

## Can Coins and Paper Clips Float?

### Purpose

The purpose of this activity is to investigate the unique surface tension properties of water and other liquids using readily available, everyday materials.

### Materials

Water	Dish Soap*
Small Clear Dish or Bowl	Olive Oil or Vegetable Oil*
Paper Clips	Honey*
Coins (Nickels or Dimes)	Molasses*
Dish Soap	
Pepper or Baby Powder*	<i>*Optional Materials</i>

### Instructions

1. Fill the small bowl with water
2. *Gently* place the coin or paper clip into the bowl.

**Hint:** the paper clips can be bent or altered in any way you wish. A steady hand helps!

Have students investigate the following questions:

1. How many paper clips can the surface tension support?
2. Does the shape of the paper clip affect its ability to float?
3. Once the paper clip is floating, place some dish soap in your bowl. What happens?

**Additional Challenges:**

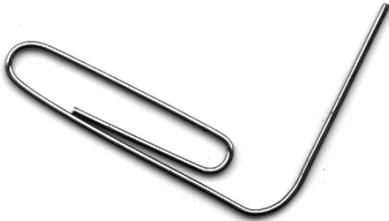
1. Which liquid has the strongest surface tension? (Try: honey, molasses, olive oil, etc.)
2. Can you strengthen the surface tension? (Sprinkle pepper or baby powder over the water)

### Scientific Background:

Water molecules have a unique adhesive ability which creates a skin-like layer on the top of a solution known as surface tension. The surface tension is so strong it can support a paper clip or coin. When baby powder or pepper is sprinkled onto the water, the surface tension is strong enough to support the particles and they sit on top without sinking. Adding dish soap to the bowl disrupts the surface tension (This is what makes soap such a valuable cleaning agent). Most liquids behave the same way, only the strength varies depending on the molecular structure.

**Solution:**

Bend one paper clip into an L shape (**Figure 1**). Balance the paper clip you wish to float on one end of this L Shaped tool. Once the paper clip is balanced, use the tool to gently place the paper clip into the water. Using this tool you are able to place the paper clip into the bowl without your hands breaking water's surface tension.



**Figure 1** - L shaped paper clip tool

**Note:** This experiment was adapted from Science Bob ([www.sciencebob.com](http://www.sciencebob.com)). Visit his website for a [video demonstration](#) of this experiment and other great classroom resources.