All Mixed Up

Grades K-1

Overview

The students will take turns mixing water with oil, powder, food coloring, milk, and dishwashing soap. The students will experiment with water, baking soda, vinegar, and popcorn kernels.

Objective

- To help students understand that some things mix with water and others do not
- Let students observe what happens when you mix water with a number of different substances

Materials

For presenter:

- vegetable oil
- heavy syrup
- water
- 1 qt. jar
- a cork, one grape, one plastic building block (Lego)
- baby powder
- a few popcorn kernels
- 1/2 cup milk
- dishwashing liquid
- Ten - 16 oz. clear plastic glasses for mixing
- several large spoons for mixing
- paper towel

For each student:

- One-12 oz clear plastic glass
- 3 tbs. of vinegar
- 1 plastic spoon for mixing

For each group of 4-6 students

- 1 container with about 8 tbs. of baking powder
- 1 container with about 1/4 cup popcorn kernels
- 1 container with 6 cups of water
- One - 1 cup measuring cup
- paper towels (for spills)

Getting Ready

Activity 1

The whole group activities need to be set up in an area where all the students can see. You will need a table or desk to set all your materials on and a place for two students at a time to come up and demonstrate for the class. Fill all the 16 oz glasses about 2/3 full of water.

Activity 2

Put 3 tbs. of vinegar in all of the 12 oz clear plastic glasses. Each student will need a glass with vinegar, a spoon, access to baking powder, popcorn, water and paper towel. These items should be ready and on a table for easy access by students and presenter.

Procedures

Activity 1: - Whole Group Mixing Activity

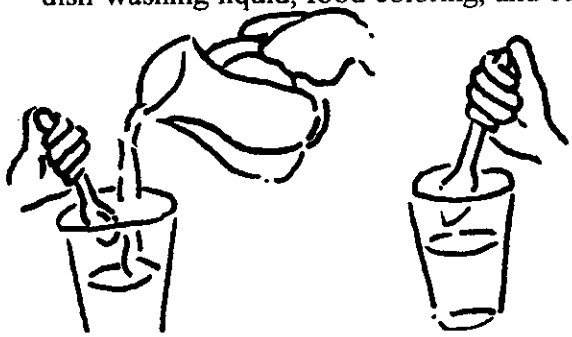
Begin by telling the students that today they are going to do some experiments to find out what happens when you mix things with water. Use the questions below to start the students thinking and spark their interest.

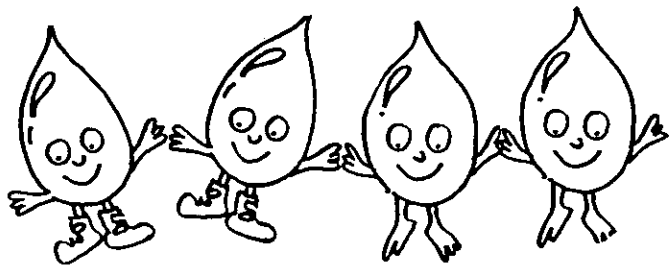
Questions

"Have you ever mixed anything with water? What happened?" Give the students time to share what they know. If anyone uses the word ***dissolve***, write it on the board where you can refer to it later. "Have you ever tried to mix something with water and it would not mix? What happened?"

After a short discussion of mixing, tell the students you will be asking for volunteers to do experiments for the class. Show them that the experiments are set up in an area where they all will be able to see. Let them know that if they are not able to do one of these experiments that everyone will be able to do an experiment at their desk later.

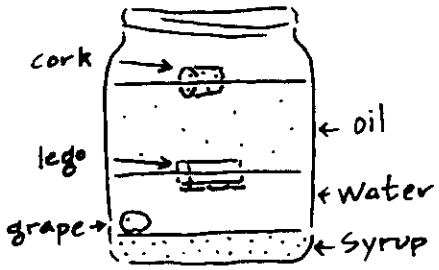
For each experiment, have two students come to the front of the class. Give each one of them a glass filled with water and the substance you want them to mix with the water. It will probably work better if you pour the things into the glasses for the students and then they can do the mixing. Have the student hold the glass in one hand, while mixing with the other, so the other students can see what is happening in the glasses. As the two students are mixing, ask the class: "What is happening? Is it mixing with the water? Did it dissolve in the water? What does dissolve mean?" If you have not already done so, write the word ***dissolve*** on the chalkboard. Choose new students to do the other experiments. This way more students are able to be involved. Follow the same procedure for each of the following mixtures: vegetable oil, milk, dish-washing liquid, food coloring, and baby powder.





Activity 2: Showing Liquid Levels

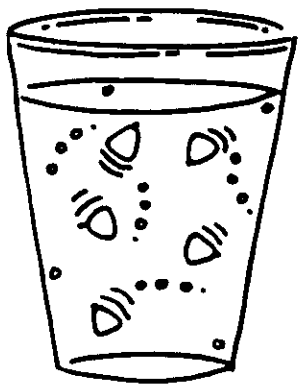
Tell the students: "We discovered that when you pour liquids together, they do not always mix. Certain liquids float on others. What happened when we mixed oil with water? ***(oil floated)*** I am going to show you an experiment to see if we can get other liquids to float." Hold up the 1 qt. jar and pour about 2 inches of syrup in the bottom. Ask the students: "Do you think syrup is heavy or light?" Next pour the same amount of oil on top. Ask the students: "What happened? Do you know why? ***(oil stays on top because it is lighter)*** Next I am going to pour in water." Before you do, ask them what they think will happen ***(oil will float on the water)***. Why? Pour in the same amount of water as oil and syrup. Ask the students: "What is happening? Were you right in your guess?" Tell them that you are going to put a grape, a Lego and a cork in the jar. Ask the students: "What do you think will happen?" Put in the grape. It should sink down and float on the syrup. Put in the Lego, it should sink down in the water and float. Put in the cork, it should float on the oil. Ask the students: "Why did the grape sink? Why didn't the Lego sink like the grape? Why is the cork floating on top? How is the cork different from the grape and the Lego? ***(it weighs less)***"



Activity 3: Dancing Popcorn

Hold up a glass of water and drop in 5 popcorn kernels. Ask the students: "What did the popcorn do when we mixed it with water? ***(it sank to the bottom)***" Tell them that they are going to try mixing things with water and see what happens to the popcorn.

Before handing out any materials, show the students the materials they will get and what they are going to do with them. Explain that there is vinegar in the glass, and baking soda, water and popcorn kernels in the containers. Tell students that each of their groups will have containers of baking soda, popcorn kernels and water to share. Explain that you will all do the experiment at the same time, so they are not to touch any materials until you give the directions. Have one member of each group come up and get the containers, spoons and measuring cups for their group. You can hand out the water and pass out the glasses of vinegar. You will need these same materials to demonstrate each of the steps. Have the students repeat what you do one step at a time. Wait until everyone has completed the first step, before moving on to the second, etc. Many children are not able to follow more than one direction at once. Remind students that they will have to take turns with the materials.



1. Pour 1 measuring cup of water into your glass.
2. Add 5 kernels of popcorn.
3. Add 3 spoonfuls of baking powder.
4. Stir.
5. Watch what happens.

Discussion

The popcorn kernels should move up and down in the glass. This is caused by a chemical reaction between vinegar and baking powder. Ask the students: "What is happening? Why? How is this experiment different from the water and popcorn I showed you at first?"

Closure:

Ask the students: "What did you learn about water today? What does the word ***dissolve*** mean? Do all things dissolve in water?"

Clean Up

Have the children pour their solutions back into the container of water. While you collect the containers have the students throw away their garbage and wipe off their desks.