366843

Mapping The Unknown Sea Floor Lab Activity

Aligned With All Published National Standards

ward's science

IMGN 250 8056

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Instruction IMGN 250-8056 - V. 7/13

framework for K-12 science education © 2012

* The Dimension I practices listed below are called out as **bold** words throughout the activity.

DIMENSION 1 Science and Engineering Practices

X	Asking questions (for science) and defining problems (for engineering)		Use mathematics and computational thinking
X	Developing and using models	X	Constructing explanations (for science) and designing solutions (for engineering)
X	Planning and carrying out investigations	X	Engaging in argument from evidence
X	Analyzing and interpreting data	X	Obtaining, evaluating, and communicating information

DIMENSION 2 Cross Cutting Concepts

	Patterns	X	Energy and matter: Flows, cycles, and conservation
X	Cause and effect: Mechanism and explanation	X	Structure and function
X	Scale, proportion, and quantity	X	Stability and change
X	Systems and system models		

DIMENSION 3 Core Concepts

Discipline	Core Idea Focus
Earth and Space Science	ESS1: Earth's Place in the Universe
	ESS2: Earth's Systems

X Indicates standards covered in activity

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Middle School Standards Covered	High School Standards Covered
MS.ESS2-3: Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions.	HS.ESS1-5: Evaluate evidence of the past and current movements of continental and oceanic crust and the theory of plate tectonics to explain the ages of crustal rocks.
MS.ESS2-6: Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates.	HS.ESS2-1: Develop a model to illustrate how Earth's internal and surface processes operate at different spatial and temporal scales to form continental and ocean-floor features.

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standards and learning objectives

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Content Standards (K-12)			
X	Systems, order, and organization	X	Evolution and equilibrium
X	Evidence, models, and explanation		Form and Function
X	Constancy, change, and measurement		

Earth and Space Science Standards Middle School		Earth and Space Science Standards High School	
X	Structure of Earth	X	Geochemical Cycles

x Indicates standards covered in activity

benchmarks for science literacy (AAAS, © 1993)

1. The Nature of Science	1B: Scientific Inquiry
4. The Physical Setting	4B: The Earth
	4C: Processes that Shape the Earth
11. Common Themes	11A: Systems
	11B: Models

activity objectives:

- Simulate sonar by inserting "sounding rods" through a box containing one of four different "unknown" sea floor structures.
- Measure depth and chart it on grid paper.
- Cut and paste the paper to form a scale model of the sea floor.
- Identify a guyot, rift valley, sea mount, or volcano.

time requirement:

This activity can be completed in approximately one or two 45 minute class periods.