

Name: _____

SNC2D Chemistry Review

Draw the Bohr-Rutherford diagram for each of the following atoms and determine the valence charge of their ions:

Sodium:	Aluminum:
Sulfur:	Fluorine:

From your periodic table/chemistry cheat sheet, what is the valence of each of the following ions?

Potassium _____

Oxide _____

Iron (III) _____

Phosphorus _____

Carbonate _____

Ammonium _____

Chloride _____

Silver _____

Hydroxide _____

Sulfate _____

Any alkali metal: _____

Any alkaline earth metal: _____

Any halogen: _____

Given the list below,

- Draw a wavy underline beneath those compounds that are acids. Name these compounds.
- Draw a circle around those compounds that are molecular. Name these compounds.
- Draw a double underline beneath those compounds that contain polyatomic ions and look up the formula and valence charge of the ion.
- Draw a star next to those compounds that contain multivalent metals. Determine the valence charge of the metal based on how it is combining with the negative ion. Name these compounds.
- Name all remaining compounds.

Al(OH)_3 _____

Fe_2O_3 _____

$\text{HBr}_{(\text{aq})}$ _____

Cu_3N_2 _____

NH_3 _____

NiSO_4 _____

AgNO_3 _____

Na_3P _____

CaS _____

$\text{H}_3\text{PO}_{4(\text{aq})}$ _____

SO_3 _____

AuCl_3 _____

PbF_4 _____

PBr_5 _____

NH_4NO_3 _____

OF_2 _____

P_2S_4 _____

ZnCl_2 _____

K_2SO_4 _____

CCl_4 _____

NaHCO_3 _____

$\text{C}_6\text{H}_{12}\text{O}_6$ _____

Diagram each of the following molecular compounds:

Carbon dioxide	
Carbon tetrafluoride	
Propane	

What makes each of the compounds organic? _____

Given the list below,

- Draw a wavy underline beneath those compounds that are acids. Write the formula for these.
- Draw a circle around those compounds that are molecular. Write the formula for these compounds.
- Draw a double underline beneath those compounds that contain polyatomic ions and look up the formula and valence charge of the ion.
- Draw a star next to those compounds that contain multivalent metals. Determine the valence charge of the metal based on how it is combining with the negative ion. Write the formula for these compounds.
- Write the formula for all remaining compounds.

calcium hydroxide _____

strontium nitride _____

sulfuric acid _____

methane _____

sodium hydroxide _____

calcium carbonate _____

beryllium phosphide _____

carbon monoxide _____

lead (II) nitrate _____

aluminum fluoride _____

lithium bicarbonate _____

copper (I) oxide _____

magnesium chloride _____

hydrogen peroxide _____

nitric acid _____

sulfur hexafluoride _____

potassium iodide _____

ammonium hydroxide _____

tin (II) sulfide _____

water _____

dinitrogen trioxide _____

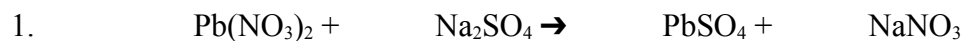
hydrochloric acid _____

What does the (aq) written beside the formula for an acid stand for? What does it mean?

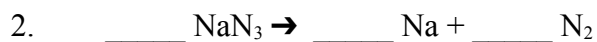
What are four differences between molecular and ionic compounds?

- _____
- _____
- _____
- _____

For each of the following skeleton chemical equations, write the word equation and balance the equation:



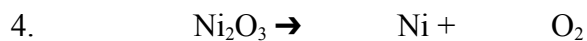
Word equation:



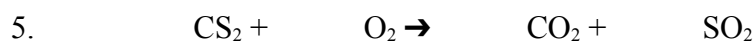
Word equation:



Word equation:

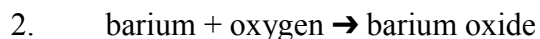
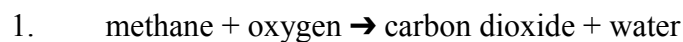


Word equation:



Word equation:

For each of the following word equations, write the balanced chemical equation:



What does balancing chemical equations have to do with the law of conservation of mass?

Identify the type (synthesis, decomposition, single displacement, double displacement, or combustion) of each of the following reactions:

magnesium + oxygen \rightarrow magnesium oxide Type: _____

copper (II) chloride + aluminum \rightarrow aluminum chloride + copper Type: _____

propane + oxygen \rightarrow carbon dioxide + water Type: _____

calcium carbonate \rightarrow calcium oxide + carbon dioxide Type: _____

sulfuric acid + sodium hydroxide \rightarrow sodium sulfate + water Type: _____

$\text{FeCl}_3 + \text{Mg} \rightarrow \text{MgCl}_2 + \text{Fe}$ Type: _____

$\text{NaN}_3 \rightarrow \text{Na} + \text{N}_2$ Type: _____

$\text{Mg}(\text{OH})_2 + \text{AgNO}_3 \rightarrow \text{Mg}(\text{NO}_3)_2 + \text{AgOH}$ Type: _____

$\text{H}_2 + \text{O}_2 \rightarrow \text{H}_2\text{O}$ Type: _____

$\text{CH}_4 + \text{O}_2 \rightarrow \text{CO}_2 + \text{H}_2\text{O}$ Type: _____

Predict the products of each of the following reactions:

magnesium + nitrogen \rightarrow _____ (synthesis)

strontium hydroxide + lead (II) bromide \rightarrow _____ + _____

aluminum iodide + bromine \rightarrow _____ + _____

hydrochloric acid + sodium hydroxide \rightarrow _____ + _____

glucose + oxygen \rightarrow _____ + _____

$\text{Li} + \text{O}_2 \rightarrow$ _____ (synthesis)

$\text{NaCl} \rightarrow$ _____ + _____ (decomposition)

$\text{K}_2\text{SO}_4 + \text{Al} \rightarrow$ _____ + _____

$\text{CaBr}_2 + \text{Ba}(\text{NO}_3)_2 \rightarrow$ _____ + _____

$\text{C}_4\text{H}_{10} + \text{O}_2 \rightarrow$ _____ + _____

One of the reactions above is the reaction for cellular respiration. Which one?

The opposite reaction is called _____.

Which of the following compounds are acids, which are bases, and which are neutral when in solution?

KOH	_____	H ₂ SO ₄	_____
Pb(NO ₃) ₂	_____	NaI	_____
HNO ₃	_____	NaOH	_____
Cu ₂ SO ₄	_____	H ₂ O	_____
HF	_____	AlCl ₃	_____
NH ₃	_____	NaHCO ₃	_____

Which oxides form acids and which form bases when reacted with water?

Al ₂ O ₃	_____	CO ₂	_____
SO ₃	_____	Li ₂ O	_____
N ₂ O	_____	MgO	_____

Predict the product of the following reaction and balance the equation:



Neutral solutions have a pH of _____.

Acidic solutions have a pH of _____.

Alkaline solutions have a pH of _____.

Would a solution with a pH of 1 be acidic or alkaline? Weak or strong? _____

Would a solution with a pH of 8 be acidic or alkaline? Weak or strong? _____

What is a neutralization reaction? _____

Give an example of a neutralization reaction:

Give an example of a practical use of a neutralization reaction: _____