



EXPERIMENT 10: Soap Swirls

Challenge: See how water moves—go with the flow!

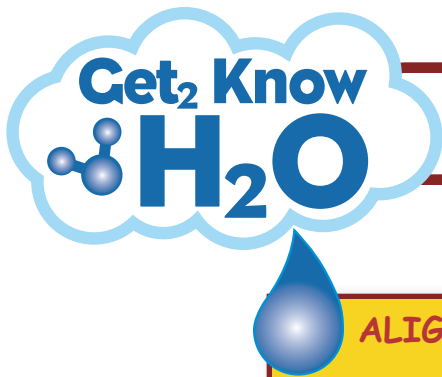


1. If the liquid inside the bottle looks like it's all one solid color, just twirl or shake it again to make more patterns. If the cap on the bottle is sealed, *Go with the Flow* can last for years.

QUESTIONS:



- What kind of patterns do you see in your bottle? What do you see when you turn the bottle slowly? Do you see smooth streaks in the water? When layers of water are moving slowly and smoothly past each other, you get this pattern, which scientists call laminar flow.
- What happens when you suddenly stop turning the bottle? What happens when you turn it very fast? Do you see lots of swirls and wavy patterns? When one layer of water moves rapidly past another layer of water, it causes turbulence, which you see as swirly patterns.



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Instructor's Guide

ALIGNMENT WITH ILLINOIS STATE BOARD OF EDUCATION GOALS

State Goal 11:

Section A: 2a and 2b

Section B: 2a, 2b, 2c, 2d, 2e and 2f

State Goal 12:

Section D: 2b



WHAT'S HAPPENING?

Normally, you can't see how the water is moving inside a full bottle of water. Water that's moving in one direction looks the same as water that's moving in another direction. But glycol stearate, the chemical that gives some liquid hand soaps a pearly look, lets you see patterns flow in water.

WHAT COULD GO WRONG?

Be sure to use a soap with "glycol stearate" — not "glycol distearate."

LINKS

www.exploratorium.edu

CREDITS

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YOUR FEEDBACK

Were the instructions clear?
Did the class stay interested?
Email us at feedback@Get2KnowH2O.org and let us know what you think. We would like to share your suggestions with other teachers and give you credit for your great ideas!

WHAT ELSE CAN KIDS LEARN?

Who cares about these patterns?

Well, when people design airplanes, cars, boats, golf balls, and other things that move through air or water, they study the patterns that blowing air or flowing water make as the object moves through it.

What engineers and designers learn from studies like this experiment can make a plane get from one place to another faster, make your car drive farther on a gallon of gas, your baseball bat hit one into the upper deck, or your golf ball land on the green with fewer strokes.

When you go with the flow, you get in the know.