



Hands – On Science with NOAA

TITLE: Hydrographic Surveying: Mapping the Sea Floor

OVERVIEW:

Hydrographic surveying is a scientific career that many people may not know about. Here, a sealed shoebox with a varied topography made out of clay will be measured by taking depth “soundings” with a skewer.

MATERIALS:

- Clay
- Shoebox with lid
- Graph paper
- Wooden skewers
- Colored pencils

INSTRUCTIONS:

1. Use clay to create a varied seafloor in the bottom of a shoebox. Include hazards the ship travel, such as shallow reefs.
2. Tape a piece of graph paper to the top of the shoebox lid and tape the lid in place so that the shoebox cannot be opened easily.
3. Label the grid on the graph paper, latitude and longitude.
4. With a Sharpe, mark the wooden skewers every half or whole centimeter.
5. Associate each depth with a different color. This will allow the various depths to be distinct when the measurements are transferred to the “chart” or graph paper.
6. Poke the skewer into the box through the graph paper and until it touches the bottom.
7. Record the depth on the “chart” or a separate graph paper. Continue taking “soundings”
8. Shade in the graph paper to make a color-coded bathymetry map.

SCIENCE EXPLANATION:

Hydrographic surveying is a scientific career that many people may not know about. Hydrography is the science that deals with the measurement and description of the physical features of bodies of water. NOAA’s ship the *Rainier* uses multibeam sonar to measure the depth of the sea floor by having computers analyze the time it takes for sound waves to travel from the boat to the sea floor and back. It provides amazing detail of the sea floor. Knowing exactly what lies beneath the water is important for mariners so that they can make their way safely through the waterways.

EXTENSION IDEAS:

- Have students plan a course for a ship to travel on their chart. Have them make sure to avoid all dangers to navigation and that the depths will allow them to navigate safely.
- Have students research a NOAA hydrographic survey technician career.
- Include a “shipwreck” taped to the “seafloor” and have students try and locate it and determine its size and shape.

EXPLORE FURTHER:

NOAA Hydrographic Ship - <http://www.moc.noaa.gov/ra/index.html>

What Is Hydrographic Surveying - http://www.nauticalcharts.noaa.gov/hsd/learn_survey.html

Shipwreck Links - <http://www.nauticalcharts.noaa.gov/hsd/shipwrecklinks.html>

Ocean Floor Features Education Resources

<http://www.education.noaa.gov/Ocean and Coasts/Ocean Floor Features.html>

Hydrographic Cruise Journal

<http://teacheratsea.wordpress.com/category/noaa-teacher-at-sea-2/kaci-heins/>



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