

Supplies

- “Guide for Families” handout
- Clear plastic standup display (optional)
- 1-2 shallow pans
- Several pennies
- 5-10 eye droppers
- Small bowl with water
- Small bowl with soapy water
- Paper towels
- Display table

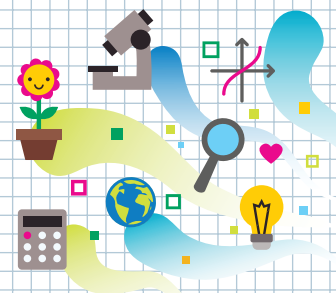
Activity Preparation

- ▶ Purchase or locate items on supply list.
- ▶ Print one copy of the “Guide for Families” handout. Laminate or place in a clear plastic standup display to allow participants to see it more readily.
- ▶ Set up the display table with the supplies. Include paper towels for cleaning up spills.





HEADS IN, HEARTS IN



Drops on a Penny

Guide for Families

Learning Objectives

What you need to know:

Surface tension is created by the **force of attraction** between water molecules. A **molecule** is formed when two or more atoms join together. Water is made up of atoms of hydrogen and oxygen. In water, each molecule is attracted to another molecule and they “stick” together. This only happens when the water molecule is next to them or below them (because there is no water above them). As they stick together, they create an invisible shield. (Think about an insect that can rest on top of a puddle.)

What you will do and learn:

You will explore surface tension by placing drops of water on a penny.

Instructions

1. Choose a penny from the table and place it in a shallow pan.
2. Choose an eye dropper and one by one, add drops of water to the surface of the penny.
3. How many drops do you think a penny can hold?
4. Count how many drops of water you add before the water spills over the edge of the penny.
5. Use the same penny. Add drops of soapy water one by one to the surface of the penny.
6. Count how many drops of soapy water you add before the water spills over the edge.
7. Discuss:
 - ▶ Was the penny able to hold more drops of plain water or more drops of soapy water?
 - ▶ Why do you think that was the outcome?

If we add too many drops of water on the surface of the penny, **gravity** breaks the **force of attraction** making the water spill off the coin. When you add soap to the water, you reduce the **surface tension**.