

Exothermic or Endothermic? II

Eighth Grade

Activity: 7

Time: 1 Class Period

General Description

Students will be making observations, measurements, estimations and predictions based on observations and current knowledge. This activity will also give them the opportunity to collect and record data using procedures designed to minimize error and finally analyze data and draw warranted inferences.

Objectives

Students will use the process skills to describe chemical and physical changes and identify what factors caused the change.

Arizona State Standards

SC08 S1C1 PO1 Formulate questions based on observations that lead to the development of a hypothesis

SC08 S1C2 PO1 Demonstrate safe behavior and appropriate procedures (e.g., use and care of technology, materials, organisms) in all science inquiry

SC08 S1C2 PO4 Perform measurements using appropriate scientific tools (e.g., balances, microscopes, probes, micrometers)

SC08 S1C2 PO5 Keep a record of observations, notes, sketches, questions, and ideas using tools such as written and/or computer logs

SC08 S1C3 PO1 Analyze data obtained in a scientific investigation to identify trends

SC08 S1C4 PO1 Communicate the results of an investigation

SC08 S5C1 PO3 Identify the following types of evidence that a chemical reaction has occurred:

- formation of a precipitate
- generation of gas
- color change
- absorption or release of heat

W08 S3C2 PO1 Record information (e.g., observations, notes, lists, charts, map labels and legends) related to the topic

W08 S3C2 PO2 Write a summary based on the information gathered that include(s):

- a topic sentences
- supporting details
- relevant information

Teacher Information

Whenever handling an unknown chemical it should be treated as potentially dangerous. In addition whenever working with any lab equipment you should take care and be aware of your surroundings. Posting Chemical Safety Rules and following those guidelines is a good habit to develop in your students.

Materials

Activity Card 8-7

Thermometer

Water at room temperature

One tablespoons of Epsom salts

Spoon

Medium sized glass or jar (must be glass)

Procedures/Exploration

1. Find and record the starting temperature (i.e. room temperature).
2. Put the thermometer in the jar. While you are waiting to take the water temperature, put your hand on the outside of the jar and notice how cool or warm it is. Record your observation.
3. Stir in the Epsom salts.
4. Record the temperature every 15 seconds.
5. Observe what happens over a period of time and record.
Feel the outside of the beaker along the lower sides and bottom.
6. Record your findings.
7. Graph your temperature results.
8. Complete the Analysis on Activity Card 8-7

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Activity Card: 8-7**

Student's Name:

Date:

Use the following table to record the temperature change.

Time	Temperature
Starting Temperature	
15 seconds	
30 seconds	
45 seconds	
60 seconds	
75 seconds	
90 seconds	
105 seconds	
120 seconds	
135 seconds	
150 seconds	
165 seconds	
180 seconds	
205 seconds	

Graph the results on a separate piece of graph paper

Answer the following questions using the evidence that you collected from this activity.

1. What is the amount of temperature difference of the water before and after adding Epsom salt?

2. Why did the temperature of the water change?

3. Does mixing Epsom salts and water represent physical or chemical change or both?

4. Give at least one other example of an endothermic reaction you are familiar with. What evidence is there to prove that it is an exothermic reaction?