

### Topographical map instructions.

1. Take one plastic container with plastic lid and place one volcano model inside. Tape a transparency to the top of the lid. Acquire a transparency pen. Do not use pen on a whiteboard.

#### **BE CAREFUL WITH THE PLASTIC CONTAINERS. THEY HAVE A TENDONCY TO CRACK IF DROPPED**

2. Fill the container with water just until the water just creeps onto the bottom of the volcano model and you can just see the water coming up on the volcano. This should be about 1 to 1.5 cm from the bottom.
3. Put the lid with the transparency on the plastic container. While looking straight down into the model, use the transparency pen to trace the border between the water and the plastic model. Your line should be continuous meaning you should continue the line all the way back to the starting point even if you are tracing the outer edge of the grey model for a while.
4. Take off the lid and add another 1 cm of water. Replace the plastic lid. Make sure it is in the same orientation as before. Trace the new water line which is further up on the model now.
5. Repeat until the model is fully submerged. Take a picture of your apparatus with diagram for your lab report.
6. Avoid lifting the container while it is full of water, as that is how it tends to crack. Carefully dump the water out into the sink. Place the container and model upside down on a towel or sheet to dry. Return your transparency pen to the instructor.

Your completed lab will have 1) a picture of your apparatus and transparency; 2) answers to the questions below.

1. What do each of the lines on your topographical map represent?
2. What would a ball do if it is placed on a line?
3. What does the separation (gap) between the lines represent?
4. Describe what the land features look like where the topographical map lines are close together and when they are far apart?
5. Do you know where the exactly where a ball will go if it is placed at the edge of the volcano and falls away from it?
6. Where would a ball stop if released from the edge of the volcano?
7. Draw a picture of our activity on the stairs from the other day. Draw the topographical lines on that picture to match the idea of the topographical lines from the volcano activity. What do these lines represent?
8. Draw the gravitational field lines in on the picture of the stairs. What is the relationship between the gravitational field lines and the lines of equal height?