Synthesis reaction

Purpose: To have students test quantities of chemicals in trying to make a reaction. The best product with the lowest amount of the reactants left over will get a prize.

Materials:

- Glass stirring rod
- Bunsen burner
- Magnet
- Sulfur powder
- Iron fillings
- Weigh boat (2)
- Balance

Procedure:

1. First observation can be done in large groups.
    a. Describe visual appearance of the sulfur and iron in the baggies
    b. Run a magnet over each bags. Note if there is a reaction.
2. Back in your small lab groups you need to decide the amount of iron and sulfur you are going to react together.
    a. Measure out and record how much you are going to react of each substance
3. Mix the substances together and pour onto your tabletop.
4. Heat the end of your glass stirring rod at the hottest part of your flame until the flame turns orange.
5. Touch the heated end to the mixture. Move your stir rod around to completely react all of the mixture.
6. Allow it to cool. Observe the mixture you have now. Pass over it with the magnet.
7. Repeat steps 2-6 with a different amount of iron and sulfur. Twice more.

Conclusion/ results questions:

1. Think about classification of matter. The stuff in the baggie is a(n) (circle one)

element compound mixture

Why?

2. The stuff in the test tube after the reaction is a(n) (circle one)

element compound mixture

Why?

	Amount of Iron	Amount of Sulfur	Appearance of product	Magnetic or not
Reaction 1				
Reaction 2				
Reaction 3				

3. List the names and formulas for the reactants in this reaction. (HINT: Yellow sulfur is S8)

4. Write the formula for iron II sulfide (the product of this reaction).

5. Write a balanced equation for this reaction.

6. List three pieces of evidence for the formation of a new product.

a)

b)

c)

7. Is the product all that is left after the reaction?