Sounding Box Activity

OCS Hydrography Kids' Kit
Revised January 29, 2007

Best for Ages 8 -12

Introduction

Now that you know a little about some of the methods used to chart ocean depths, it's time to put one of these sampling techniques to the test. This activity is modeled after the lead line sampling method, the method scientists used before the introduction of sonar. You will play the part of a hydrographer and survey an imaginary ocean. You will chart the water depths so that ships can safely navigate through your "ocean". You will need to be careful with the survey and not miss any parts on your seafloor. Accurate maps are needed to find shallow points of a busy port or objects sticking up from the sea bottom!

How Do I Make a Sounding Box?

Your sounding box can be made out of a small box like a shoe box. You can use rocks, gravel, dirt, and sand with different shaped objects to represent different landforms on the bottom or various surprises found during surveying. Pieces of building sets, toy planes, and small boats are all good ways to represent airplanes and ships that sometimes sink and come to rest on the ocean floor. Aluminum foil to cover the box is the best way to represent the water surface.

If you're interested in making your sounding box an irresistible snack, you can use graham crackers, candy, and Jell-O to make an edible version of your sounding box.

Design the seafloor of your box and place all of the items in the box. Cover your box with aluminum foil so you can't see below the surface of the "water." You can either make your own sounding box, or you can work in pairs or in a group to make separate boxes and then trade with each other to explore your own personal oceans!

Example of Handmade Sounding Box without the aluminum foil

Materials for Taking Depth Measurements

Sounding box covered with aluminum foil

Long, skinny stick: bamboo skewer, long pencil, knitting needle or a dowel

2 copies of “Depth Chart” grid (last page of this document)

1 copy of a “Color Coded Depth Scale”

Pencil

Crayons, Pencils or Markers

What to Do

1. Have your “Color Coded Depth Scale” ready: color each grid that is next to a number in a different color of your choice. Example: #1 – Red, #2 – Orange, etc.
2. Get a copy of the “Depth Chart” and a small sharp object. Poke a small hole in each square of the “Depth Chart” so that you can easily push through your bamboo skewer through each square of the grid. Tape the “Depth Chart” on top of the aluminum foil that covers the box.
3. Position the stick carefully into the first spot you want to sample. (grid 1,1)

4. Measure “depths” by gently pushing the long and skinny stick through the Depth Chart and cover of the sounding box until it hits something on the bottom.
5. Pinch your fingers around the stick where it is even with the cover.

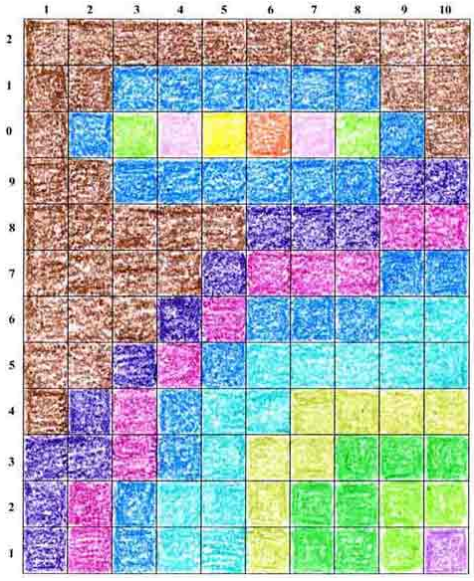
6. Measure the distance from the end of the stick to your fingers using the Color Coded scale. What is the color that corresponds to that distance?

7. On your second copy of the “Depth Chart” color the first grid (1,1) with the color that corresponds to the distance that you measured.

8. Repeat steps 4-7 at each point marked on the grid on the box. Record each measurement in the proper place on the depth chart. When you have finished, each square on the Depth chart should be colored. (see the example here and below) →

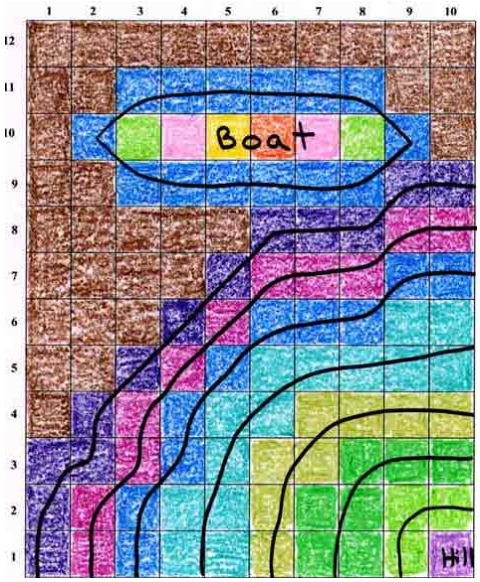
9. Draw lines that connect grid boxes that have the same colors to show what objects or landforms are on the bottom of your seafloor. (see example here and below) →

10. Carefully take the aluminum foil off and compare your plotting sheet to the bottom of the box. Did you find all of the objects or landforms on the bottom of your seafloor? Why or why not?

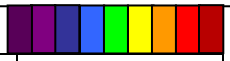


Step8

Step9



Color Coded Depth Scale
Print and Color in Your Favorite Colors



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1	

Depth Chart

Print and make 2 copies of this chart:

- **Paste one copy on top of the box**
- **Use second copy to color in your measurement results**

	1	2	3	4	5	6	7	8	9	10
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11										
10										
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Questions to Think About

1. What type of old hydrographic surveying method is most like the sounding box activity?
2. Do you think we still have charts that use information from lead line surveying?
3. What could happen if the depth information we have from old surveys is out of date?
4. Look at the different depths you marked on your plotting chart. What was the most shallow depth you found?
5. If you were on a small imaginary boat do you think your chart would have safely helped you across your ocean? Why or why not?
6. How would you change your measurement method to find smaller objects, or to find more detail in the large objects on the bottom of your ocean?