

Introduction to Topographic Maps: Contouring

Earth Science/Geology

Mr. Traeger

Name: _____

Period: _____

Date: _____

Partner's name: _____

Score: _____

Purpose

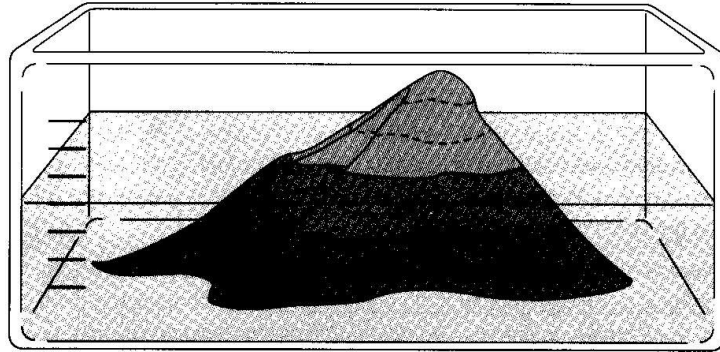
The purpose of this activity is to become acquainted with the basic concept of the topographic map. The student will learn to draw and interpret contour lines.

Materials

- Metric ruler
- Overhead pen
- Transparent $\frac{1}{2}$ mountain+ box with lid
- Styrofoam cup
- water
- tracing paper
- pencil
- page 697 and Chapter 3 in textbook

Procedure

1. Obtain a transparent $\frac{1}{2}$ mountain+ box, transparent lid, overhead pen, pencil, ruler, and Styrofoam cup with water. Be careful not to spill any water!
2. Mark one of the sides of your $\frac{1}{2}$ mountain+ box in 1 centimeter increments, starting from the bottom. Make sure to use the overhead erasable pen.
3. Fill your Styrofoam cup with water. Add a **few** drops of food coloring and mix the water.
4. Pour water in to the tray until the water level reaches a height of 1 cm.
5. Put the transparent lid on top of the box. Looking down from the top, take your overhead pen and draw a contour line along the point where the water meets the $\frac{1}{2}$ mountain.+
6. Mark this line $\frac{1}{2}$ cm.+
7. Now, being careful not to smear your lines, remove the transparent cover.
8. Pour more water into the box until the water level rises to a height of 2 cm.
9. Replace the lid and draw the contour line for 2 cm. Make sure to mark it $\frac{2}{2}$ cm.+
10. Continue drawing contour lines for each centimeter mark, up to about 7 or 8 cm.
11. Take your transparent cover off. Using a white sheet of tracing paper, draw your contour lines on to the sheet of paper. Make sure to label each contour line. *Hint: The tracing is easiest if you hold the paper up to a light or use one of the windows.*
12. Once you have transferred all of your lines on to the paper, you will erase the lines from the plastic sheet. The best way to do this is to run it under water.
13. Carefully pour your water out into the sink. Make sure to erase the lines that you drew on the side.
14. Clean up any mess that you may have made.
15. Answer the following questions.



Questions

1. What is a contour line?
2. Do any of your contour lines ever cross each other? Why or why not?

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3. Find an area of your mountain that has steep sides. Then, find an area that has shallow sides. Look at the spacing of your contour lines on your drawing. What happens to the distance between each of the contour lines when the slope of the mountain is steep? **Geology:** Calculate the slope of this steep area. I will show you how.
4. What happens to the distance between each of the contour lines when the slope of the mountain is shallow? **Geology:** Calculate the slope of the shallow area. I will show you how.
5. What is the difference in elevation between each of the contour lines? This is called the *contour interval*.
6. Refer to page 697 of your book. Draw how a depression contour would look on this page. Then draw a depression contour on your topographic map. This is where the crater at the top of the mountain starts to dip inward.
7. **Geology:** Draw a vertical profile below of the topographic map that you made. I will show you how to do this when everyone is ready.

Conclusion: After doing this activity, what do you think is the purpose of topographic maps?