

Station 1

- 1) Turn the hotplates on.
- 2) Pour water and ethanol into one beaker each
- 3) Use the thermometers provided to measure the temperature of the water and the ethanol every minute until one of the liquids boils.
- 4) Turn the hotplates off.
- 5) Continue measuring the temperature of each of the liquids every minute until they have returned to their original temperature.

On Your Answer Sheet

1. Record your data in a table and sketch it as a line graph
2. What characteristics of water are shown here?
3. How does the property of water that you have just observed, impact
 - A. organisms living in ponds?
 - B. Terrestrial organisms living in hot climates?

Station 2

The beaker contains both ice and liquid water. Observe where the ice is in relation to the liquid water.

On Your Answer Sheet

1. How could this be important to organisms living in lakes in regions that experience extremely cold winters?
2. Stick your hand in the cold water? How long can you hold it?

Station 3

Spray or wipe some water onto your arm. Blow across your wet skin. Blow across the dry skin on your other arm.

On Your Answer Sheet

1. Record your qualitative observations.
2. How could this property of water be important to terrestrial organisms?

Station 4

Add 1 teaspoon of NaCl to the beaker of water and stir it.

On Your Answer Sheet

1. What do you observe?
2. Using the models of water and NaCl, construct how you think these two molecules interact when mixed. Sketch a diagram of your model.
3. What property of water have you just demonstrated?
4. How could this property be important to terrestrial organisms?

Station 5

Look at the tubing in the beaker of water. The tubes (empty at the start) were placed in the beaker of water, before class.

Place the end of a strip of filter paper into the petri plate.

Observe the paper in the food coloring.



On Your Answer Sheet

1. Write down qualitative observations of what you see.
2. Using the water molecules models, construct how you think they will attach to each other. Sketch a diagram of your model.
3. How would the property be useful in terrestrial plants?
4. Look at the picture of the water strider on the water. Why is it possible for this insect to stand on water, but you would sink?
5. The celery has blue dye throughout the stem. Can you explain why?

Material:

2 Hotplates

4 beaker

Capillary tubes

100mL Ethanol

Food coloring

Sugar or Salt

Celery - put in water and food coloring the day before.

Ice

Filter paper strips

Petri plate

Thermometers (digital if possible)

Two retort stands

Teacher to provide:

paper models of water and NaCl

Water Strider Picture

Answer Sheet for Water Circus

	Property of Water (PoW) & Explanation	Example of Benefit to Life
<u>Station 1</u>	<u>PoW:</u> <u>Explanation:</u>	
<u>Station 2</u>	1. How could this be important to organisms living in lakes in regions that experience extremely cold winters?	
<u>Station 3</u>	<u>PoW:</u> <u>Explanation:</u>	

Station 4

PoW:

Explanation:

Station 5

PoW:

Explanation:

Key concepts to be looking for; more than one may be seen in a station.

- Surface tension
- Cohesion
- Adhesion
- Universal solvent
- Polarity
- Hydrogen bonding
- Buoyancy
- Viscosity
- Thermal conductivity
- High heat of vaporization (means it requires a lot of energy to change state)