

Name: \_\_\_\_\_

Period: \_\_\_\_\_

**Changes of Matter Review**

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

<p><i>Give the symbol and atomic number of these elements.</i></p> <p>Oxygen (O) <u>8</u>      Boron (B) <u>5</u></p> <p>Nitrogen (N) <u>7</u>      Bromine (Br) <u>35</u></p> <p>Helium (He) <u>2</u>      Iron (Fe) <u>26</u></p> <p>Sodium (Na) <u>11</u>      Mercury (Hg) <u>80</u></p>	<p><i>Give symbols and number of valence electrons for these:</i></p> <p>Aluminum (Al) <u>13</u>      Beryllium (Be) <u>2</u></p> <p>Neon (Ne) <u>8</u>      Sodium (Na) <u>1</u></p> <p>Chlorine (Cl) <u>7</u>      Calcium (Ca) <u>2</u></p> <p>Boron (B) <u>3</u>      Sulfur (S) <u>6</u></p>
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<p><i>Give the symbol and number of protons for these elements.</i></p> <p>Aluminum (Al) <u>13</u>      Lithium (Li) <u>3</u></p> <p>Phosphorus (P) <u>15</u>      Magnesium (Mg) <u>12</u></p> <p>Argon (Ar) <u>18</u>      Silver (Ag) <u>47</u></p> <p>Copper (Cu) <u>29</u>      Gold (Au) <u>79</u></p>	<p><i>Give these elements with oxidation # in ion notation</i></p> <p>Oxygen <u>O<sup>2-</sup></u>      Boron <u>B<sup>3+</sup></u></p> <p>Nitrogen <u>N<sup>3-</sup></u>      Bromine <u>Br<sup>1-</sup></u></p> <p>Helium <u>He<sup>0</sup></u>      Potassium <u>K<sup>1+</sup></u></p> <p>Carbon <u>C<sup>4</sup></u>      Hydrogen <u>H<sup>1+</sup></u></p>
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<p>How many Aluminums in Al<sub>2</sub>O<sub>3</sub>? <u>2</u></p> <p>How many Magnesiums in MgCl<sub>2</sub>? <u>1</u></p> <p>How many Sodiums in Na<sub>3</sub>N? <u>3</u></p> <p>How many Oxygens in Li(NO<sub>3</sub>)? <u>3</u></p>	<p>How many total atoms in Al<sub>2</sub>O<sub>3</sub>? <u>5</u> <small>2+3</small></p> <p>How many total atoms in MgCl<sub>2</sub>? <u>3</u></p> <p>How many total atoms in Na<sub>3</sub>N? <u>3</u></p> <p>How many total atoms in Li(NO<sub>3</sub>)? <u>5</u></p>
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<p><i>How many electrons are gained or lost?</i></p> <p>K<sup>1+</sup> <u>Lost 1</u>      Fe<sup>2+</sup> <u>L2</u></p> <p>B<sup>3+</sup> <u>L3</u>      F<sup>1-</sup> <u>G1</u></p> <p>S<sup>2-</sup> <u>G2</u>      N<sup>3-</sup> <u>G3</u></p> <p>He<sup>0</sup> <u>0</u>      Si<sup>4+</sup> <u>L4</u></p>	<p><i>How many electrons will be gained or lost by:</i></p> <p>K <u>Lost 1</u>      Ar <u>0</u></p> <p>Al <u>L3</u>      Br <u>G1</u></p> <p>O <u>G2</u>      Ca <u>L2</u></p> <p>Be <u>L2</u>      H <u>L1</u></p>
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<p><i>Draw the Lewis Dot Diagrams for the following.</i></p>				<p><i>Draw 3 different Lewis Dot Diagrams for Aluminum.</i></p>			
Carbon C	Lithium Li	Sulfur S	Argon Ar				
Aluminum Al	Nitrogen N	Magnesium Mg	Chlorine Cl	<p><i>Use Electron Arrows to Combine Magnesium and Fluorine</i></p>			

	Ionic, Covalent, or Polyatomic?	Use Prefixes?	Compound Name	Metal or Non-metal?
1. $Al_2O_3$	Ionic	No	Aluminum Oxide	M Cobalt (Co)
2. $O_2F_2$	C	Y	dioxygen difluoride	M Sodium (Na)
3. $BeF_2$	I	No	Beryllium Fluoride	N Fluorine (F)
4. $K_2(CO_3)$	P	N	Potassium Carbonate	N Argon (Ar)
5. $N_2F_5$	C	Yes	dinitrogen pentafluoride	M Magnesium (Mg)
6. $SF_6$	C	Y	Sulfur hexafluoride	M Nickel (Ni)
7. $Al_2(CrO_4)_3$	P	N	Aluminum Chromate	
8. $P_4S_3$	C	Y	Tetraphosphorus trisulfide	
9. $NaN_3$	I	N	Sodium Nitride	
10. $MgO$	I	N	Magnesium Oxide	
11. $PF_3$	C	Y	phosphorus trifluoride	
12. $CO_2$	C	Y	Carbon Dioxide	

  

Give the total charge	
$Ca^{2+}$	+6
$Ca^{2+}O^{2-}$	0
$Mg^{2+}F^{-}$	+1
$Na^{+}F^{-}$	-1 (1-1)
$Al^{3+}S^{2-}$	-1
$Al^{3+}O^{2-}$	-1
$O_3^{2-}$	-6
$Mg^{2+}(NO_3)^{-}$	+1

Write the balanced ionic compounds for the following:

$Li^{2+}$ and $O^{2-}$ : <u><math>LiO</math></u>	$K^{1+}$ and $S^{2-}$ : <u><math>K_2S</math></u>
$Na^{1+}$ and $N^{3-}$ : <u><math>Na_3N</math></u>	$Li^{1+}$ and $F^{-}$ : <u><math>LiF</math></u>
$Al^{3+}$ and $O^{2-}$ : <u><math>AlO_3</math></u>	$Ca^{2+}$ and $P^{3-}$ : <u><math>Ca_3P_2</math></u>
$Mg^{2+}$ and $Cl^{-}$ : <u><math>MgCl_2</math></u>	$Al^{3+}$ and $(NO_3)^{-}$ : <u><math>Al(NO_3)_3</math></u>

Write the balanced ionic formulas for the following:

$Li$ and $Cl$ : <u><math>LiCl</math></u>
$Mg$ and $O$ : <u><math>MgO</math></u>
$Al$ and $S$ : <u><math>Al_2S_3</math></u>
$Mg$ and $N$ : <u><math>Mg_3N_2</math></u>
$K$ and $(CrO_4)$ : <u><math>K_2(CrO_4)</math></u>

Draw the Lewis Dot Diagram for molecular Fluorine ( $F_2$ ).

Short hand

$F-F$

$1+4+1$ <u><math>C</math></u>
# of electrons: <u>6</u>
$S+3$ <u><math>N \equiv</math></u>
# of electrons: <u>8</u>

Using shorthand, make Oxygen Dichloride

$O-Cl$   
 $Cl$

For the light to come on, what kind of compound would need to be dissolved: ionic or covalent?

What do we call a compound that will allow electricity to flow? electrolyte

Are these Electrolytes: yes or no? *Must be ionic*

NaCl	<u>Y</u>	$Li_2S$	<u>Y</u>
$CO_2$	<u>N</u>	$Al_2O_3$	<u>Y</u>
$MgCl_2$	<u>Y</u>	SeO	<u>N</u>
$NBr_3$	<u>N</u>	FeO	<u>Y</u>
BeO	<u>Y</u>	$Li(NO_3)$	<u>Y</u>