

Are you looking for something to do to keep your brain active and engaged? We're here to help with Science at Home! You can do these fun science activities using commonly found items. You can also visit us at the Museum's [Science at Home](#) page for additional resources.

Sticky Science Activities



What We'll Learn

There are many intermolecular forces at play when it comes to sticky materials, and water plays a major role in it. Not only can water stick flat surfaces together, but it can also be used to make gooey non-Newtonian fluids and any type of bio-glue. Water molecules have high polarity and use hydrogen bonds to stick together (*cohesion forces*) but they can also stick to other polar surface molecules (*adhesion forces*). Explore how nature makes bio-adhesives and try some of these activities to learn more about sticky science!

Materials Needed:

Coaster	Cornstarch	Bowl	Salt
Glass of water	Measuring cups	Paper	Whisk
Straw	Spoon	Flour	Microwave

A

Use Water to Make Two Surfaces Stick Together



Instructions:

1. Fill up a flat-bottomed glass halfway with water.
2. Deposit a few drops of water on a flat coaster using a straw.
3. Place your glass on the wet coaster and lift it up. You might need to give it a few tries, but eventually the coaster will stick on the glass.

Questions to Ask:

What kind of forces are at play?

What chemical property is responsible for the cohesive forces between the water molecules?

What happens if the surface of the coaster or the glass isn't completely flat?

Having Fun?

We want to see! Tag [@naturalsciences](#) on social media, so we can see you and your loved ones enjoying our Science at Home activities.

B Make Non-Newtonian Fluid



Instructions:

1. Add $\frac{1}{2}$ cup of cornstarch into a bowl.
2. Fill a glass with $\frac{1}{4}$ cup of water.
3. While stirring with a spoon, gently add the water to the cornstarch.
4. Keep stirring until the cornstarch acts like a liquid when you stir it slowly but starts to firm up when you stir it quickly or when you tap on the surface.
5. Reach into the bowl, pick up a blob of the non-Newtonian fluid and squeeze. See how it starts flowing when you stop squeezing.

Questions to Ask:

What happens when you stop squeezing?

How does this fluid act differently under pressure than Newtonian fluids such as water?

What happens if you add too much water?

Can you think of other examples of non-Newtonian fluids?

C Make Bio-glue With Flour



Instructions:

1. Whisk 1 cup of all-purpose flour and 2 cups of water in a microwaveable bowl. Mix in 1 teaspoon of salt into the mixture to prevent it from molding. You can save any left-over mixture in the fridge for up to a week or you can freeze it for future projects.
2. Once you have a smooth mixture, place it in a microwave and heat it up for 30 seconds at a time. Stir the mixture every 30 seconds and check its consistency. You don't want it to be too runny.
3. Keep heating up, stirring and checking the mixture until it looks like a creamy soup. It will get thicker as you let it cool down to room temperature. Now your bio-glue is ready to be used to glue paper strips together and make any kind of paper mâché craft.

Questions to Ask:

What other kitchen materials can act as an adhesive?

How can you test the adhesive strength of some sticky substances you can find in your kitchen?

D Go Outside — Find Bio-adhesives in Nature

Instructions:

1. Find a tree that oozes out resin. Use a piece of paper and see if it will stick to the resin.
2. See if you can find some abandoned cobwebs and observe what has stuck to them.
3. Think about materials that are available in nature that can be used by animals to construct nests or any type of shelter.
4. Why do pollen and seeds such as ragweed seeds stick on your clothes?