Potion Commotion

Water and oil don't mix. But watch what happens when you add the fizz factor! Double, double, toil and trouble . . .

1 Get what you need.

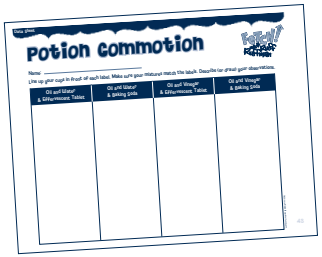
• vegetable oil • white vinegar • water • baking soda • effervescent tablets (like Alka Seltzer®) • food coloring • 4 clear plastic cups • pencil • paper towels • data sheet (see below)

2 Set up your experiment.

- Line up four cups in front of your data sheet.
- Add about an inch or two of oil to all four cups.
- Add about an inch or two of water to the two cups in front of the "oil and water" labels.
- Add about an inch or two of vinegar to the other two cups labeled "oil and vinegar."

3 Observe.

- What do you notice about the oil, water, and vinegar?
- Add three drops of food coloring to each of the four cups. Do not stir. What do you observe now?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Data Sheet
Use separate data sheet to record your observations.

4 Test chemical reactions.

- Predict what will happen if you add a piece of the effervescent tablet to one cup of oil and water and a piece to one cup of oil and vinegar.
- Add the effervescent tablet, and write or draw your observations on the data sheet.
- Predict what will happen if you add a spoonful of baking soda to the two remaining cups.
- Add the baking soda, and write or draw your observations on your data sheet.

5 Share your results.

You can tell that a chemical reaction has taken place if you see fizzing or bubbling. Describe what you see. Was there a chemical reaction in each cup?

Chew on This!

Oil and water don't mix, and neither do oil and vinegar—that's why they form separate layers of liquid. Oil is less dense (less heavy) than water or vinegar, so it floats on top. The effervescent tablets and the baking soda caused chemical reactions with water and vinegar in three of the cups, producing bubbles of carbon dioxide gas. Because gas is less dense than the liquids, the gas bubbles floated to the top, bringing along some of the colored water or vinegar.

Safety Tip

Keep mixtures away from clothes, eyes, and mouth. No tasting!

Dig Deeper

Density Tower. Create colorful layers of liquids—who knew that oil, water, and corn syrup could look so good! Add red food coloring to the corn syrup and blue to the water. Then pour the oil, water, and corn syrup into a clear glass, so they form layers, with the densest (heaviest) on the bottom and the lightest on top. Use what you learned while doing Potion Commotion to predict the correct order to pour them in.

Water Weight. Which do you think is denser—tap water or salt water? Find out by trying this ZOOM activity: pbskids.org/zoom/activities/sci/waterdensity.html

Did You Know?

Water and oil seem like sworn enemies, but soap loves them both—and it can even make them get along! Soap is an emulsifier, which means it can mix two unmixable liquids. To clean a greasy dish, water alone won't work. But if you add soap, the soap will cling to both grease and water, allowing the water to rinse away the grease.

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Fold

FETCH!

Potion Commotion

You hear a lot about boy and girl wizards like Harry and Hermione. But never a word about dog wizards . . . until now! To work my magic, I'll need a truly bewitching potion. AB-RUFF-CA-DAB-RUFF! Conjure up a concoction worthy of a canine magician.

GOOO FETCH!

Potion Commotion

Name: _____

Line up your cups in front of each label. Make sure your mixtures match the labels. Describe (or draw) your observations.

Oil and Water & Effervescent Tablet	Oil and Water & Baking Soda	Oil and Vinegar & Effervescent Tablet	Oil and Vinegar & Baking Soda