

**Learning Target 2**

1. Write the general equation and an example for the following reactions.

Type of Rxn	General Equation	Example
Synthesis	$A + B \rightarrow AB$	Come up with one on your own
Decomposition	$AB \rightarrow A + B$	Look in your notes if you need to
Single Replacement	$AB + C \rightarrow AC + B$	
Double Replacement	$AB + CD \rightarrow AD + CB$	
Combustion	$C_7H_7 + O_2 \rightarrow CO_2 + H_2O$	

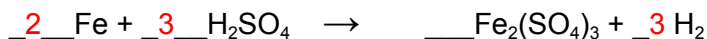
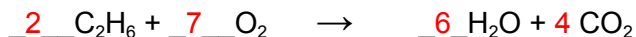
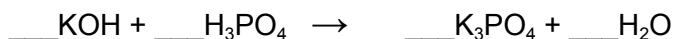
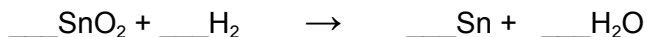
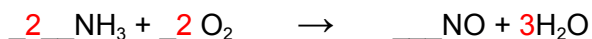
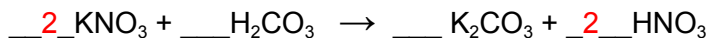
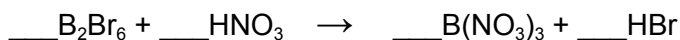
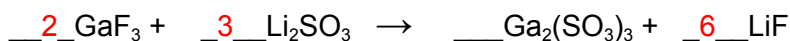
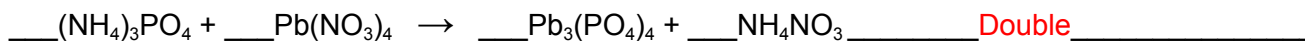
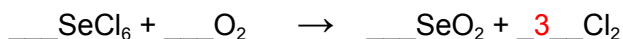
**Learning Target 1 and 3**

2. What is the law of conservation of mass. Why does it matter when balancing chemical equations?

**Mass can't be created or destroyed. This is important when balancing chemical equations because the mass and matter that you start with must be the same as when you finish a reaction. The reactants must equal the products.**

3. Balance the following equations

Determine the Type of Rxn


 $\underline{\text{single}}$ 

 $\underline{\text{Combustion}}$ 

 $\underline{\text{Double}}$ 

 $\underline{\text{Single}}$ 

 $\text{Double?? Not always obvious!}$ 

 $\underline{\text{Double}}$ 

 $\underline{\text{Double}}$ 

 $\text{Double}$ 

 $\underline{\text{Double}}$ 

 $\underline{\text{Single}}$

4. Write and Balance the following word equations

a. Hydrogen and oxygen react to form water.



b. Zinc reacts with sulfuric acid to produce zinc sulfate and hydrogen



c. Bromine and potassium chloride are produced in the reaction of potassium bromide with chlorine gas.



d. Selenium hexachloride reacts with oxygen to produce selenium dioxide and chlorine.



e. Lead reacts with Iron (II) sulfate to produce lead (II) sulfate and iron.



Need more practice? Do the Word Equation WS

5. a. Write the chemical reaction for the combustion of octene ( $\text{C}_8\text{H}_{16}$ )



b. What is the empirical formula for octene?  $\text{CH}_2$

6. Use correct nomenclature to write word equations from the last 3 equations that you balanced in question #3.

Gallium fluoride reacts with lithium sulfite to produce gallium sulfite and lithium fluoride.

Ammonium phosphate reacts with lead (IV) nitrate to produce Lead(IV) phosphate and ammonium nitrate.

Selenium hexachloride reacts with oxygen to produce selenium and chlorine.

#### Learning Target 4

7. Predict the product of the following reactions using the activity series. Balance the equations. If no reaction takes place, indicate why.

a.  $2\text{Cd} + \text{H}_2\text{O} \rightarrow 2\text{Cd}(\text{OH})_2 + \text{H}_2$  (the water must be steam)

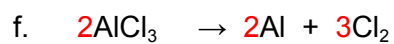
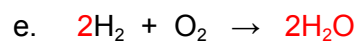
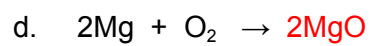
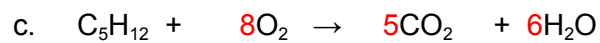
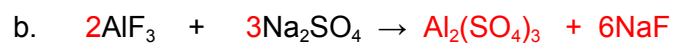
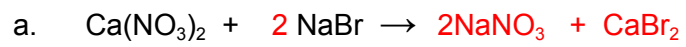
b.  $2\text{Co}^{3+} + 3\text{H}_2\text{SO}_4 \rightarrow \text{Co}_2(\text{SO}_4)_3 + 6\text{H}^+$

c.  $2\text{Pb}^{2+} + \text{O}_2 \rightarrow 2\text{PbO}$

d.  $\text{Ni} + \text{H}_2\text{O} \rightarrow \text{no reaction}$

e.  $\text{Al}(\text{NO}_3)_3 + \text{Ni} \rightarrow \text{no reaction}$

8. Predict the products of the following reactions and balance the equations.



Need more practice? Do the Predicting Products WS 2