

# NHMU: Boy, Is That Buoyant!

## Summary

Students will learn that salt increases the density of water and creates a condition wherein objects are more buoyant than would be expected under normal conditions.

## Group Size

Large Groups

## Materials

- 3 clean peanut butter or mayonnaise jars with lids
- 3 golf balls
- Table salt (about one 26 ounce package)
- Pasta server or large slotted spoon
- Masking tape and/or permanent marker
- Hot water
- Paper towels or newspaper

## Instructional Procedures

Label each jar with masking tape (if you want to reuse your jars) or marker as follows:

1st jar: Gunnison Bay or North arm

2nd jar: Gilbert Bay or South arm

3rd jar: Fresh water

Fill the first jar 28% full of table salt, add hot water (for super-saturation) to 1 inch below lid level, replace lid tightly and shake (to dissolve salt as much as possible).

Fill the second jar 6 to 11% full of table salt and repeat what you did with the first jar.

Fill the third jar with room temperature water to equal the level of the other jars.

When water has cooled and salt has dissolved as much as possible (the water in the 1st and 2nd jars may become super-saturated and be unable to dissolve all of the salt) take the lid off the jars and place side by side on paper towels or newspaper.

Have students drop a golf ball into each jar with the slotted spoon and record or graph their observations.

Ask students to interpret their observations out loud or on paper.

Experiment may be repeated and different variables introduced (drop objects of different size, shape or density and compare results to the golf ball, or, what % of salt can be absorbed in the jar of water before it becomes saturated, etc).

Questions for Discussion & Discovery:

Which of the jars (1 or 2) gave results closest to that of fresh water? Why?

How did the golf balls react to being placed in each jar? Why?

What does it mean to be buoyant or to create buoyancy?

Why are the 2 arms of the lake so different in salt concentration?

What living things can survive in salty water? At what concentration? How?

What other places in the world have similar conditions?

## Authors

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