Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_\_\_\_ Period:\_\_\_\_\_\_\_\_

**Water Lab Observation and Analysis Sheet**

**Station 1: What is the difference?**

Write down your prediction of the pH value for each solution.

|  |  |  |  |
| --- | --- | --- | --- |
| **Solution** | **pH value** | **Solution Description** | **Acid, Base, Neutral?** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

1. Which one did you classify as an acid? Base? Neutral? Explain your reasoning for each.
2. Briefly describe properties (include pH values) of:
   1. Acidic solutions:
   2. Basic solutions:
   3. Neutral solutions:
3. Provide one example in any living organism when maintaining proper pH is important.

**Station 2: Runaway Pepper**

1. What do you think will happen when you sprinkle pepper on the water?

2. Write down your prediction for what will happen when you add soap.

3. What **actually** happened to the pepper flakes when you added soap?

4. Briefly describe surface tension.

5. How does surface tension relate to the pepper and water interaction?

6. When you add soap, what happened to the surface tension?

7. Look up the Family Gerridae. Why is this significant to this lab station?

**Station 3: Sticky Situation**

Prediction: Will there be a difference in effort to lift the slides?

1. Draw the drops on the table after 2 minutes (from an eye-level view) and describe the difference in shape.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Water Alcohol

1. What was the difference in reactions when you pushed them with air?
2. What was the difference between the 2 glass slides when you tried to lift them?
3. Define the following terms:
   1. Cohesion
   2. Adhesion
4. How do these terms relate to the 2 activities you just completed at this station?

**Station 4: Movin’ on Up**

Part A – Describe what you see.

Part B – Describe what you see.

1. Why is there color in the petals of the flower?
2. What a lovely rainbow of colors in Part B! How did this happen?
3. Give one example where this type of movement of water is used in living organisms (other than plants).

**Station 5: Lava Lamp Gone Wrong**

Prediction: What will be the interaction of water and oil? Be specific about arrangement.

Prediction: What will happen when food coloring is added to the water/oil cup?

1. Describe the interaction of oil and food coloring.
2. Why is it that even after mixing, the oil is still clear?
3. Why does oil sit on top of water and not water on top of oil?

**Station 6: Hot! Hot! Hot!**

|  |  |  |
| --- | --- | --- |
| **Time** | **Water** | **Sand** |
| Start 0s |  |  |
| 30s |  |  |
| 1 min |  |  |
| 30s |  |  |
| 2 min |  |  |
| 30s |  |  |
| 3 min |  |  |
| 30s |  |  |
| 4 min |  |  |

1. What was the difference of how water versus sand increased in temperature?
2. Where can we see examples of this difference in temperature change rate of water and other materials in everyday life? (List 2.)
3. What other factors can affect how fast the temperature changes (not the weather)?

**Station 7: Bending Water**

1. What happened to the water stream when you put the pipe near it AFTER someone put it through their hair? How is this different than before you altered the pipe?
2. Explain why this happened. Describe how a water molecule is physically reacting to the pipe.
3. Draw 3 water molecules. Label the following:
   1. Oxygen atom
   2. Hydrogen atom
   3. Positive charge
   4. Negative charge
   5. Covalent bond
   6. Hydrogen bond

**Station 8: The Mystery of the Floating Egg**

1. What is different about the egg in Beaker A and Beaker B?
2. Give possible reasons why there is a difference between the 2 beakers.
3. Certain types of pond fish will bury themselves during the winter time as the pond water freezes over. They do NOT die. How are they able to survive the winter months? (Hint: Think about the relationship between ice and water.)