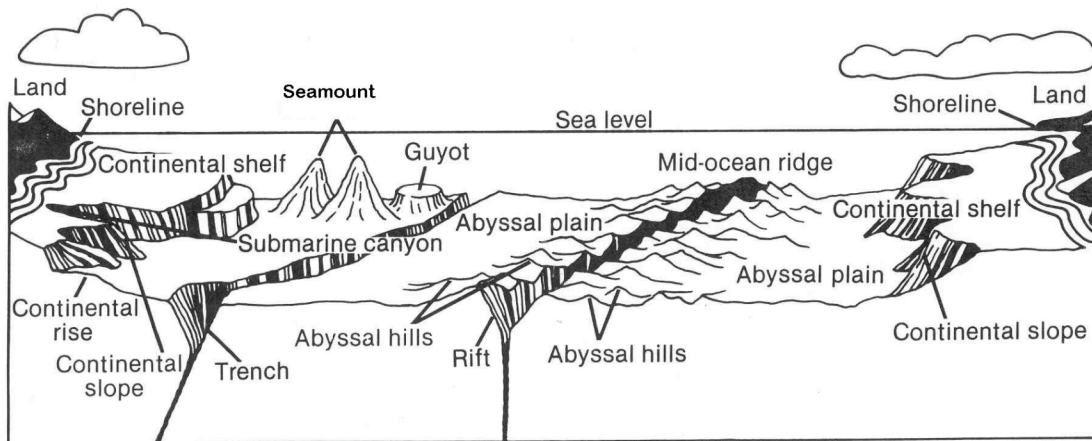


Bathymetric Mapping Instructions

Read **ALL** of the instructions before you begin!

Make sure that your group has all of the following materials:

- Plastic container
- Modeling clay
- Measuring cup or liter beaker of water
- Plastic or paper funnel
- Centimeter ruler
- Strong clear plastic or plastic wrap
- Waterproof black felt tip marker
- Waterproof felt tip markers: dark blue, light blue, green, yellow, orange
- Masking tape
- Scissors



Procedure:

Read these instructions carefully.

Part 1

1. Build your model underwater feature.
2. Install the feature in your plastic container.
3. Place the centimeter ruler inside the container against a side wall near a corner. Make sure that the highest number mark is at the **BOTTOM**. Use the tape to attach the centimeter ruler to the container side, taking care to make sure you can read the measurement lines.
4. Cut the plastic to a size that completely covers the container. On one corner of the plastic, cut away enough material so that the funnel spout can just fit through.
5. Tape the plastic to the top of the container. Attach the tape only at a few edges of the plastic and not completely across the container opening. You will need to remove the plastic later so use only enough tape to hold it firmly.
6. Insert the funnel into the opening and tape it so it is securely in place.
7. **STOP!** Check your setup for approval by your teacher.

8. Draw a line on the plastic that correlates with the place the feature meets the bottom of the container. If it meets the side, do **NOT** draw a line.

9. Take the beaker of water and carefully add water through the funnel until the water level rises 1 centimeter or 0.5 centimeters on the ruler.

Note: *If you have a feature with high relief like a tall seamount, use 1 cm intervals. If you have a flat feature like a bank, use 0.5 cm intervals.*

10. View the model by placing your eyes directly above it, looking downward. Focus on the outline of where the model and the water meet. Using the felt tip pen, very carefully draw this outline on the acetate. **Label** it with the cm shown at that depth on the ruler. The line that you draw is called a “contour line.” Do not draw a line where the water meets the sides of the container.

11. Add another 1.0 or 0.5 centimeters of water. Again, look directly downward at the feature. Focus on where the feature and water line meet. Draw this contour line in the same way you drew the first one, following the line where the water meets the feature. You now have two contour lines which represent a 1.0 or 0.5 centimeter change in depth. **Label** it from the ruler measurement.

12. Continue adding water at centimeter intervals and drawing the contour lines at each 1.0 or 0.5 rise until the model is completely covered with water. Remember to label each line.

You have created a bathymetric map of the model!

13. Remove the funnel, and carefully pour the water from the container, allowing the water to drain from the small hole where the funnel had been. Leave the plastic on for now. Place the covered container with your feature in a safe place.

STOP HERE.

Part 2

Now that you have your map with all the labeled contour lines, you can color them according to the depth. This will help you “see” the feature a little easier.

1. Each one of your contour lines should be labeled. Using the colored waterproof markers, color any areas 9-10 cm dark blue. Contour areas labeled 7-8 cm should be colored light blue. Color the 5-6 cm areas green. If you have any areas that are labeled 3-4 cm, color them yellow. And, finally, if there are any areas labeled 1-2 cm, color them orange.
2. You should now have a bathymetric map, showing contour lines and color. The lighter colors represent less depth, or taller features.