

HYDROMETER LAB

OBJECTIVE: To see the effect of changing density on a hydrometer.

DENSITY AND BUOYANCY

- Density of a liquid changes as substances are dissolved into it.
- Buoyancy: an upward force that a fluid applies to any object immersed in it.
- The denser the liquid, the more buoyant force it exerts.

HYDROMETER

- A device which floats at a certain level in a liquid.
- A ruler on the hydrometer allows you to measure how high it is floating in the liquid.
- As the liquid becomes denser, the hydrometer will float higher.

Procedure

1. Fill a large beaker with ~400 mL of water.
2. Place the hydrometer in the water. Record the water level on the hydrometer scale.
3. Remove the hydrometer and mix in ~10 g of salt into the water. Stir until it is dissolved.
4. Place the hydrometer in the salt water and record the water level on the hydrometer.
5. Repeat steps 3 and 4 four more times, each time adding 10 more grams of salt.

DATA

DATA TABLE

Amount of Salt:

0g

10g

20g

30g

40g

50g

Hydrometer

Level (cm):

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CONCLUSIONS

1. What can you conclude about the relationship of the density of the water and how high the hydrometer floats?
2. Why is it easier for a person to float in the ocean than in a fresh water lake?