**Learning to Balance Chemical Equations** Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Directions:**

1. Google search “fun based learning chembalencer” (http://funbasedlearning.com/chemistry/chemBalancer/)

2. Click ‘Directions’.  Read and understand the directions. Then click ‘OK’.

3. Click on ‘Start Game’

4. Try entering some numbers in the text boxes in front of each molecule.  What happens?

5. If you forget the directions, click on the ‘How to Play the Game’ link.  Click ‘OK’ when you finish reading them to return to the game.

6. When you think you have typed the right numbers in all the boxes, click the ‘Balanced’ button.

7. If you didn’t get it right, try again.

8. If you did get it right, then fill in the correct answers on this worksheet for #1.

9. Repeat steps 7-9 for the other 10 questions.

10. Now do the two problems on the back of this worksheet.  You can draw the molecules just like the program did to figure out the answer.

**Questions**

Fill in the blanks below as you go though the game.  This is so I have a record that you did your assignment.

1.   \_\_\_\_\_ Fe  +  \_\_\_\_\_ S  🡪  \_\_\_\_\_ FeS

2.  \_\_\_\_\_ H2   +  \_\_\_\_\_ Cl2  🡪  \_\_\_\_\_ HCl

3. \_\_\_\_\_ Mg  +  \_\_\_\_\_ O2  🡪   \_\_\_\_\_  MgO

4. \_\_\_\_\_ O2  +  \_\_\_\_\_  H2 🡪   \_\_\_\_\_ H2O

5. \_\_\_\_\_ HgO 🡪  \_\_\_\_\_ Hg  +  \_\_\_\_\_  O2

6. \_\_\_\_\_ Ca  +  \_\_\_\_\_  H2O  🡪  \_\_\_\_\_  Ca(OH)2  +   \_\_\_\_\_ H2

7.  \_\_\_\_\_  CH4  +  \_\_\_\_\_  O2  🡪   \_\_\_\_\_ CO2  +  \_\_\_\_\_ H20

8.  \_\_\_\_\_  Na2O2  +   \_\_\_\_\_  H2SO4  🡪   \_\_\_\_\_  Na2SO4  +   \_\_\_\_\_  H2O2

9. \_\_\_\_\_  N2  +   \_\_\_\_\_  H2  🡪   \_\_\_\_\_  NH3

10.   \_\_\_\_\_  Al  +   \_\_\_\_\_  O2  🡪   \_\_\_\_\_  Al2O3

11.  \_\_\_\_\_  KMnO4  🡪   \_\_\_\_\_  K2O  +   \_\_\_\_\_   MnO  +   \_\_\_\_\_  O2

Draw the molecules just like the program did to figure out the answer to #12 and #13.

12.  \_\_\_\_\_  Na  +   \_\_\_\_\_  H2O  -->   \_\_\_\_\_  NaOH  +   \_\_\_\_\_  H2

Fact for #12: Sodium metal, Na, is stored in kerosene so it won't react with water vapour.  When added to water it reacts quickly to make hydrogen gas.

13.  \_\_\_\_\_  H2SO4  +  \_\_\_\_\_  NaOH  -->  Na2SO4  +  \_\_\_\_\_   H2O

Fact for #13: This is an example of an acid base reaction.  Acid + base --> Salt + Water

Other sites to try:

<https://phet.colorado.edu/en/simulation/balancing-chemical-equations>

<http://education.jlab.org/elementbalancing/>

<http://www.sciencegeek.net/Chemistry/taters/EquationBalancing.htm>