



5 Easy Science Experiments to Try at Home



Science Experiment #1: Escape the Quicksand!

Is it a liquid? Is it a solid?

With this experiment, you'll explore how pressure can impact the properties of a material. Here's what you'll need:

- One mixing bowl
- A spoon
- 1-2 cups of cornstarch
- 1 cup of water
- BONUS: add some food coloring just for fun!

Getting started:

First, you'll want to pour the cornstarch into your bowl and have your child feel it. The cornstarch is a solid made up of tiny particles.

Next, start pouring in the water and any food coloring you want to use. Stir everything together as you go. Keep adding water until it starts to look thick like quicksand. You'll know it's ready when it becomes difficult to stir quickly!

Now for the fun:

Have your child tap the top of your "quicksand". It should feel thick and hard to the touch. However, if they push their hand into the quicksand slowly, it will slide right in. Now, imagine that you're stuck in quicksand! If you struggle to escape it will harden around your hands, but if you try to slide your hands back out slowly you can escape.

Explain what's happening:

The quicksand-like material you have created is known as a non-Newtonian fluid. Unlike a solid or a liquid, non-Newtonian fluids have a different viscosity depending on the pressure you use. Viscosity means something like thickness. Think about stirring a cup of water versus a cup of pudding. The water and the pudding have different viscosity. The quicksand you've created has a different viscosity depending on how much pressure you apply. This is why struggling in quicksand makes it harder to escape, but if you move slowly you can get out.

There you have it! In under an hour you and your child can create quicksand, learn about non-Newtonian Fluids, and have a lot of fun.



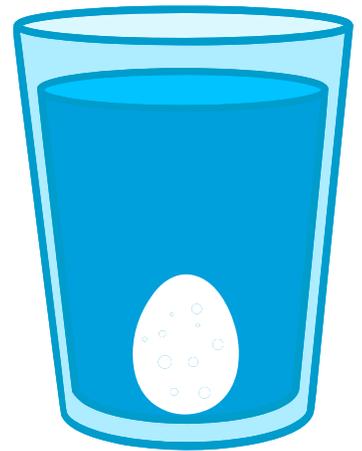
Science Experiment #2: The Amazing Floating Egg!

If you drop an egg in a normal glass of water it will sink right to the bottom, but what if you drop it in salt water?

Getting started:

With this experiment you'll explore how water density affects flotation. First here's what you'll need:

- A tall drinking glass
- One uncooked egg
- 6 tablespoons of salt
- Water



Now for the fun:

First, fill your glass with tap water and lower in your egg. What happens? It will sink right to the bottom. Now, start over. This time fill the glass only half way and stir in your 6 tablespoons of salt. Now carefully pour more tap water down the side of the glass until the cup is full.

When you drop in your egg the second time it will sink half-way and then stop in the middle of the glass! You now have an amazing floating egg (or maybe you have a lesson about density)!

Explain what's happening:

The egg looks like it is suspended in the middle of the cup because it is denser than normal tap water, but not as dense as salt water. Density is the amount of matter in a set amount of space. Fresh water has low density, meaning there is plenty of space between the water particles. An egg is dense with lots of particles in a small space, so it can push the loose water particles out of its way.

When you add salt to water it dissolves, but the particles stay in the water and take up more space. The salt water is now denser than the fresh water and the egg can't push it out of the way. If you have a chance to swim in the ocean, revisit this experiment and see how much easier it is to float in salt water than in fresh water!

Science Experiment #3: An Explosive Reaction!

This one might get a little messy, but it's always sure to impress. That's right, you're making a volcano!

Getting started:

With this experiment you'll discover what happens when you mix an acid and a base. First here's what you'll need:

- Baking soda (NOT baking powder)
- Vinegar
- Food coloring (optional)
- A cylindrical container (A vase with a narrow top works great)
- BONUS: Start with a craft project to decorate your container so it looks more like a volcano!



Now for the fun:

This experiment is simple. First set your decorated container on an open surface that can handle a mess. Pour in some baking soda and if you're going to use food coloring add that in too. This volcano is ready to go! Have your child pour in the vinegar and watch the volcano erupt in fizzy liquid that will pour down the sides.

Explain what's happening:

Your volcano is erupting because of a chemical reaction between an acid and a base. Baking soda is a base and vinegar is an acid. When you combine them together they transform into water and carbon dioxide, a gas. All that fizzing you see is the carbon dioxide gas pushing its way out of the container.

Science Experiment #4: The Self-Inflating Balloon!

If you had fun building your very own volcano, here is another easy experiment using vinegar and baking soda that will teach you more about the difference in density between gases, liquids, and solids.

Getting started:

Here's what you'll need to construct your self-inflating balloon:

- Baking soda (NOT baking powder)
- ½ cup of vinegar
- A small plastic soda or water bottle
- A funnel
- Small balloons



Now for the fun:

This is another experiment where we'll combine baking soda and vinegar to have some fun. First you'll want to stretch out your balloon a bit to loosen it up. Then you want to pour the ½ cup of vinegar into your plastic bottle. Next, use the funnel to partially fill your stretched out balloon with baking soda.

Be careful with this next step! Without letting any baking soda fall out, attach the open end of the balloon to the neck of the bottle. Your self-inflating balloon is ready to go. Just lift the balloon so the baking soda falls into the bottle and watch the balloon fill!

Explain what's happening:

If you completed the volcano experiment you already know that baking soda is a base and vinegar is an acid. When you combine them together they have a chemical reaction and become carbon dioxide, a gas.

Now you might be wondering, why did the balloon fill? If the liquid vinegar and solid baking soda fit in the bottle, why doesn't the gas fit? The answer is gas has a much lower density than liquids and solids. This means it needs room to spread out. First it spreads out in the bottle, but then it needs even more room so it begins to stretch the balloon.

Science Experiment #5: Homemade Rock Candy!

All of this science can work up an appetite. Good thing you candy in your house just waiting to be made!

Getting started:

Caution - This experiment requires boiling
Adult supervision is required.

Here's what you'll need to make this tasty treat:

- A clean wooden skewer or chopstick
- 2-3 cups of sugar
- 1 cup of water
- A tall narrow glass or jar
- A clothespin
- Food coloring (optional)

Now for the fun:

Be sure to have an adult get started with this first part. Pour your cup of water into a pan and bring it to a boil. As the water begins to boil, start adding sugar slowly and stir it together to make the sugar dissolve. Keep adding sugar and stirring until you are certain that no more will dissolve. This might take some time! If you want to use food coloring, go ahead and add that now.

Once you are certain that no more sugar will dissolve you can remove the pan from the heat and let it cool for 20 minutes. Next, carefully pour the sugar-filled water into your tall glass. Attach your clothespin to the end of your skewer and lower it into the glass of sugar water. The clothespin should rest on the brim of the glass, holding the skewer right in the middle of the sugar water.

For the final step, you need to wait. Over the next 3-7 days you can watch the sugar crystals grow on your skewer. Once enough crystals have formed you are ready for your snack!

Explain what's happening:

When you heat up sugar it dissolves and the water is able to absorb it. This is called a super saturated solution. Once you take away the heat the water can no longer hold all that sugar and it will start to crystallize. Now the next time you need a snack you can use science to whip something together...as long as you can wait a week!

