

Water Stations Lab

Investigating the properties of water

Learning Target

Describe how the structure of water leads to its unique properties.



Water is a unique molecule and has special properties that we can witness in our everyday lives using simple experiments in class. Each molecule is made of two hydrogen atoms and one oxygen atom. In this arrangement, the water molecule is considered polar which means that it has a more negative side on one end of the molecule and a more positive side on the other. This creates a special attraction between water molecules resulting in the formation of hydrogen bonds. In today's lab, you will rotate around the room visiting different stations that feature at least one property of water.

#1: *Sinkin' Lincoln!*

Materials: 1 penny, dropper, 50 mL beaker of water, paper towels

1. Dry the penny using the paper towels.
2. Record how many drops do you think will fit on the "heads" side of a penny in the data table below.
3. Using the dropper, place a single drop of water on the "heads" side. Sketch what the drop of water looks like from eye-level.
4. Continue adding and counting the number of drops that will fit on the "heads" side of the penny. Record the results in the data table.

Predicted #	Actual #

#2: *Freeze!*

Materials: 2 pictures of soda cans (1 frozen can and 1 room temperature can)

1. Compare the two pictures. Sketch the general shape of each can in the space provided below:

Frozen Can

Room Temperature Can

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2. How could you explain the difference between the two soda cans using the properties of water?

#3: Drip, Drop!

Materials: wax paper squares, 50 mL beaker of water, dropper

1. Use the dropper to place a single drop of water on a piece of wax paper.
2. Sketch what you see from both eye-level and top-down (bird's eye view).
Eye-Level Top-Down/Bird's Eye View

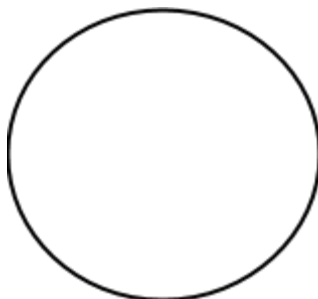
3. What property of water allows the water drop to keep the form that you see?

#4: A Dash of Pepper!

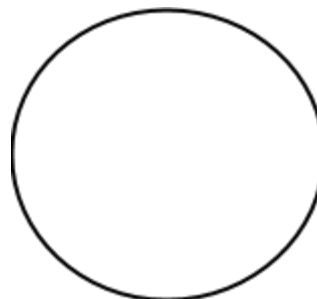
Materials: petri dish, 250 mL beaker of water, pepper, paper towels, toothpicks, 50 mL beaker of dish soap

1. Fill a Petri dish half full with water and sprinkle a small amount of pepper over the water in the Petri dish. Sketch what you see.
2. Dip a clean toothpick in the dish soap and then dip the soapy toothpick in the center of the water in the Petri dish. Watch closely to see what happens!
3. Sketch what your Petri dish looks like after dipping the toothpick.

Petri Dish Before



Petri Dish After



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4. What effect do you think the soap has on the attractions found in water?

#5: Quicker Picker Upper

Materials: green tray, 250 mL beaker of water, paper towels, chromatography paper strips

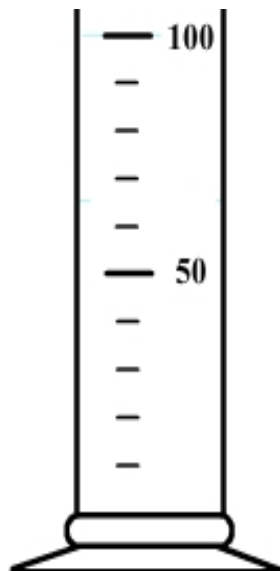
1. Place “barely” an edge of the chromatography paper strip in the tray of water. Hold the paper at the same level and steady for a few minutes. What happens to the water?

2. Which property of water explains what happened to the water?

#6: Water View

Materials: graduated cylinder filled halfway with water.

1. Sketch an eye-level view of the water found in a graduated cylinder. Make it clear what shape you see the water at. Hint: Pay close attention to the water at the top and along the edges of the graduated cylinder.



Name: _____

2. Which property of water is demonstrated at this station?

#7: Operation Evaporation!

Materials: 50 mL beaker of water, 50 mL beaker of ethanol, cotton swabs, paper towels, 2 watch glasses

1. Dip a cotton swab into the water beaker and another cotton swab into the ethanol beaker.
2. Draw a line of water and a similar line of ethanol at the same time across the counter.
3. Place a checkmark in the box to indicate which evaporated fastest.

Water	Ethanol

4. Would it be better if cells were about 70% alcohol instead of 70% water? Explain.

5. Which property of water is demonstrated at this station?
