



California State University of Bakersfield, Department of Chemistry

Floating Ketchup Packets



Standards:

4th Grade: 6 D: drawing conclusions and predictions.

Introduction:

This experiment is all about buoyancy and density. Buoyancy describes whether objects float or sink. This usually describes how things float in liquids, but it can also describe how things float or sink in and various gasses.

Materials:

- A one liter plastic bottle
- Ketchup pack from a fast food restaurant
- Salt (using kosher salt helps keep the water from becoming foggy)

Safety:

- Always have an adult with you to help you during your experiment.
- Always wear eye protection and gloves when doing chemistry experiments

Procedure:

1. Remove any labels from the bottle and fill it all the way to the top with water
2. Add ketchup pack to the battle

3. If the ketchup **floats**, you're all set – go to step four. If the ketchup **sinks** in the bottle, go to step five.
4. For the floating ketchup pack simply screw the cap on the bottle and squeeze the sides of the bottle hard. If the ketchup sinks when you squeeze it, and floats when you release it, congratulations, you're ready to show it off. If it does not sink when you squeeze it, try a different kind of ketchup pack or try a mustard or soy sauce
5. If the ketchup pack **sinks**, add about 3 tablespoons (45 ml) of salt to the bottle. Cap it and shake it.
6. Continue adding salt, a few tablespoons at a time until the ketchup is just barely floating to the top of the bottle.
7. Once it is consistently floating, make sure the bottle is filled to the top with water, and then cap it.
8. Now squeeze the bottle. The magic ketchup should sink when you squeeze the bottle and float up when you release it. With some practice you can get it to stop in the middle of the bottle.

Data and Observations:

Record your observations in this space.

What did you see? Anything you were not expecting? Describe it here.

Questions:

Did your experiment work the first time you tried it?

Did you get the results you expected?

References:

1. The Magic Ketchup Experiment. Science Bob.
http://www.sciencebob.com/experiments/magic_ketchup.php (accessed Aug 6, 2012).

