

All Wet!

Sometimes it's interesting to see the way liquids interact with other liquids. We'll try adding three different liquids to water and see what they do.

What you'll need

- 6 clear plastic cups
- Tablespoon
- Water
- Isopropyl alcohol (70%)
- Vegetable oil
- Corn syrup
- Masking tape
- Pen
- Straw



Be safe

Isopropyl “rubbing” alcohol is flammable and may irritate your skin and eyes. Keep it away from all flames. Always work with an adult to supervise and guide you. You and your adult partner should both wear properly fitting safety goggles. Wear gloves when pouring isopropyl alcohol. Do not taste or eat any food items you are testing.

Here's what to do

1. Use masking tape and a pen to label 3 clear plastic cups Alcohol, Oil, and Corn syrup.
2. Pour 1 tablespoon of alcohol, oil, or corn syrup into its labeled cup.
3. Use masking tape and a pen to label three other clear plastic cups: Water + Alcohol, Water + Oil, and Water + Corn syrup
4. Pour water into each of the three cups labeled Water + Alcohol, Water + Oil, and Water + Corn syrup until they are about half-full.
5. While observing from the side, ask your adult partner to slowly and carefully pour the alcohol from the "Alcohol" cup into the cup labeled "Water + Alcohol".

What do you notice? Watch the alcohol in the water and then stir with a straw. Did the alcohol seem to dissolve in the water?



6. Repeat step 5 by pouring oil into the "Water + Oil" cup and corn syrup into the "Water + Corn syrup" cup and stirring. What do you notice?

What to expect

Alcohol makes swirly patterns as it goes into the water. When stirred, the alcohol completely dissolves into the water.

Oil stays in a layer on the surface of the water. When stirred, the oil does not dissolve into the water.

Corn syrup sinks in the water and forms a layer beneath it. When stirred, the corn syrup mixes in with the water and eventually dissolves.

What's happening in there?

There are certain characteristics about a liquid that will make it either dissolve or not dissolve in water. Each liquid acted differently when placed in the water. The way a liquid behaves in water and whether it will mix well into water and dissolve depends on the way the molecules of the liquid and the molecules of the water interact.

What else could you try?

Here's something else you can try with water, vegetable oil, and corn syrup.

What you'll need

- 1 clear plastic cup
- Water
- Vegetable oil
- Corn syrup

Be safe

Be sure to review the safety instructions on page 1 before proceeding.

Here's what to do

1. Pour water into the cup until it is about $\frac{1}{4}$ -full.
2. Next, slowly and carefully pour corn syrup into the water so that the corn syrup fills up about $\frac{1}{4}$ of the cup.
3. Finally, slowly and carefully pour vegetable oil into the cup with the oil and water.

What to expect

The liquids will end up being stacked with corn syrup on the bottom, water in the middle, and vegetable oil on top.

What's happening in there?

If you compare the same amount of each liquid, the corn syrup is heaviest, so it sinks to the bottom. The vegetable oil is the lightest, so it stays on top and water weighs somewhere in between so it's in the middle. The oil doesn't dissolve in water so oil and water can stay separated for a long time. The corn syrup will eventually mix with the water but they can stay pretty well separated for some time.

