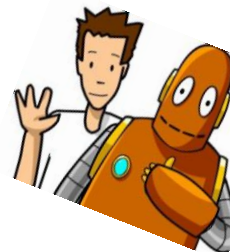


Mixtures, Solutions, Elements, & Compounds NOTES

I. CLASSES of Matter

- A. _____
- B. _____
- C. _____
- D. _____



II. Mixtures

A. **Definition:** Matter that consists of _____ substances mixed together but _____ chemically combined.

A _____ of substances.

Ex: _____

B. Types of Mixtures

1. _____ **mixture:** Substance that does **not** appear to be the same throughout. “_____ mixed”

Ex: concrete, oil and vinegar, granite



2. _____ **mixture:** mixture that appears the same throughout. “_____ mixed”

Ex: _____

_____ : a type of _____ mixture where particles are mixed together but _____ dissolved. Will _____ separate upon standing.



Types of Colloids	
Name	Example
Fog (l,g)	Clouds
Smoke (s,g)	Smoke
Foam (g,l)	Whipped Cream
Emulsion (l,l)	Mayonnaise
Sol (s,l)	Paint
Gel (l,s)	Butter



III. _____

A. **Definition:** a type of _____ mixture formed when 1 substance _____ in another. “_____ mixed” of all mixtures.



Ex: Ocean, Antifreeze, Lemonade, Tea, Air (O₂ + other gas in N₂)

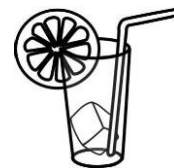
* _____ - the substance that is *dissolved*.

* _____ - the substance that does the *dissolving*.



***universal solvent*= _____

Lemonade= _____ + _____ **dissolved by** _____



B. Solubility

1. Definition: The **amount** of a _____ that can be **completely dissolved** in a given amount of _____ at a **specific temperature**.

**solid solute* with *liquid solvent* → ___ temperature = ___ solubility

**gaseous solutes* → ___ temperature = ___ solubility

2. _____ - can be dissolved in another substance; usually H₂O

Ex: _____ are soluble in H₂O

3. _____ - cannot be dissolved in another substance; usually H₂O

Ex: a _____ in a glass of water.



C. _____ - metal solutions in which a _____ is dissolved into a _____.

Ex: _____ = copper + zinc

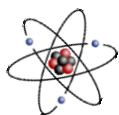
_____ = copper + silver

_____ = gold + copper

_____ = copper + tin



IV. _____ - the simplest type of pure substance made up of only ___ type of material with definite properties.



A. _____ - the _____ particle of an element; building block of elements.

B. _____ are 1 or 2 letters used to abbreviate an element.

C. Some chemical symbols are not made from the English word, but from its _____ origin.

Ex: Gold= _____ = aurum

Silver= _____ = argentum

Tin= _____ = stannum

Iron= _____ = ferrum

Mercury= _____ = hydrargyrum



V. _____ : a substance made from 2 or more **elements** chemically combined.

Ex: TNT, H₂O made up of hydrogen (2) & Oxygen (1) atoms

- A. The properties of a compound are **different** than the properties of the elements that make up the compound.

Ex: Cl - poisonous gas



Na - silvery metal; when mixed with water explosive.



*NaCl - _____



- B. Most compounds are made of molecules.

Molecule: 2 or more **atoms** chemically combined together. It is the *smallest part* of a *compound* that has all of the properties of that compound.

Ex: O₂ = molecule NaCl = _____ Na = _____
Li = _____ Br₂ = _____ HCl = _____

VI. Chemical Formula

- A. Definition: combination of chemical _____ & _____ usually used to represent a chemical reaction.

Ex: _____

Answer these: NH₃ = elements- _____ AgNO₃ = elements- _____
of atoms- _____ # of atoms- _____

- B. _____ elements: elements that can exist as molecules in nature.

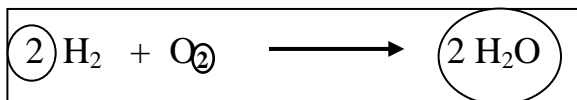
Oxygen- O₂ Fluorine- F₂ Bromine- Br₂ Iodine- I₂
Hydrogen- H₂ Chlorine- Cl₂ Nitrogen- N₂

*These are formulas (chemical symbol + number)

VII. Chemical Equations

- A. Definition: expression in which symbols, formulas, and numbers are used to represent a _____.

- B. **Parts of an equation:**

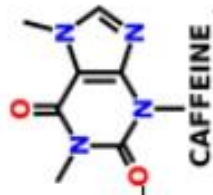


- C. Ex: Charcoal burning on the grill = carbon atoms combines with oxygen molecules in the air to form carbon dioxide. $\text{C} + \text{O}_2 \rightarrow \text{CO}_2$



- D. Law of Conservation of Mass: the mass of the _____ in a chemical reaction must _____ the mass of the _____. Therefore, chemical equations need to be _____!

NOTES: Properties of Mixtures, Elements & Compounds Chart



Mixtures	Elements	Compounds
Made up of more than one kind of molecule (elements, compounds, or both)	Made up of _____ kind of atom	Made up of more than one kind of _____
Can be separated by _____ means a. _____ b. _____ c. _____ d. _____	_____ be broken down by chemical means	_____ be broken down by chemical means a. _____ b. _____ c. _____ d. _____
Has same properties as substance making it up	Has same properties as atoms making it up	Has _____ properties from elements making it
Has _____ properties throughout	Has _____ properties throughout	Has _____ properties throughout