Introduction to Topographic Maps, Contouring and Aerial Photos
Earth Science Mr. Traeger

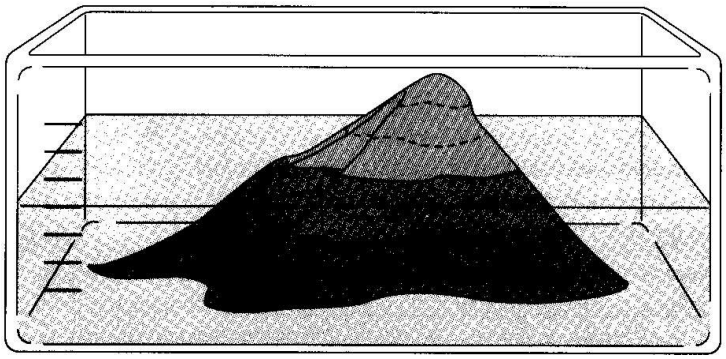
Name: _____ Period: _____ Date: _____
Partnerõs name: _____

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 of Mt. Capulin, NM, a cinder cone volcano. Student will also learn to analyze aerial photos using a stereoscope.

Materials
- Metric ruler
- Styrofoam cup
- pencil
- Overhead pen
- Colored water
- Textbook
- Transparent õmountainò box with lid
- tracing paper
- Stereoscope and image of Mt. Capulin, NM

Procedure
1. Obtain a transparent õmountainò box, transparent lid, overhead pen, pencil, ruler, and Styrofoam cup with water. Be careful not to spill any water!
2. Mark the bottom of the box õ6,280 feet.ò
3. Mark one of the sides of your õmountainò box in 1 centimeter increments, starting from the bottom. Make sure to use the overhead erasable pen. Each centimeter will be equal to 250 feet in the real world.
4. Fill your Styrofoam cup with colored water.
5. Pour water in to the tray until the water level reaches a height of 1 cm (6,280 feet + 250 feet = 6,530 feet).



6. 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 õmountain.ò
7. Mark this line õ6,530 feet.ò
8. Now, being careful not to smear your lines, remove the transparent cover.
9. Pour more water into the box until the water level rises to a height of 2 cm.
10. Replace the lid and draw the contour line for 2 cm. Make sure to mark it õ6,780 feet.ò
11. Continue drawing contour lines and labeling elevation for each centimeter mark, up to the top just before the box overflows. You will add 250 feet to each contour line as you go up.
12. 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 lineõs actual elevation in feet above sea level. *Hint: The tracing is easiest if you hold the paper up to a light or use one of the windows.*
13. 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.
14. Carefully pour your water out into the bucket. Make sure to erase the lines that you drew on the side.
15. Clean up any mess that you may have made.
16. 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?

3. Find an area of your ñmountainòthat 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?

4. Find an area of your ñmountainòthat 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 shallow?

5. What is the difference in elevation in feet between each of the contour lines? This is called the *contour interval*.

6. Refer to page 697 of your book. Draw a depression contour on your topographic map. This is where the crater at the top of the mountain starts to dip inward. What is the elevation of the inside of the crater in feet above sea level? Mark this elevation on your map.

7. Use the aerial photo of Mt. Capulin and the stereoscope to see a 3-dimensional image of Mt. Capulin. Extend the feet of the stereoscope. Put the center of the stereoscope over the image with the center of the stereoscope between the two images. Place your eyes over the stereoscope and relax your eyes by trying to focus on something off to the side. Tell me below what you see. How does what you see compare to the topographic model of Mt. Capulin?

8. **Conclusion**: After doing this activity, what do you think is the purpose of topographic maps? You must have full sentences or I will not read this.

9. **Staple your contour map that you made to this sheet before turning in to me.**