

Solving Dissolving!

When people think of dissolving, they usually think of dissolving something like salt, sugar, or drink mix in water. You may have noticed that some substances dissolve better in water than others. But did you ever think about using a liquid other than water to try to dissolve something? Let's compare the dissolving power of some different liquids.

Materials:

- 3 clear plastic cups
- Masking tape
- Pen
- Measuring spoons
- Water
- Isopropyl alcohol
- Vegetable oil
- Zip-closing plastic bag
- Sugar
- Food coloring
- Popsicle stick or straw

NOTE: When using isopropyl alcohol, be sure to read and follow all safety warnings on the label. Be sure all participants are wearing properly fitting goggles.

Procedures:

Make colored sugar according to the following directions:

1. Place 1 tablespoon of sugar in a zip-closing bag. Add 2 drops of food coloring. Seal the bag so that it has air in it. Shake vigorously until the sugar is evenly colored.



2. Use masking tape and a pen to label three cups water, alcohol, and oil. Place 1 teaspoon of water, alcohol, and vegetable oil into their labeled cups.
3. Add ½ teaspoon of the colored sugar to each cup. Stir with a Popsicle stick or straw.
4. What do you notice in each cup? Does the color seem to dissolve differently in the different liquids? How about the sugar? Which liquid was the best dissolver for both the color and the sugar?

Think about this ...

Your body is made up mostly of water. Most of that water is in the cells that make up all the different tissues, organs, and other structures in your body. You couldn't live if water wasn't a good dissolver. The nutrients from the food that you eat dissolve into your blood stream which is made mostly of water. The nutrients travel in your blood to your cells where the nutrients dissolve into the water in the cells. The dissolved nutrients are then used by the cells to help keep your body living and functioning in the right way.

Where's the Chemistry?

When trying to dissolve a substance in a liquid, the type of liquid used is just as important as the type of substance you are trying to dissolve. The water, alcohol, and oil are all different. The each liquid interacts with the sugar and the food coloring will make the colored sugar dissolve or not dissolve into the liquid. In this case water was a good dissolver of both the sugar and the coloring. Alcohol and oil may be good at dissolving some other things that water cannot.



The American Chemical Society develops materials for elementary school age children to spark their interest in science and teach developmentally appropriate chemistry concepts. The *Activities for Children* collection includes hands-on activities, articles, puzzles, and games on topics related to children's everyday experiences.

The collection can be used to supplement the science curriculum, celebrate National Chemistry Week, develop Chemists Celebrate Earth Day events, invite children to give science a try at a large event, or to explore just for fun at home.

Find more activities, articles, puzzles and games at www.acs.org/kids.

Safety Tips

This activity is intended for elementary school children under the direct supervision of an adult. The American Chemical Society cannot be responsible for any accidents or injuries that may result from conducting the activities without proper supervision, from not specifically following directions, or from ignoring the cautions contained in the text.

Always:

- Work with an adult.
- Read and follow all directions for the activity.
- Read all warning labels on all materials being used.
- Wear eye protection.
- Follow safety warnings or precautions, such as wearing gloves or tying back long hair.
- Use all materials carefully, following the directions given.
- Be sure to clean up and dispose of materials properly when you are finished with an activity.
- Wash your hands well after every activity.

Never eat or drink while conducting an experiment, and be careful to keep all of the materials used away from your mouth, nose, and eyes!

Never experiment on your own!

For more detailed information on safety go to www.acs.org/education and click on "Safety Guidelines".

