H20 Density and Salinity Lab

**Roles:**

**Materials Collector = collects all materials needed for lab and returns them when finished**

**Data Recorder = records all data/observations in lab and share with group after procedure is completed**

**Procedure Reader = responsible for carefully reading procedure to group and making sure that everyone is doing the experiment correctly!**

**Experimenter = takes instructions from the Procedure Reader and performs the experiment (with the help of the other group members)**

**\*\* If in a 3-person group, 1 person may have 2 roles \*\***

**Background:**

(Answer the questions in your notebook using PQIA)

1. What is density?
2. What is salinity?
3. How are temperature and density related? (Hint: think about other labs we have done…)
4. What do you already know about salinity based on what you read in 3.1?

**Question:**

How does salinity affect water density?

**Variables:**

Independent variable = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Dependent variable = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Hypothesis:**

Make a hypothesis using If, then and because…

**Procedure:**

**Part 1:**

1. Fill beaker half full with CLEAR TAP WATER
2. Fill a pipette with VERY SALTY GREEN WATER
3. Place one drop of VERY SALTY GREEN WATER into the beaker with clear water (be sure the pipette is just about the surface of the water, against the side of the beaker)
4. Record observations
5. Empty and rinse beaker and pipette for Part 2

**Part 2:**

1. Fill a beaker half full with CLEAR SALT WATER
2. Fill a pipette with BLUE TAP WATER
3. Place one drop of BLUE TAP WATER into the beaker with clear salt water (be sure the pipette is just about the surface of the water, against the side of the beaker)
4. Record observations
5. Empty and rinse beaker and pipette for Part 3

**Part 3:**

1. Fill a test tube ½ full with VERY SALTY GREEN WATER
2. Place test tube in rack
3. Fill a pipette with CLEAR TAP WATER
4. Using pipette, drop CLEAR TAP WATER ***SLOWLY*** into the test tube (on top of very salty green water) so that the test tube is ¾ full (be sure the pipette is just about the surface of the water, against the side of the test tube)
5. Record observations
6. Rinse pipette
7. Making sure that the pipette is clean, fill the pipette with SLIGHTLY SALTY RED WATER
8. Place the pipette end into the layer of VERY SALTY GREEN WATER (near TOP of the layer of green) and squeeze out a few drops of SLIGHTLY SALTY RED WATER
9. Record observations
10. Take the same pipette of SLIGHTLY SALTY RED WATER and place it into the layer of CLEAR TAP WATER (near the bottom of the clear layer) and squeeze out a few drops of SLIGHTLY SALTY RED WATER.
11. Record your observations
12. Using the stir rod, mix the layered water system together ***(be gentle!)***
13. Record observations
14. Clean up your station, rinse ALL equipment, return everything you used into the bin, put the bin away and wipe down your table
15. Data recorder should share all data with group members

**Observations:**

(Create the chart below in your notebook)

|  |  |
| --- | --- |
|  | Observations |
| Part 1 |  |
| Part 2 |  |
| Part 3 |  |

**Technical Drawings:**

* Draw 1 diagram for each of the 3 parts of the procedure
* Show what happened in each step
* Be sure to include labels AND color!

**Conclusion:**

Use the Conclusion format to write a FULL, complete conclusion for this lab. **BE SURE TO DISCUSS ALL PARTS OF THE LAB.**

**Conclusion:**

1. What happened to the drop of very salty green water in the tap water? WHY?
2. What happened to the drop of blue tap water in the salty water? WHY?
3. Why did the tap water and very salty green water not mix together (Part 3)?
4. What happened when the two drops of slightly salty red water were added to different layers? WHY?
5. How do oceanographers measure the different densities out in the open ocean?
6. Why is this information from the lab important?
7. Who would this information be important to?

**Conclusion:**

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2. Fill a pipette with VERY SALTY GREEN WATER
3. Place one drop of VERY SALTY GREEN WATER into the beaker with clear water
4. Record observations
5. Empty and rinse beaker and pipette for Part 2

**Part 2:**

1. Fill a beaker half full with CLEAR SALT WATER
2. Fill a pipette with BLUE TAP WATER
3. Place one drop of BLUE TAP WATER into the beaker with clear salt water
4. Record observations
5. Empty and rinse beaker and pipette for Part 3

**Part 3:**

1. Fill a test tube ½ full with VERY SALTY GREEN WATER
2. Place test tube in rack
3. Fill a pipette with CLEAR TAP WATER
4. Using pipette, drop CLEAR TAP WATER ***SLOWLY*** into the test tube (on top of very salty green water) so that the test tube is ¾ full
5. Record observations
6. Rinse pipette
7. Making sure that the pipette is clean, fill the pipette with SLIGHTLY SALTY RED WATER
8. Place the pipette end into the layer of VERY SALTY GREEN WATER and squeeze out a drop of SLIGHTLY SALTY RED WATER
9. Record observations
10. Take the same pipette of SLIGHTLY SALTY RED WATER and place it into the layer of CLEAR TAP WATER and squeeze out a drop of SLIGHTLY SALTY RED WATER.
11. Record your observations
12. Using the stir rod, mix the layered water system together ***(be gentle!)***
13. Record observations
14. Clean up your station, rinse ALL equipment and return everything you used into the bin and put the bin away