

ACTIVITY 16: SURFACE TENSION LAB



QUESTION ?

How strong is the surface tension of water?

SAFETY

Do not leave pennies where a child might swallow them. Use only clean water in the syringe. Press the plunger of the syringe gently. Clean up all spills immediately. Do not work near electrical appliances or outlets.

MATERIALS

Penny, water, syringe, dishwashing liquid

PROCEDURE

In this lab, you will test surface tension by counting how many drops of water you can put on a penny before it overflows. Dishwashing liquid breaks up surface tension, so you will repeat the experiment again after putting a little dishwashing liquid in the water. Surface tension is a simple way to estimate the intermolecular forces in a substance. Intermolecular forces are attractions between molecules or atoms that hold the particles together. Intermolecular forces affect properties such as boiling point and surface tension.

First, predict how many drops of water you think you will be able to put on the penny. Lay a penny on a flat surface with the tails side facing up. Using your syringe, carefully count the number of drops you place on the penny until the water overflows. Clean and dry the penny. Now add a couple drops of dishwashing liquid to the water and repeat. When you have finished, clean the syringe until all of the dishwashing liquid is gone.

Data

Predicted number of drops _____ drops

Drops of tap water _____ drops

Drops of soapy water _____ drops

Post-Lab Questions

1. Did pure water or soapy water enable you to put more drops of water on the penny? Why?
2. If there was a chemical that could increase surface tension, do you think it would allow more drops or fewer drops?
3. Were you able to put more or fewer drops than you predicted?