

*Extension 8.1.5***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:***

<i>Liquid</i> (100 mL)	<i>Additive</i> (1 tsp)	<i>Observations</i>	<i>Room Temperature</i>	<i>Temp after 2 minutes</i>	<i>Change in Temp.</i>
Water	Epsom Salt				
Water	No Salt Salt Alternative				
Vinegar	Baking Soda				
Vinegar	Steel Wool				
Hydrogen Peroxide	Yeast				
Water	Ice				
Acetone <i>***must be done in the fume hood!</i>	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?