Name: Date: Blk:

**Science 9:**

**Chapter 3 Study Guide**

**3.1: Compounds**

1. Definitions:

*Pure Substance:*

*Compounds:*

*Chemical Bond:*

*Covalent Compound:*

*Molecule:*

*Covalent Compound:*

*Ions:*

*Ionic Compounds:*

*Ionic Lattice:*

*Polyatomic Ion:*

2. Draw a water molecule using Bohr Models. Remember water is H2O.

3. In an ionic compound:

a) if the atom loses an electron, it becomes a ion.

b) if the atom gains an electron, it becomes a ion.

4. Draw the Bohr models for an NaCl atom.

a) draw the Bohr models for Na and Cl separately. Include the number of protons, and electrons

b) on the Bohr models above, draw an arrow that shows which electron is being lost and where it’s being gained.

c) draw the ion Bohr models for Na+ and Cl-

**3.2: Names and Formulas of Compounds**

1. Define:

*Chemical Name:*

*Chemical Formula:*

*Multivalent Metals:*

2. When naming a chemical compound, which goes first the: METAL or NON-METAL?

3. What are the three rules for Writing the Formulas of Ionic Compounds?

 1.

 2.

 3.

4. Name the following compounds:

MgBr2

Li3N

Na2O

Mg3P2

CaSe

Ag3N

5. What is the chemical formula for the following:

Zinc Nitride:

Aluminum Chloride:

Lithium Chloride:

Calcium Fluoride:

Aluminum Oxide:

Silver Sulphide:

Zinc Phosphide:

6. Time for some Multivalent Compounds; name the compounds – be careful!

a) Cu3P:

b) MnO2:

c) CrBr3:

d) FeI2:

e) MnO2:

f) MnO:

7. Write the formula for the following compounds – don’t forget to simplify!

a) Chromium (II) Chloride:

b) Copper (I) Sulphide:

c) Manganese (IV) Oxide:

d) Iron (III) Sulphide:

e) Lead (IV) Oxide:

f) Chromium (III) Chloride:

8. More naming practice – this time with polyatomic ions. (you will need your textbook)

a) Na2SO4:

b) (NH4)2SO4:

c) Cu(NO3)2:

d)Mn(CH3COO)4:

e) U2(SO3)5:

f) CaCO3:

9. Write the chemical equations for these polyatomic compounds – you will need your textbook.

a) Ammonium Carbonate:

b) Iron (III) Hydroxide:

c) Potassium Permanganate:

d) Tin (II) Hydroxide:

e) Lithium Dichromate:

f) Magnesium Hydroxide:

**3.3: Physical and Chemical Changes**

1. Define **and** give examples.

*Physical Change:*

*Chemical Change:*

*Exothermic:*

*Endothermic:*

*Chemical Reaction:*

*Chemical Equations:*

*Reactants:*

*Products:*

*Coefficient:*

*Subscript:*

2. What is the difference between a physical and chemical change? Give at least two example of each.

3. What is the Law of Conservation of Mass?

4. Balance the equations:

 CaC2 + O2 🡪 Ca + CO2

 H2 + O2 🡪 H2O

 Fe + Cl2 🡪 FeCl3

 Cu + AgNO3 🡪 Cu(NO3)2 + Ag

 Zn + HCl 🡪 ZnCl2 + H2

 Pb(NO3)2 + AlCl3 🡪 PbCl2 + Al(NO3)3

 CH4 + O2 🡪 CO2 + H2O

 Na3PO4 + KOH 🡪 NaOH + K3PO4

 BaS + PtF2 🡪 BaF2 + PtS

 RbNO3 + BeF2 🡪 Be(NO3)2 + RbF