**Mt. Capulin Contours**

**BACKGROUND:** In this activity you will create a map that shows the elevation changes around Mount Capulin, a steep-sided volcano located in New Mexico.

**LAB NOTEBOOK: PRIOR TO THE LAB** put the following in your lab notebook:

1. Title
2. Objectives Heading & copy the objectives
3. Copy and answer the Pre-Lab question

**OBJECTIVES:** Following this activity you will be able to:

1. Create a contour map
2. Define contour line and understand what one is.
3. Explain how spacing between contour lines shows flat vs. steep slopes
4. Identify flat vs. hilly terrain using a contour map.

**PRE-LAB QUESTION:**

1. What is a contour line?

**MATERIALS per group**: Clear plastic contour model & lid, overhead marker, overhead transparency film cut to fit on contour lid, two 2L bottles filled with water dyed with blue food coloring, calculator, 2 blank white computer papers, (May need: permanent marker, metric ruler). Per class: 1 large funnel

**PROCEDURE:**

1. NOTE - this first step may already be completed by teacher:
   1. Make marks 1cm apart up the side of the box beginning at the bottom.
   2. Label the elevations as 0cm, 1cm, 2cm…..
2. Place the model of Mount Capulin on the white paper. This will allow better visibility of the colored water.
3. Carefully fill the container with water up to the 1cm mark.
4. Place the clear lid on the model. Place the overhead transparency film on top of the lid.
5. Using the overhead marker, draw the shape of the water line exactly on the overhead film.
6. Add water to the 2cm mark and repeat steps 4 & 5.
7. Continue adding water to each centimeter mark and drawing the water level until the volcano is completely submerged.
8. Label the contour lines with the number of feet above sea based on the following;
   1. The base of the volcano (bottom of the box) is at 6250 ft above sea level.
   2. Each contour line goes up 250 ft. Example, the 1st line is 6500ft (6250 +250).
   3. This 250 ft in elevation change is called a *contour interval*. This will be what your contour line goes up or down by each time.
9. **Show your map to the instructor**.
10. **Answer the post-lab questions below**
11. **Clean up as stated at the end of this procedure.**
12. When all groups are done, the **class will compare all drawings** and discuss similarities, differences, reasons….

**POST-LAB QUESTIONS: \*\*\*\*ANSWER THE FOLLOWING IN YOUR LAB NOTEBOOK:**

1. Record a drawing of the pattern on the overhead transparency in your lab notebook.
2. Describe the general shape or pattern of the contour lines.
3. Describe how the closeness of the contour lines tells you whether an area is flat or steep. (**Describe the spacing for both**; when the land is flat and when the land is steep.)
4. On your drawing, are you able to tell that the center of the volcano has a “hole” or depression in it? Using p.34 of your text, describe (or draw) how real contour maps would show a depression in the center of a volcano.
5. None of your contour lines should have crossed. **Explain why** they can never cross.
6. Should the maps drawn by different groups be the same? What could cause differences? **ANSWER THIS QUESTION IN COMPLETE SENTENCES**

**CONCLUSION\*\*\*\*Write your conclusion in your lab notebook. Include the following:**

**\*\*\*\*REMEMBER paragraphs are SEVERAL sentences** with proper grammar, punctuation and spelling.

1. Restate the objectives. (Feel free to summarize and put them in your own words.)
2. Was the purpose achieved or not? Support your decision by referring to your drawing of the lid.
3. Relate this lab to what we are covering in class (or what we will be covering)
4. One error that occurred in the lab and how it affected your data. (Most groups will have an error. If not, include a possible error a group could make and how it would affect data.)

**CLEAN UP:**

1. **Do NOT dump out the water.** Per instructor, do one of the following:
   1. **Instructor Pour??** Carefully carry your water-filled model and both bottles to the back sink where the instructor will pour the water back into the bottles.
   2. **You Pour??** Using the large funnel, carefully pour the colored water back into the bottles.
2. **Dry your table off**.

1. Put the paper, model and lid, bottles, instruction sheet into neat pile on lab table.