**Limiting Reactant Lab – “Thing-a-ma-bobs!”**

Name: Period: 2 3 4

Purpose: To understand the concept of a limiting reactant.

You will be assembling thingamabobs, which consist of a screw, 2 washers, and a nut. You will complete as many thingamabobs as you can, until you run out of materials. From this you can determine the limiting and excess reactants in the process.

Procedure:

1. Find the mass of one of each of the following:
   1. Screw:
   2. Washer:
   3. Nut:
2. Following the chemical equation below, assemble as many complete thingamabobs as you can.

**S + 2W + N 🡪 SW2N**

S = screw

W = washer

N = nut

SW2N = thingamabobs

Data:

|  |  |  |
| --- | --- | --- |
| **Item** | **# Before Assembly** | **# After Assembly** |
| Screw |  |  |
| Washer |  |  |
| Nut |  |  |
| Thingamabob |  |  |

Analysis:

1. How many complete thingamabobs were made, this is your theoretical yield?
2. What item did you run out of first, this is your limiting reactant?
3. Which items and how many of each did you have leftover? These are your excess reactants.

Additional Questions:

1. Knowing how to make a thingamabob, what would be your theoretical yield and limiting reactant if you had 76 screws, 170 washers, and 80 nuts?
2. What would be your theoretical yield and limiting reactant and theoretical yield if you had 444 screws, 890 washers, and 436 nuts?
3. Assume the masses you found in procdure #1 are actually the molar masses of each reactant: S, W, and N. Determine the limiting reactant and theoretical yield of SW2N if you started with 100.0g of S, W, and N.