Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Extension 1.3 BC-Endothermic/Exothermic Reactions

**Endothermic** reactions are those which **absorb** heat during the reaction. They get colder.

**Exothermic** reactions are those that **give off** heat during the reaction. They get hotter.

Materials:

300 mL Beaker

medicine cup

Thermometer

Water

White vinegar

Baking Soda

Epsom Salts

Hydrogen peroxide

Steel wool

Dry yeast

Procedures:

1. The data table below has a list of liquids to combine with solids. Start with water and Epsom salt. Fill a beaker to **100 mL** with the liquid.

2. Insert the thermometer in the liquid and record the temperature (room temperature)

3. Add a teaspoon of the dry material. Record your observations.

4. Wait 2 minutes and record the final temperature of the solution.

5. Discard the solution.

6. Repeat steps for the other mixtures.

\*For each trial, calculate the change in temperature of the reaction by subtracting the temperature after 2 minutes from the room temperature.

Data:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Liquid  (100 mL) | Additive  (1 tsp) | Observations | Room Temperature | Temp after 2 minutes | Change in Temp. |
| Water | Epsom Salt |  |  |  |  |
| Water | No Salt  Salt Alternative |  |  |  |  |
| Vinegar | Baking Soda |  |  |  |  |
| Vinegar | Steel Wool |  |  |  |  |
| Hydrogen Peroxide | Yeast |  |  |  |  |
| Water | Ice |  |  |  |  |
| Acetone  *\*\*\*must be done in the fume hood!* | Half of a Styrofoam Packing Peanut |  |  |  |  |

Questions:

1. Which reactions were endothermic? How did you know?
2. Which reactions were exothermic? How did you know?
3. Which reactions were chemical changes?
4. Which mixtures were physical changes?