



# Chemical & Physical Changes

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Science  
Grades 3–5



## Introduction

This is a center activity to reinforce learning of chemical and physical changes. Students will perform various hands-on investigations and determine whether each is a physical or chemical change.

## Learning Objectives

Students will reinforce understanding of the difference between chemical and physical changes.

## Materials Needed

- [Station directions](#)
- [Data sheet](#)
- Cups
- Vinegar
- Water
- Chalk
- White computer paper
- Scissors
- Baking soda
- Balloons
- Funnels
- Flasks
- Waste bins
- Recycling bins

## Procedure

1. Introduce the activity for the day and explain that students will be visiting three stations to extend understanding of chemical and physical changes.
2. Review what chemical changes and physical changes are and the major differences.

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- Students will be split into three groups. You should have students grouped prior to this activity in order to save time. You can either choose the groups yourself or use a random group generator to do so.
- Students will visit each station for ten minutes with their group. You should keep a timer on in the front of the room so students are aware of the time. The students will rotate to the next station when the buzzer goes off.

## 5. Station 1

- Prior to activity: teachers should have (about  $\frac{1}{2}$  full) cups of vinegar and water made and labeled. Teachers should also have instructions at the work area.
- Chalk & Vinegar is a chemical reaction. Chalk & Water is a physical reaction.
- Students will take a piece of chalk and break it in half. One half of the chalk will go in the cup with vinegar and one half of the chalk will go in the cup with water. Students will observe the changes happening in each cup. Students will determine which is a chemical change and which is a physical change and record observations on their data sheet.

## 6. Station 2

- Prior to this activity, the teacher should set up the following: sheets of blank paper (full for activity b and  $\frac{1}{2}$  for activities c & d), scissors, a recycling bin, and instructions for the station.
- Cutting paper, shredding paper, and crumpling paper are all examples of physical changes.
- Students will make a snowflake from the paper using the scissors.
- Students will take a piece of paper and shred it using their hands ( $\frac{1}{2}$  sheet).
- Students will take a piece of paper and crumple it into a ball ( $\frac{1}{2}$  sheet).
- Students will determine whether chemical or physical changes will be observed at this station and fill out the data sheet.

## 7. Station 3

- Prior to this activity, the teacher will need to set up: flasks, funnels, balloons, vinegar, baking soda, scoops, and instructions for the station.
- Mixing baking soda and vinegar creates a chemical reaction and students will witness the balloon blow up.
- Students should pour about 1 - 1  $\frac{1}{2}$  inches of vinegar into the flask.
- Students should use the funnel to put 2 scoops of baking soda into the balloon.
- Students should then place the balloon over the flask and make observations.
- Students will determine whether chemical or physical changes took place and record observations on the data sheet.



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8. After the rotations, the groups will clean up the station that they end at.

- Station 1 will dispose of the cups, vinegar, water, and chalk appropriately, and then clean the work area.
- Station 2 will clean up all scraps of paper, put scissors away, and put unused paper back where it belongs. Students will then wipe down the area.
- Station 3 will clean out the funnels and the flasks. All used balloons will be thrown away and unused balloons will be returned to the teacher. Baking soda container, vinegar, and cleaned flasks/funnels will be returned to the appropriate place. Students will wipe down the work area.

9. Students will then sit in an area with their groups and the whole class will discuss results from Station 1, Station 2, and Station 3 before handing Data Sheets in.

## Evaluation

Students will turn in the Data Sheet with observations. This activity is meant to create more depth of knowledge for students.