Chemical or Physical Change

Eighth Grade
Activity: 4
Time: 1 Class Period

General Description
Students will use the process skills of observation, questioning, measuring to determine if there has been a chemical or physical change at each station

Objectives
Students will use process skills to determine the whether a physical or chemical change has occurred

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 PO1 Identify different kinds of matter based on the following physical properties:
- states
- density
- boiling point
- melting point
- solubility

SC08 S5C1 PO2 Identify different kinds of matter based on the following chemical properties:
- reactivity
- pH
- oxidation (corrosion)

Teacher Information
This activity should be done as a follow up to all other activities that help students understand chemical and physical changes. You may want to set these different activities as stations or do as a whole class.

Materials
Hot plate/source of heat
Crucible/heat resistant container
Eye dropper
Water

Epsom salts
Mothballs
Rubbing alcohol
Sugar
Baking soda
Baking powder
Vinegar
Activity Card 8-4

Procedures/Exploration

1. Activity One: Heat Epsom salts. Give students time to make observations. Answer the questions on Activity Card 8-4.
2. Activity Two: mix water and baking powder. Give students time to make observations. Answer the questions on Activity Card 8-4.
3. Activity Three: heat Mothballs but only outside or in a well ventilated area. Give students time to make observations. Answer the questions on Activity Card 8-4.
4. Activity Four: heat sugar. Give students time to make observations. Answer the questions on Activity Card 8-4.
5. Activity Five: mix vinegar with baking soda. Do this in a safe area, well ventilated area. Give students time to make observations. Answer the questions on Activity Card 8-4.
6. Activity Six: heat alcohol. Give students time to make observations. Answer the questions on Activity Card 8-4.

Chemical and Physical Changes

Eighth Grade
Activity: 4
Activity Card: 8-4

Student's Name: **Date:**

Activity 1: Heat the unknown in a crucible
In this activity, heat the unknown compound in a crucible until you see a change take place.

Was it a chemical or physical change?

What evidence do you have to back up your guess?

Activity 2: Combine the two solutions
In this Activity, add one dropper full of compound A into a 50 mL beaker followed by one dropper full of compound B. Make sure you use different droppers for each solution.

Was it a chemical or physical change?

What evidence do you have to back up your guess?

Activity 3: Heat the unknown in a crucible
In this Activity, heat two large pieces of the unknown in a crucible until you see a change take place.

Was it a chemical or physical change?

What evidence do you have to back up your guess?

Activity 4: Heat the unknown in a crucible
In this Activity, heat one small scoopful of the unknown in a crucible until you see a change take place.

Was it a chemical or physical change?

What evidence do you have to back up your guess?

Activity 5: Combine the two solutions

In this Activity, add one dropper full of compound A into a 50 mL beaker followed by one dropper full of compound B. Make sure you use different droppers for each solution.

Was it a chemical or physical change?

What evidence do you have to back up your guess?

Activity 6: Heat the unknown in a crucible

In this Activity, add ten drops of the unknown to a crucible and heat over a Bunsen burner.

Was it a chemical or physical change?

What evidence do you have to back up your guess?