



# Exploring Deep-Ocean Water Masses

## Math Standards

### ALGEBRA AND FUNCTIONS

- 1.1 Analyze problems by identifying relationships, distinguishing relevant from irrelevant information, sequencing and prioritizing information, and observing patterns.
- 1.2 Determine when and how to break a problem into simpler parts.
- 2.0 Students use strategies, skills, and concepts in finding solutions:**
- 2.1 Use estimation to verify the reasonableness of calculated results.
- 2.2 Apply strategies and results from simpler problems to more complex problems.
- 2.3 Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning.
- 2.4 Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.

### MEASUREMENT AND GEOMETRY

- 1.0 Students choose appropriate units of measure and use ratios to convert within and between measurement systems to solve problems:**
- 1.1 Compare weights, capacities, geometric measures, times, and temperatures within and between measurement systems (e.g., miles per hour and feet per second, cubic inches to cubic centimeters).
- 1.2 Construct and read drawings and models made to scale.
- 1.3 Use measures expressed as rates (e.g., speed, density) and measures expressed as products (e.g., person-days) to solve problems; check the units of the so.
- 2.0 Understand and use coordinate graphs to plot simple figures, determine lengths and areas related to them, and determine their image under translations and reflection solutions; and use dimensional analysis to check the reasonableness of the answer.

# Science Standards

## EARTH IN THE SOLAR SYSTEM (Earth Sciences)

1. Principles of chemistry underlie the functioning of biological systems. As a basis for understanding this concept:
  - a. Students know that carbon, because of its ability to combine in many ways with itself and other elements, has a central role in the chemistry of living organisms.
  - b. Students know that living organisms are made of molecules consisting largely of carbon, hydrogen, nitrogen, oxygen, phosphorus, and sulfur.
  - c. Students know that living organisms have many different kinds of molecules, including small ones, such as water and salt, and very large ones, such as carbohydrates, fats, proteins, and DNA.

## INVESTIGATION AND EXPERIMENTATION

2. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other four strands, students should develop their own questions and perform investigations. Students will:
  - a. Select and use appropriate tools and technology (such as computer-linked probes, spreadsheets, and graphing calculators) to perform tests, collect data, analyze relationships, and display data.
  - b. Identify and communicate sources of unavoidable experimental error.
  - c. Identify possible reasons for inconsistent results, such as sources of error or uncontrolled conditions.
  - d. Formulate explanations by using logic and evidence.
  - e. Distinguish between hypothesis and theory as scientific terms.
  - f. Recognize the usefulness and limitations of models and theories as scientific representations of reality.



*Standards provided by Chuck Dichiera  
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