

Name: _____ Date: _____

Title: Lego Stoichiometry

Introduction: The following activity is designed to assist you in “seeing” what happens when quantities of reactants are changed into quantities of products. Please follow the instructions and complete questions as you go.

Prediction: (will the number of starting pieces affect the number or formula of water molecules that form?)

Procedures:

1. Remove the lego pieces from the bag.

Blue = hydrogen

Red = oxygen

2. Assemble the lego pieces to form as many hydrogen (H_2) and oxygen (O_2) molecules as possible (imagine that a bond is formed between 2 hydrogen atoms and 2 oxygen atoms by snapping the pieces together).
3. Make a sketch to show what the pieces look like before the reaction.

Before

4. Write a balanced chemical reaction of hydrogen and oxygen to form water.
5. Simulate the reaction using the lego pieces.

6. Make a sketch of how the pieces look after the reaction.

After

7. Complete the following sentences:

- a. For every 6 mols H_2 , _____ mols O_2 will react.
- b. For every 2 mols H_2 , _____ mols O_2 will react.
- c. For every 0.34 mols H_2 , _____ mols O_2 will react.
- d. For every 6 mols H_2 , _____ mols H_2O will be produced.
- e. For every 2 mols H_2 , _____ mols H_2O will be produced.
- f. For every 5.67 mols H_2 , _____ mols H_2O will be produced.

8. What is the significance of the coefficients in a balanced equation?

9. Which of the two reactants (H_2 or O_2) is limiting? Explain.

10. Was your prediction correct? If not, what was the error in your thinking?