Lesson 4

Name Khzouz Date _____ Hour _____

Heated Bolts Investigation

This investigation examines the effect of adding heated bolts to two different liquids.

Part 1: Adding heated bolts to water

1. Measure the starting temperature of the water and record the value on the table on page 4.
2. Use a balance to measure 50g of water each into two cups (if a balance is not available, measure 50mL of water into two cups).
3. ***Make a prediction*** - Will the temperature of the water ***increase/decrease/stay the same*** when heated bolts are added to the cup? Why?

I think the temperature of water will increase b/c we are adding energy to the system. Bolts are losing energy to the water.

4. Obtain **TWO** hot bolts from your teacher and gently place them in the first cup.
5. Record the temperature of the heated bolts on line above table (teacher provides temp).
6. Gently swirl the water for 1 minute, then measure the temperature of the water and record the value on the table (ending temperature).
7. Was your prediction correct? yes
8. ***Make a prediction*** - Will the temperature of the water change ***more/less*** when you add 4 bolts than when you added 2 bolts? Why?

The temperature of the water will increase more when we add 4 bolts b/c more energy is added to the system.

9. Obtain **FOUR** hot bolts from your teacher and gently place them in the second cup.
10. Gently swirl the water for 1 minute, then measure the temperature of the water and record the value on the table (ending temperature).
11. Was your prediction correct? yes

Part 2: Adding heated bolts to cooking oil

1. **Make a prediction** - Will the temperature of the cooking oil ***increase/decrease/stay the same*** when heated bolts are added to the cup? Why?

I think temperature of the oil increases b/c we are adding energy to the system.

Make a prediction - Do you think the oil temperature change will be ***more than/less than/the same as*** the water with the same number of bolts? Why?

I think oil will increase more because it is more liquidy, greasy, slippery than water.

2. Measure the starting temperature of the cooking oil and record the value on the table.
3. Record the temperature of the heated bolts on line above table (teacher provides temp).
4. Obtain **TWO** hot bolts from your teacher and gently place them in the first cup.
5. Gently swirl the cooking oil for 1 minute, then measure the temperature of the cooking oil and record the value on the table (ending temperature).
6. Was your prediction correct? yes
7. **Make a prediction - Will the temperature of the cooking oil change *more/less* when you add 4 bolts than when you added 2 bolts? Why?** If we are adding more energy to the system, then the temperature will increase.