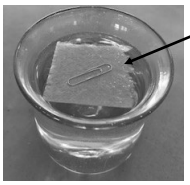
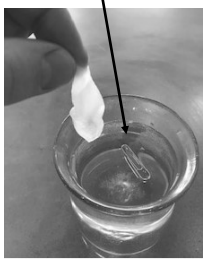
SURFACE TENSION AND WATER STRIDERS!

Materials:

- 1 Water glass
- 1 large bowl or frying pan
- 1 Toothpick or pine needle
- 1 Paper clip
- Dish Soap
- Piece of tissue paper or paper towel
- Water





Experiment #1:

1. Fill a glass with water.
2. Place your paperclip on the tissue paper and gently float it on top of the water.
3. Carefully remove the tissue so the paperclip floats on the surface of the water.
4. Put some dish soap on the tip of your finger and dip it in the water. Watch the paperclip sink!

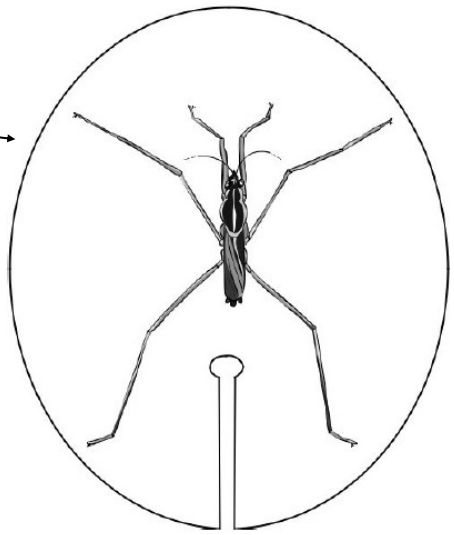
WHY DOES THIS HAPPEN?

Surface Tension exists in water because water molecules stick each other. Water has high surface tension, which means the molecules are strongly pulling each other together on the surface.

Even though the paperclip has higher density than the water, the strong attraction between the water molecules on the surface forms a type of "skin" that supports the paperclip. When you put a drop of dish soap in the water, it binds with the water molecules, interfering with the surface tension, and allowing the higher density paperclip to sink.

Experiment #2:

1. Cut out the WATER STRIDER along the lines, making sure to cut out the notch at the bottom.
2. Fill your large bowl or frying pan with water (we want something with a lot of surface area, like a lake for our water strider), and float your water strider on top.
3. Put some dish soap on the tip of your toothpick (or pine needle) and dip it in the water
   - ⇒ Dip it right at the inner edge of the notch, near the abdomen of the water strider.



Did you see the water strider zip around in the water?

WHY DOES THIS HAPPEN?

Water striders are small insects that are adapted for life on top of still water, using **surface tension** to their advantage so they can "walk on water." The attraction between water molecules creates tension and a very delicate membrane. Water striders walk on this membrane.

The dish soap is a surfactant, which breaks up the surface tension of the water, allowing the water molecules to move, pushing away from each other and moving toward areas with more surface tension, thus pushing our strider forward!

SURFACE TENSION *It is the reason that water collects in drops, but it's also why plant stems can drink water and cells can receive water through the smallest blood vessels!*

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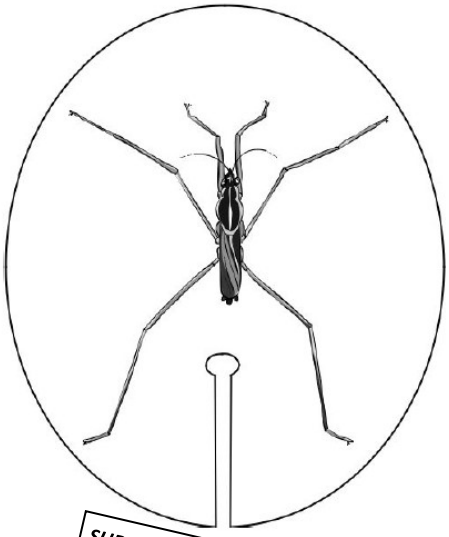

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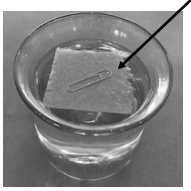

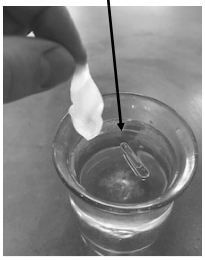

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