

Density and Salinity

Concepts Related to the California State Standards

Grade Eight:

Density and Buoyancy

8. All objects experience a buoyant force when immersed in a fluid. As a basis for understanding this concept:

- a. *Students know* density is mass per unit volume.
- b. *Students know* how to calculate the density of substances (regular and irregular solids and liquids) from measurements of mass and volume.

All Grades:

Investigation and Experimentation

9. Scientific progress is made by asking meaningful questions and conducting careful investigations.

Concepts Related to the National Science Standards

1. Salinity level affects the time it takes water to freeze.
2. As salt water freezes, the salt is squeezed out of the ice crystal.
3. Fresh water separates from salt water and freezes.
4. Ice is less dense than liquid water, causing it to float.
5. More of an iceberg is found below the water level than above.
6. Water mixes or forms layers due to the amount of salinity
7. Water with the most dissolved salt tends to form the bottom layer (most dense).
8. Water with the least dissolved salt usually forms the top layer.
9. Density differences between two volumes of water can prevent them from mixing.
10. Salt content of water is measured in grams of salt per kilogram of seawater (g/kg) expressed as parts per thousand (o/oo).
11. A hydrometer is a tool used to determine density in a water sample.
12. Liquids with dissolved salts (ions) conduct electricity.
13. Solids with metals conduct electricity.
14. Objects float differently in fresh and salt water
15. The shape of an object affects its ability to float.
16. As object sinks or floats in the water based on the weight of the liquid it displaces.
17. Fresh and salt water have different properties.