

Unit: Physical Oceanography: Using Remote Sensing to Explore Ocean Circulation

Background:

Requisite knowledge:

Reading charts

Temperature conversions (Celsius and Fahrenheit)

Biology and Physics of Ocean Fronts: Moving water masses,

Lesson Sequence:

Activity 1: Hook: Introduction to data collection: Discrete vs. Continuous
Activity: Examining real-time temperature data to explore the difference between discrete and continuous data.

Activity 2: Hook: Magic soda bottles: how floating objects help us understand density.
Exploring density differences in water: how temperature and salinity impact buoyancy (experiments, data collection, and graphing).

Activity 3: *Modeling physical oceanic phenomena: thermoclines, haloclines, and density currents.*

Activity 4: *Is today a good day to go the beach: research methods in physical oceanography, selecting appropriate data, and using real-time data to make informed decisions.*

Activity 5: Data visualization: making and graphing three-dimensional phenomena

Activity 6: How gliders work: changing density by altering mass and moving mass to change orientation in a liquid medium.

Activity 7: Design your own AUV/ROV.

Web Resources:

Interdisciplinary Connections:

Exploring our growing population: U.S. census data as snapshots of population growth.