Name: _____ Date: _____ Period: _____

Constructing a Contour Map

Introduction

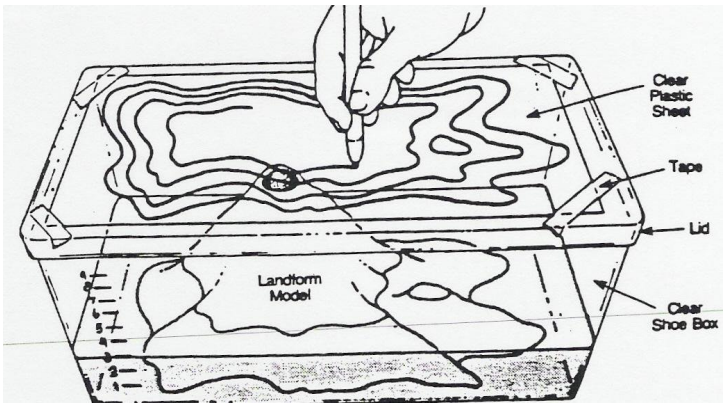
You have previously studied maps which did not represent the earth's surface accurately. Now you will see how the earth's surface features can be shown using a contour (topographic) map. This kind of map uses contour lines to represent the elevation field of a land area.

Objective

You will learn how to construct and interpret a contour map.

Procedure

1. Using your ESRT, mark small horizontal lines on the side of the clear plastic shoebox spaced one centimeter apart. Measure from the bottom to the top.
2. The scale we will be using is 1 cm = 100 meters.
3. Begin filling the shoebox with water, stopping when the water level reaches the first marking on the bottom.
4. This is sea level and should be considered 0 meter elevation.
5. Place the lid on the box and then using an overhead marker; trace the shoreline onto the plastic overlay (SEE BELOW).
6. Remove the lid and add water until it reaches the next centimeter marking.
7. Replace the lid and trace again.
8. Repeat this procedure for every marking until the entire mountain is covered with water.
9. Create a contour map by tracing the contour lines from the plastic overlay onto a sheet of blank white paper.
10. **Hint**: The easiest way to trace this is to place the paper onto of the plastic overlay and then place the sandwiched paper and plastic against the window. The light from outside will allow you to see the contour lines easily through the paper. Then simply trace the lines with a pencil or pen onto the paper.
11. Label each contour line starting with the first line. Recall, the first line was sea level, or 0 meters. Using a contour interval of 100 meters, continue labeling the lines (i.e.: 0 m, 100 m, 200 m, etc.).
12. **Note**: Since the top of the mountain curves inward forming a depression, the last contour line should look like this |__|__|__|__|__|__|__|
13. Using a ruler, draw a straight line running through the top of the mountain, cutting your mountain in half.
14. Label one end "A" and the other "B".
15. Construct a topographic profile along line A-B. THIS MUST BE ATTACHED TO THIS LAB!
16. Using a horizontal scale of 1 cm = 1 km, calculate the gradient between point A and the peak of your mountain.
17. Show all work on your profile.
18. Answer questions below.



Questions (answer in full and complete sentences)

1. What do contour lines represent on a topographic map?

2. Why was water used to help define contour lines?

3. What is meant by the contour interval on a topographic map?

4. Why was it important to fill the box with water at regular intervals?

5. Why do contour lines never cross?

6. Referring to your map of the mountain, how does a contour map indicate areas of steep or gentle slope?

7. Would a topographic map of a mountain constructed in 2005 be the same as one constructed 10,000 years ago? EXPLAIN your answer!

8. How is a depression represented on a contour map?

9. How are contour maps useful to the general public?

10. Explain why it may be necessary to update contour maps from time to time.

STOP!

DID YOU REMEMBER TO ATTACH YOUR TOPOGRAPHIC MAP?

DID YOU REMEMBER TO ATTACH YOUR TOPOGRAPHIC PROFILE FROM POINT A TO B?