion  
Ion-Dipole

Van der Waals  
hydrogen bonds  
dipole-dipole  
dispersion forces

## Chemical Symbol

A symbolic representation of the elements.

Examples: gold Au  
silver Ag  
hydrogen H

## Chemical Formula

A symbolic representation of a chemical substance. It tells you the elements involved, how many atoms of each element and number of units.

**Examples:** NaOH is sodium hydroxide

## Keys to Chemical Formulas

The keys to writing and naming chemicals are learning to use the periodic table, knowing the polyatomic ions and knowing the

## Chemical Reaction

It's the process in which substances undergo physical and chemical changes to produce new substances.

## Binary Compound

A binary compound consists of two parts, usually a cation and an anion.

### Reactants

Reactants are the starting substances in a chemical reaction.

### Products

Products are the new substances formed in a chemical reaction.

### Polyatomic Ion

A covalently bonded group of atoms that act as a single ion.

### Relative Atomic Mass Unit

A relative atomic mass unit is 1/12 the mass of a carbon-12 atom.

H = 1 amu      C = 12 amu

### Avogadro's Number

Avogadro's number is the number of atoms in exactly 12.00 grams of carbon-12.

$N = 6.022 \times 10^{23}$

### Mole

A mole is an Avogadro's number of anything.

### Molar Mass

Molar mass is the mass of one mole of a substance in grams.

H = 1.01 grams      C = 12.01 grams

### Mole Ratio

$\frac{6.022 \times 10^{23} \text{ particles}}{1 \text{ mole of particles}}$

### Chemical Equation

A symbolic description of a chemical reaction.

$\text{NaOH} + \text{HCl} \rightarrow \text{HOH} + \text{NaCl}$   
reactants                                  products

### 7 Diatomic Elements

hydrogen	H <sub>2</sub>	chlorine	Cl <sub>2</sub>
nitrogen	N <sub>2</sub>	bromine	Br <sub>2</sub>
oxygen	O <sub>2</sub>	iodine	I <sub>2</sub>
fluorine	F <sub>2</sub>		

### Checkup #82

Draw the Lewis structures, determine the molecular shape, polarity and main IMF.

1. NH<sub>3</sub>

2. H<sub>2</sub>O

shape: \_\_\_\_\_

shape: \_\_\_\_\_

polarity: \_\_\_\_\_

polarity: \_\_\_\_\_

IMF: \_\_\_\_\_

IMF: \_\_\_\_\_

3. SF<sub>2</sub>

4. CO<sub>2</sub>

shape: \_\_\_\_\_

shape: \_\_\_\_\_

polarity: \_\_\_\_\_

polarity: \_\_\_\_\_

IMF: \_\_\_\_\_

IMF: \_\_\_\_\_

### Checkup #83

Answer the following with complete thoughts and complete sentences.

1. Why is the C=O bond shorter than the C-O bond?

\_\_\_\_\_  
\_\_\_\_\_

2. Describe how would it be possible to tell ionic compounds from covalent compounds?

\_\_\_\_\_  
\_\_\_\_\_