



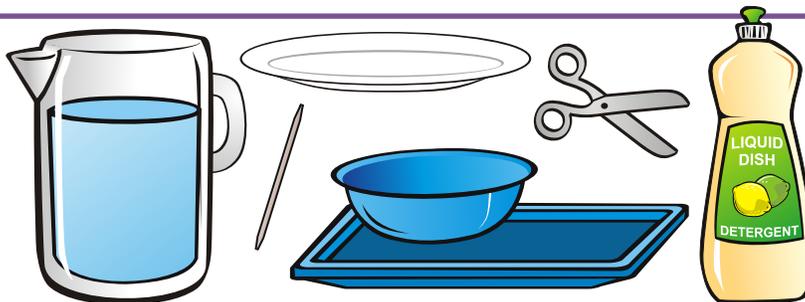
THE
**HOME
LAB**

Soap Powered Boat



What you need:

- Liquid dish detergent
- Large container or tray
- Scissors
- Small bowl
- Foam plate
- Toothpick
- Water



What you do:

Step 1: Use the scissors to cut a rectangle out of the foam plate.

Step 2: Cut off the top two corners to make a point at one end.

Step 3: At the other end, cut out a keyhole shape. You have now finished your boat!

Step 4: Pour some liquid dish detergent into a small bowl.

Step 5: Pour some water into the large container or tray and let it settle until the water is still.

Step 6: Lay the foam boat on the water at one corner of the large container or tray, with the pointed edge facing away from the corner. Wait until the boat is still.

Step 7: Use the toothpick to pick up some liquid dish detergent. Touch the point of the soapy toothpick to the water inside the boat, in the circle of the keyhole shape. What happens?



What's going on:

Water molecules are attracted to one another and have the ability to hold themselves together, especially at the surface. This is known as surface tension. Detergents lower the surface tension of water. When you add detergent to the water inside the boat's keyhole shape, it lowers the surface tension at the back of the boat. This means the surface tension is lower behind the boat than it is in front of it. The front of the boat moves toward the area of higher surface tension and this sends your boat traveling across the water!

Now try this:

Do you think there are other materials that can affect surface tension? Try other liquids such as oil, or sugar water, or even other kinds of soap. Make your hypotheses and test them out!

