

Project FOCUS
Best Lessons
FIFTH GRADE

Title of Lesson: Chemical vs. Physical Changes Stations

Theme: Physical Science

Unit Number: Unit Title: Chemical & Physical Changes

Performance Standard(s) Covered (enter code):

S5P2

Enduring Standards (objectives of activity):

Habits of Mind

- Asks questions
- Uses numbers to quantify
- Works in a group
- Uses tools to measure and view
- Looks at how parts of things are needed
- Describes and compares using physical attributes
- Observes using senses
- Draws and describes observations

Content (key terms and topics covered):

How can matter be changed?

How can you tell if matter has undergone a chemical change or a physical change?

Learning Activity (description in steps)

This activity is set up into 9 stations, 5 done one day and 4 done the following day.

Station 1 – Matches

**Procedure: Light a match (done by the teacher) and let it burn for 2 seconds
 Discard the match in the beaker**

Questions: Physical or Chemical?

Evidence:

Station 2 – Ice Melting

Procedure: Observe the beaker (containing ice and a little bit of water)

Questions: Physical or Chemical?

Evidence:

Station 3 – Paper Airplane

**Procedure: Using ½ sheet of computer paper construct your best paper airplane. Toss it
towards the target in the back then recycle.**

Questions: Physical or Chemical?

Evidence:

Station 4 – Crushing Chalk

Procedure: Place a small piece of chalk into the mortar and pestle.
Grind it into a fine powder.

After observing and answering questions, place your crushed chalk into a test tube and take to station #5.

Questions: Physical or chemical?

Evidence:

Station 5 – Chalk and Vinegar

Procedure: Measure 5 mL of vinegar

Pour the vinegar into the test tube with the chalk and observe.

Questions: Physical or chemical?

Evidence:

Station 6 – Candle burning

Procedure: Observe the candle for a few minutes.

Questions: Flame at the wick: Physical or chemical?

Evidence:

Wax under the flame: Physical or chemical?

Evidence:

Station 7 – Rusting nail

Procedure: Observe the two nails

Do not compare size

Questions: Physical or chemical?

Evidence:

Station 8 – Paper/Paper ashes

Procedure: Observe the two petri dishes

Questions: Physical or chemical?

Evidence:

Station 9 – Vinegar and Baking Soda

Procedure: Place $\frac{1}{2}$ spoonful of baking soda into the beaker provided.

Measure 5 mL of vinegar and pour into beaker.

Observe

Questions: Physical or Chemical?

Evidence:

Abstract (limit 100 characters): Show through experiment the differences between physical and chemical change. Different stations are set up to demonstrate these changes.

Details: Students will record their findings on a chart either given to them by the teacher or drawn in their science journals. They will be recording whether the station was a physical or chemical change, evidence supporting their reasoning, and a drawing of the change occurring.

Materials Needed (type and quantity):

15-20 matches

3 beakers

5 pieces of computer paper

1 mortar and pestle

5 pieces of chalk

40-50 mL of vinegar

5 test tubes

1 candle

2 nails (1 rusted, 1 normal)

2 petri dishes

5-10 g of baking soda

Notes and Tips (general changes, alternative methods, cautions):

This activity should be broken up into two days. One day can be chemical changes, the other physical, or a mixture of the two.

An adult must be at the station with matches and do the striking of the matches at all times.

Explain the rotation clearly at the beginning of the class period and make sure you stick to your time frame to ensure that everyone makes it to every station.

Set up of the stations should be done prior to the start of class. This gives the students the maximum amount of time to conduct the experiments.