

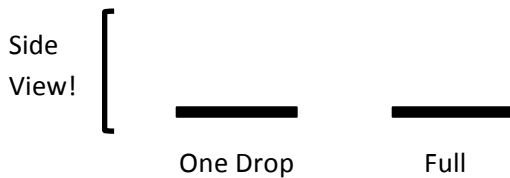
Name: _____ Period: _____

THE AMAZING PROPERTIES OF WATER!



STATION 1: _____

- A. Read the station card and fill in the blanks below:
Cohesion is a property of water that describes how water “sticks” to _____. Water molecules are _____ to each other by _____.
- B. How many drops of water do you think will fit on a penny? _____
- C. Observations: Draw a side view of the drops of water on your pennies



- D. How many drop of water actually fit on a penny? _____
(Try a couple of times and see how many you can get!)
- E. In the picture below, describe how you think the property of cohesion is working. How is water “defying gravity”?



STATION 2: _____

- A. Read the station card and fill in the blanks below:
Water has a _____ heat capacity, meaning water holds on to heat _____ and takes a _____ time to heat up compared to other substances.
- B. Times to evaporate:
Water: _____ Isopropyl Alcohol: _____
- C. Which of the liquids evaporated faster? _____
- D. Which of the liquids has a LOWER heat capacity? Why?

- E. Metals heats up quickly and cools down (loses heat) quickly. Do you think metal has a higher or lower heat capacity compared to water?

STATION 3:

- A. Read the station card and fill in the blanks below:

Water is called a universal _____ because it can _____ almost any substance. A solvent is a substance that dissolves other substances.

- B. In the "Salt" beakers, which liquid(s) did the salt dissolve in? Which did it not dissolve in?

- C. In the "Sugar" beakers, which liquid(s) did the sugar dissolve in? Which did it not dissolve in?

- D. Given the definition of "universal solvent" do you think salt and/or sugar did NOT dissolve in one of the liquids?

STATION 4:

- A. Read the station card and fill in the blanks below:

Adhesion is a property of water that describes how water "sticks" to _____.

The water molecules are _____ to other substances through _____.

- B. Drawing of droplet on upside-down wax paper:

- C. Total number of small drops in large drop: _____

STATION 5:

- A. Read the station card and fill in the blanks below:

Capillary action describes how water will _____ or flow up _____ spaces
against _____.

- B. In the space below, draw what the water looks like between the two glass slides:

- C. Between the glass slides, where did water flow up the highest? Less gap or more gap? _____

STATION 6:

- A. Read the station card and fill in the blanks below:

Overall, water is a _____ molecule. But it has one side that is more
_____ charged and one side that is more _____. Because of this
charge, water is _____ to other charged substances.

- B. Draw a diagram of what you observe:

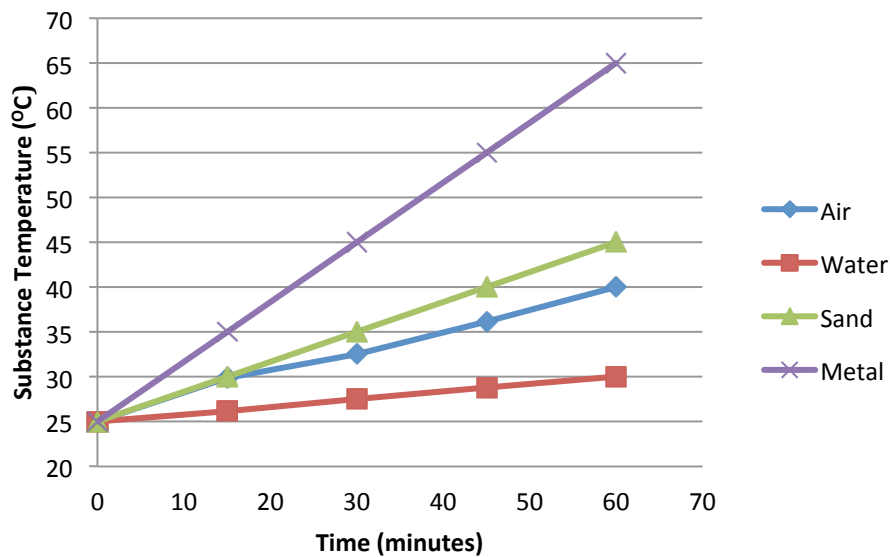
- C. Oils are deemed nonpolar substances. Describe what you think might happen if you were to do the exact same setup but with oil in stead of water.

****TURN OVER!****

STATION 7: AND JUST ONE MORE HEAT CAPACITY

For such a small molecule, water has a very high heat capacity. This means it takes a lot of energy to raise the temperature of water compared to other substances like air, sand, metals, etc. For this activity, observe the graph and answer the questions.

Substance Temperatures Heated in the Sun (°Celsius)				
Time (minutes)	Air	Water	Sand	Metal
0	25	25	25	25
15	29.9	26.2	30	35
30	32.5	27.5	35	45
45	36.2	28.8	40	55
60	40	30	45	65



- Which substance takes longest to heat up in the sun? _____
- Why do you think this substance takes longest to heat up? (Hint: think about its properties!)
- Which substance do you think will cool down fastest? Why? (Hint: think about what heated up fastest!)
- Which substance will cool down the slowest? Why? (Hint: think about what heated up slowest!)

Lab 4 Score:			
1	2	3	4
Student did not participate appropriately and/or did not answer all questions. More than half the items require some improvement.	Student participated appropriate with some direction and/or did not answer all questions. Requires improvement on half the items.	Student participated appropriately and most lab questions are completed. Some require improvement.	Student participated appropriately, and completed all lab questions thoroughly. No items require improvement.