**Major Properties of WATER! Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Directions**: In the left column, run the mini-experiment for that water property. Record all observations, data, and pictures in the right column. *Due at the end of class*.

|  |  |
| --- | --- |
| ***7 properties of water!*** | ***Observations/Results/pictures*** |
| 1. **Density- (Liquid vs Liquid)** Use Beaker DEN 1. and Beaker DEN 2. To answer the following questions.
2. Find the mass of Den 1 beaker.
3. Find the mass of Den 2 beaker.
4. What other differences do you notice between the two beakers? (feel the glass, look at color, amount & smell)
5. Do you think Den1 & Den2 have the same density? How do you know?
6. Take Den 1 beaker and pour slowly over the back of a spoon into DEN 2 beaker. Write your observation of what happened. Why do you think this occurred?

**Clean up: pour down the drain. Rinse out with tap water.**  |  |
| **Density continued (solid vs liquid).** Use the ice cube and a beaker of tap water to answer the following questions1. Place 1 ice cube into a beaker of Tap water. **What** happened AND **Why**?
2. What do you think the definition of **Density** is?

**Clean up:** put the ice cube and tap water down the drain |  |
| 1. **Polar Covalent Bond-** Look at the picture of the Polar Covalent bond of 1 water molecule to answer the following:
	1. Draw the polar covalent bond of water.
	2. Explain why 1 molecule of water has a **Polar Covalent bond**.
 |  |
| **Polar covalent bond continued.** Use the picture of 1 water molecule connected to other water molecules * 1. Draw the 4 water molecules attached to the 1 central water molecule.
	2. How is 1 water molecule attached to the other water molecules?
	3. Why is this type of bond important?
 |  |
| 1. **Adhesion-**Use beaker A, beaker B, and the piece of string.
	1. Fill Beaker A with 30 mL of water.
	2. Using only those 3 pieces of equipment, get the water from beaker A into beaker B, without pouring it in directly. Explain how you were able to accomplish this task. (picture or written)
	3. What do you think the definition of **adhesion** is?

**Clean up**: Rinse water from both beakers into the sink. Wipe down the table if any water spilled onto it.  **Layout** string on a paper towel to dry.  |  |
| 1. **Cohesion-** Use the weigh boat of water & the paper clip to answer the following:
	1. Fill the weigh boat with water.
	2. Try to get the paper clip to “*float*” on top of the **surface** **tension** of water. Did you get it?
	3. Look at the picture of the insect on the water. It is not floating. How does it stay on top of the water then?
	4. What do you think the definition of **cohesion** is?

**Clean up:** If the paper clip is unusable, throw it into the trash. Pour the water from the weigh boat down the drain.  |  |
| 1. **Solvent Ability-** Use the salt, oil, and Cup C & Cup D.
	1. Fill Cup C with 30 mL of tap water. Take 3 pinches of salt and place them into beaker C. Then stir.
	2. What do you notice happens to the salt? Why did this occur?
	3. Fill Cup D with 30 mL of tap water. Add 5 to 10 drops of oil into Cup D.
	4. What do you notice happens to the oil? Why did this occur?
	5. What do you think the definition of **Solvent ability** is?

**Clean up**: Pour the contents down the drain. Rinse the cups out with tap water.  |  |
| 1. **pH- use the pH test strips**
	1. Using your pH test strips, find the pH of salt water **and** of freshwater from the tap. Compare your results.
	2. Which solution is a Base? Neutral?
	3. What type of solution is the ocean?
	4. What do you think the definition of an **Acid** & **Base** is?

**Clean up**: throw pH test strips in the trash.  |  |
| 1. **Define: Heat Capacity-**
	1. When you go to the beach in the morning, what heats up faster, the sand or the ocean?
	2. What happen to the temperature of the sand & the ocean as the sun sets (and it becomes night). (Hint \* what feels warmer at night?)
	3. What do you think the definition of **Heat Capacity** is?
 |  |
| 1. **Conclusion**

**In a well formed paragraph, answer the following question:** Life depends on water.Pick three properties of water that you think are the *most* important for life to exist. Explain how that property works and why it is one of the most important properties to sustain life. **See grading scale below.** **Paragraph Grading Scale**

|  |  |  |  |
| --- | --- | --- | --- |
| **4** | **3** | **2** | **1** |
| **Has a claim directly answering the question, apt textual evidence supporting answer, and evidence is clearly explained tying the examples to the topic sentence. No grammatical errors.** | **Has a weakness in the claim, evidence, or the explanation. Has a couple grammatical errors.** | **Has weaknesses in two of the three categories: claim, evidence, or explanation. Has some grammatical errors.** | **Has weaknesses in all categories and serious multiple grammatical errors.** |

 |