

Chemical or Physical Change Demonstrations

Summary

This is a series of teacher demonstrations showing physical and chemical changes.

Time Frame

1 class periods of 60 minutes each

Group Size

Large Groups

Materials

Materials are listed for each demonstration. You will want to choose the demonstrations you have materials for.

- [Student sheet](#)

Student Prior Knowledge

Students should know how to recognize a chemical or physical change.

Instructional Procedures

You may wish for students to write on the student sheet or in a journal or log which type of change they think the reaction shows and why.

Describe to students that they are not to try any of the activities you show them at home unless they have a parent with them. Tell them never to mix chemicals they are unfamiliar with or to use fire or heat without supervision of parents. Young people have been burned, set houses on fire, etc. with experiments that got out of hand.

Handout safety glasses and explain the importance of protecting your eyes.

Write on board and discuss:

Chemical Changes-Substance changes to something new. You can tell because of color change, heat or light given off or taken in, new substances form.

Physical Changes-Substance doesn't change to something new, it may change form, shape, size or phase but it is still the same stuff. It is reversible and sometimes requires heat from the outside to make it happen but does not release heat by itself

Choose from the following to demonstrate.

The collapsing can. Heat can on hot plate with a little water in it until steam rises. Use tongs to quickly dump hot water out of can and place upside down in cold or ice water. Can should collapse. Ask students if a chemical or physical change has occurred. (If the teacher wants, students can write their answers on paper) Repeat if necessary.

Thermal expansion. Pour red alcohol into large test tube and attach to ring stand. Placed in a large beaker of water on a hot plate. Place stopper with long tube in it in test tube and support with ring. Turn on heat and magnetic stirrer. Let it heat while you do other activities. Go back after it has risen and talk about whether it is a chemical or physical change.

Burn magnesium. Be careful to use a strip only about an inch long. Do it more than once if desired but do not increase the length of strip. Rub residue between fingers to show new substance that forms.

Melt ice. Place a thermometer in it and have a student check the temperature during the class. Set aside until melted. Discuss type of change.

Lead Iodide and Sodium Nitrate. Show the two solutions and have students make predictions what could happen when poured together. Pour half a large test tube of one in and then another. Discuss type of change.

Ammonia fountain. Heat a little ammonia in large, round-bottomed flask over alcohol burner. Use clamp to hold stem. Have large beaker filled with water and a few drops of phenylthalein ready. When steam forms, dump ammonia in spare beaker and quickly put stopper with glass tube in mouth of beaker. Place glass tube in water and it should slurp it up. Add base to solution in flask when you have finished and you can change it back and forth with acid then base. Discuss type of change.

Bromothymol blue. Put 100 ml of BB in beaker. Have student blow bubbles with a straw until color change occurs. Discuss type of change. Color will change back with base.

Sugar and concentrated sulfuric acid. Pour about 50 ml of sugar into a narrow beaker. Add sulfuric acid until it is covered. Wait until the reaction begins and show student the color Replacement of aluminum. Add a piece of aluminum to a beaker. Pour copper chloride solution on it and wait a couple of minutes. Pull out new copper substance and place on paper towel. Press out extra water with spoon.

Pop the film can. Add 1/2 alka seltzer tablet to a film can 1/2 full of water. Quickly place the lid on and let it blow. Do not have face over can.

Burning flour. Use an ear syringe to blow a powder of flour across a flame. It will burn well.

Bibliography

Lesson Design by Jordan School District Teachers and Staff.

Authors

[Utah LessonPlans](#)