

Break the Tension: A Water Experiment

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Topics: [Fifth Grade](#) , [Science](#)

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Surface tension is one of water's most important properties. It is the reason that water collects in drops, but it is also why water can travel up a plant stem, or get to your cells through the smallest blood vessels. Help your child understand surface tension by showing her how she can create a "skin" on top of water. Test this theory by trying this experiment.

What You Need:

- drinking glass
- water
- liquid dishwashing detergent
- ground pepper
- paperclips
- piece of paper towel

What You Do:

1. Fill a cup of water. Ask your child: "Do you think a paperclip will float in the water?" Drop one in the cup to find out. Since the paperclip is denser than the water, it will sink to the bottom of the cup.
2. Now find out if you can use surface tension to float the paperclip. Gently lay the paperclip flat on the surface of the water. (This can be tricky — it may help to place a piece of paper towel slightly bigger than the paperclip in the water. Then lay the paperclip on top of it. In a minute or so, the paper towel will sink, leaving the paperclip floating on top of the water.) Even though the paperclip is still denser than the water, the strong attraction between the water molecules on the surface forms a type of "skin" that supports the clip.

3. Now put a drop of dish soap in the water. This will bind with the water molecules, interfering with the surface tension. The paper clip will sink. The detergent disrupts the molecules and "breaks the tension". You can try floating other things on top of the water also — pepper floats well until you add dish soap. Can you find any other light items that will float?

What Happened?

Surface tension happens when hydrogen atoms in water molecules stick to one another as well as to the water below them. This creates a strong and flexible film on the water's surface.