

Name: _____

Period: _____

Test Review

35

1. Products 2. Exothermic 3. Physical change 4. Chemical reaction 5. Endothermic 6. Reactants	A. Chemicals are mixed and get hot. B. The chemicals before the reaction. C. When chemical bonds are broken and new substances are formed. D. A chemical reaction that gets cold. E. The result of a chemical reaction. F. No new chemicals are formed.	1. Coefficient 2. Wafting 3. Ammonia 4. Arrow 5. Precipitate 6. Subscript	A. Correct way to smell chemicals B. Tells you the number of molecules. C. Should never be combined with Chlorine bleach. D. Means "produces" or "creates". E. Tells you the number of atoms in a chemical formula. F. When a liquid turns cloudy. Means a solid was formed.
--	--	--	---

Endothermic or Exothermic Reaction?

- ___ Two chemicals are mixed and get hot?
 ___ Heat goes into the reaction?
 ___ An activated cold pack?
 ___ Two chemicals are mixed and get cold?
 ___ Combustion?
 ___ Heat comes out of a reaction?
 ___ An activated heat pack?

Chemical or Physical Change?

- | | |
|-------------------------|---------------------|
| ___ Bubbles are formed. | ___ Evaporation |
| ___ Melting | ___ Ripping |
| ___ Gets cold | ___ Photosynthesis |
| ___ Color changes | ___ Gets hot |
| ___ Boiling | ___ Changes smell |
| ___ Digestion | ___ Dissolving Salt |
| ___ Changes temperature | ___ Combustion |
| ___ Chewing | ___ Changes taste |

Find the atomic masses for the following elements

- | | |
|--------------------|---------------------|
| A. Lithium = _____ | E. Aluminum = _____ |
| B. Helium = _____ | F. Bromine = _____ |
| C. Iron = _____ | G. Uranium = _____ |
| D. Silver = _____ | H. Nickel = _____ |

How many total molecules are there?

- | | | |
|------------------------|-------------------------------------|------------------------------------|
| ___ 2H ₂ O | ___ 2Be ₃ N ₂ | ___ 3C ₂ F ₄ |
| ___ 5Na ₂ S | ___ 4Br ₂ | ___ 2K(OH) |

How many total atoms are there?

- | | | |
|------------------------|-------------------------------------|------------------------------------|
| ___ 2H ₂ O | ___ 2Be ₃ N ₂ | ___ 3C ₂ F ₄ |
| ___ 5Na ₂ S | ___ 4Br ₂ | ___ 2K(OH) |

Products are on the _____ side of a chemical reaction.
 Reactants are on the _____ side of a chemical reaction.
 The arrow points to the _____.



Circle the first reactant: _____

Name the first product: _____

How many hydrogen atoms on the product side? _____

How many oxygen atoms on the reactant side? _____

Is this respiration or photosynthesis?

What kind of reaction is it? _____

Endothermic or exothermic? _____

Find the molecular mass of the following compounds.

Cl₂

Li₂O

Na(NO₃)

Photosynthesis or Respiration?

- | | |
|----------------------------|------------------------------|
| ___ Creates carbon dioxide | ___ Necessary to make ATP |
| ___ Creates oxygen | ___ Endothermic |
| ___ Uses oxygen | ___ Exothermic |
| ___ Uses carbon dioxide | ___ A combustion reaction |
| ___ Uses glucose | ___ Produces water |
| ___ Produces glucose | ___ Uses water |
| ___ Done in animals | ___ Occurs in chloroplast |
| ___ Done in plants | ___ Occurs in mitochondria |
| ___ Done in all cells | ___ Uses sunlight for energy |



Open or closed reaction?

Will the mass of his products be greater than, less than, or equal to his reactants?

Why?

What does this set up allow us to prove?

Name: _____

Period: _____

1. Molecular Mass	A. When the reactants equal the products.	$4\text{Li} + \text{O}_2 \rightarrow 2\text{Li}_2\text{O}$	If 10 g of Lithium reacts with 12 g of molecular Oxygen, how much Lithium Oxide is produced?
2. Closed System	B. When the reaction is closed and gases can't escape.	$10\text{g} + 12\text{g} \quad ?\text{g}$	
3. The Law of Conservation of Mass	C. How heavy a compound or molecule is.	$\text{Mg} + \text{Cl}_2 \rightarrow \text{MgCl}_2$	If 9 g of Magnesium reacts with Chlorine to produce 35 g of Magnesium Chloride, how much Chlorine was used in the reaction?
4. Open System	D. When gases aren't caught by the experimental setup.	$9\text{g} + ?\text{g} \quad 35\text{g}$	
5. Atomic Mass	E. In a closed reaction mass cannot be lost.		
6. Balanced Reaction	F. The decimal numbers on the periodic table.	$2\text{NaF} + \text{K}_2\text{O} \rightarrow \text{Na}_2\text{O} + 2\text{KF}$	Using the numbers given, find how much Na_2O was produced in the reaction.
		$8\text{g} + 9\text{g} \quad ?\text{g} \quad 11\text{g}$	

Write the following reaction, being sure to use the correct ionic formulas (balanced ionic compounds).
 "Magnesium Bromide reacts with Lithium Oxide to produce Magnesium Oxide and Lithium Bromide"

Why do we balance chemical reactions?

Expand out these compounds.

$3\text{NaCl} =$ _____

$4\text{MgO} =$ _____

$(\text{OH})_2 =$ _____

Write the following in reaction notation.

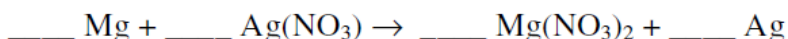
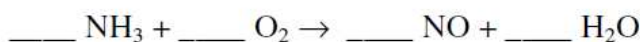
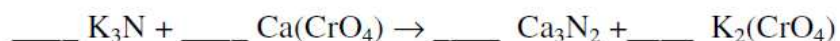
$2\text{BeCl}_2 =$ _____ $\text{Li}_2\text{O} =$ _____

$4\text{Na} =$ _____ $6\text{K}_2\text{S} =$ _____

$3\text{Al}_2\text{O}_3 =$ _____ $7\text{H}_2\text{O} =$ _____

Type of Reaction

Balance these reactions:



1. Transition Metals	A. Become positive ions.	1. Oxidation #s	A. Tells you that atoms are more stable with 8 valence electrons.
2. Noble Gases	B. Gain electrons, becoming negative ions.	2. Octet Rule	B. A molecule of two atoms of the same element.
3. Metals	C. Compounds formed when electrons are shared.	3. Diatomic Molecule	C. When dissolved in water, a compound that allows electricity to pass.
4. Nonmetals	D. Do not have consistent oxidation numbers.	4. Electrolyte	D. How many electrons are gained or lost.
5. Ionic	E. Do not combine into compounds.	5. Valence Electrons	E. Outermost electrons of an atom.
6. Covalent	F. Compounds formed between positively and negatively charged atoms.		

<p><i>Give the symbol and atomic number of these elements.</i></p> <p>Oxygen (O) <u>8</u>. Boron () _____</p> <p>Nitrogen () _____ Bromine () _____</p> <p>Helium () _____ Iron () _____</p> <p>Sodium () _____ Mercury () _____</p>	<p><i>Give symbols and number of valence electrons for these:</i></p> <p>Aluminum (Al) <u>13</u>. Beryllium () _____</p> <p>Neon () _____ Sodium () _____</p> <p>Chlorine () _____ Calcium () _____</p> <p>Boron () _____ Sulfur () _____</p>
---	--

<p>How many Aluminums in Al_2O_3? _____</p> <p>How many Magnesiums in $MgCl_2$? _____</p> <p>How many Sodiums in Na_3N? _____</p> <p>How many Oxygens in $Li(NO_3)$? _____</p>	<p>How many total atoms in Al_2O_3? _____</p> <p>How many total atoms in $MgCl_2$? _____</p> <p>How many total atoms in Na_3N? _____</p> <p>How many total atoms in $Li(NO_3)$? _____</p>
--	---

<p><i>How many electrons are gained or lost?</i></p> <p>K¹⁺ <u>Lost 1</u> Fe²⁺ _____</p> <p>B³⁺ _____ F¹⁻ _____</p> <p>S²⁻ _____ N³⁻ _____</p> <p>He⁰ _____ Si⁴⁺ _____</p>	<p><i>How many electrons will be gained or lost by:</i></p> <p>K <u>Lost 1</u> Ar _____</p> <p>Al _____ Br _____</p> <p>O _____ Ca _____</p> <p>Be _____ H _____</p>
--	--

<i>Draw the Lewis Dot Diagrams for the following.</i>				<i>Draw 3 different Lewis Dot Diagrams for Aluminum.</i>
Carbon	Lithium	Sulfur	Argon	
Aluminum	Nitrogen	Magnesium	Chlorine	<i>Use Electron Arrows to Combine Magnesium and Fluorine</i>

	<i>Ionic, Covalent, or Polyatomic?</i>	<i>Use Prefixes?</i>	<i>Compound Name</i>	<i>Metal or Non-metal?</i>
1. Al ₂ O ₃	<u>Ionic</u>	<u>No</u>	<u>Aluminum Oxide</u>	___ Cobalt (___) ___ Sodium (___) ___ Fluorine (___) ___ Argon (___) ___ Magnesium (___) ___ Nickel (___)
2. O ₂ F ₂	_____	_____	_____	<p><i>Give the total charge</i></p> <p>Ca²⁺ <u>+6</u></p> <p>Ca²⁺ O²⁻ _____</p> <p>Mg²⁺ F¹⁻ _____</p> <p>Na¹⁺ F¹⁻₂ _____</p> <p>Al³⁺ S²⁻₂ _____</p> <p>Al³⁺ O²⁻₂ _____</p> <p>O²⁻₃ _____</p> <p>Mg²⁺ (NO₃)¹⁻ _____</p>
3. BeF ₂	_____	_____	_____	
4. K ₂ (CO ₃)	_____	_____	_____	
5. N ₂ F ₃	_____	_____	_____	
6. SF ₆	_____	_____	_____	
7. Al ₂ (CrO ₄) ₃	_____	_____	_____	
8. P ₄ S ₃	_____	_____	_____	
9. NaN ₃	_____	_____	_____	
10. MgO	_____	_____	_____	
11. PF ₃	_____	_____	_____	
12. CO ₂	_____	_____	_____	

Write the balanced ionic compounds for the following:

Li²⁺ and O²⁻: _____ K¹⁺ and S²⁻: _____

Na¹⁺ and N³⁻: _____ Li¹⁺ and F¹⁻: _____

Al³⁺ and O¹⁻: _____ Ca²⁺ and P³⁻: _____

Mg²⁺ and Cl¹⁻: _____ Al³⁺ and (NO₃)¹⁻: _____

Write the balanced ionic formulas for the following:

Li and Cl: _____

Mg and O: _____

Al and S: _____

Mg and N: _____

K and (CrO₄): _____

Draw the Lewis Dot Diagram for molecular Fluorine (F₂).

Short hand

— C —

of electrons: _____

N ≡

of electrons: _____

*Using shorthand,
make Oxygen Dichloride*