

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

| | | |
|------------------|---------------------|-------------------|
| reactants | exothermic | chemical reaction |
| products | endothermic | chemical equation |
| catalyst | coefficients | stoichiometry |
| kinetics | mole | 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.

NaOH + HCl \rightarrow HOH + NaCl
reactants products

7 Diatomic Elements

| | | | |
|----------|----------------|----------|-----------------|
| hydrogen | H ₂ | chlorine | Cl ₂ |
| nitrogen | N ₂ | bromine | Br ₂ |
| oxygen | O ₂ | iodine | I ₂ |
| fluorine | F ₂ | | |

Checkup #82

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

1. NH₃

2. H₂O

shape: _____

shape: _____

polarity: _____

polarity: _____

IMF: _____

IMF: _____

3. SF₂

4. CO₂

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?

