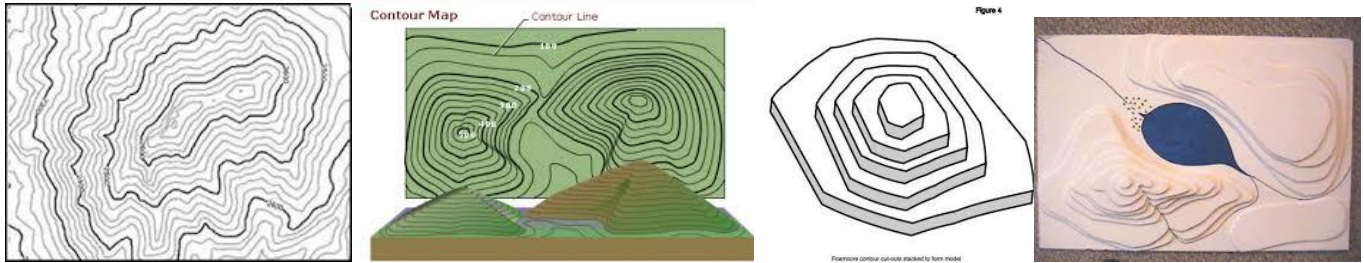


Name: _____

Date: _____

Lab 1.06: Lab Instructions

Submit by Midnight, September 14 for full credit.



In this lab, you will create a topographic map of a potato mountain and then create a side view of the same mountain! Use the directions below (pages 1-6). **Then, fill out and turn in the last three pages of this document.** If you are confused by the directions, [watch this video](#) or [this video](#). If you cannot obtain the materials, complete the alternate lab instead! When you are done, submit the assignment to the [Dropbox](#). Have fun! 😊

Follow these steps to get started:

Step 1: Download the [Student Guide](#).

Step 2: Watch the following videos to see what the lab looks like when it is being completed [Topography Lab Example](#) (Note: you will use a potato instead of a mountain range) or [this one](#).

Step 3: Gather the necessary materials:

- Potato
- Clear container with a lid (A large Gladware container works well)
- Knife for cutting the potato (Safety Note: **Students should only complete this lab activity with adult supervision and after reading the [safety guidelines](#)!**)
- Marker (preferably a dry erase marker that can be erased 😊)
- Ruler
- Water
- Food Coloring (optional – the lab can be done without this)

Step 4: Follow the steps listed on pages 2-6 to complete the Lab Report found on pages 7-9.

Step 5: Turn the lab into the Dropbox by September 14 for full points. **Any work submitted after the midnight deadline will be counted for up to 70% of the points possible (30% off).**

(Click the link for [Instructions to use Dropbox](#))

NOTE: I only need the last three pages to be turned in! The other pages are there to help. 😊

Step 6: If you get confused, please send your teacher a kmail asking for help – make sure to ask a *specific question* in your kmail so I can help you best!

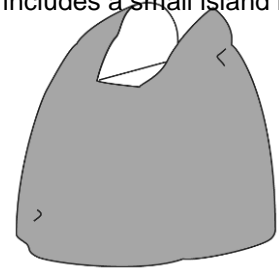
Extra Credit: Take a picture of your potato mountain setup and send it into the Unit 1 Extra Credit Dropbox for 3 points E.C.!

Can't seem to get the materials together? Confused? Stressed? No worries! Complete the ALTERNATE LAB instead (look at the Doc Sharing Tab in the course to find this document! 😊)

Investigate: Use the below instructions to make a topographic map of a potato. Then, complete the Lab Report (the last three pages of this document) and submit it to your teacher. [This video shows another K12 teacher completing the lab.](#) Watch for help!

Overview: Imagine that you live high on a mountaintop overlooking a lake. Your view includes a small island in the lake that is shaped—oddly enough—like a potato you might see on your dinner plate.

During the hard rains of fall, Potato Island often disappears below the surface of the water. You decide to make a topographic map of the island to show others how the island really looks, even when it can't be seen.



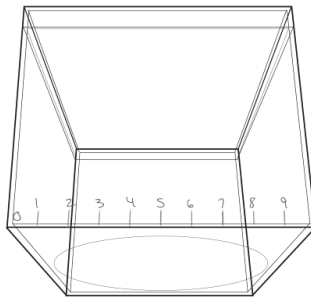
Potato Island

In this lab you will

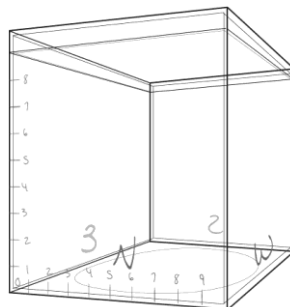
- Use a potato to simulate the features of an island landform.
- Make a topographic map to record the features of that landform.
- Read and interpret the information recorded on the map.

Step 1: Prepare the container.

1. Place the container on a flat surface. Place the removable lid to the side. Next, use your ruler and marker to measure and mark a scale on the base of the container. Start with 0 cm in the lower left corner of the container.
2. Continue by marking the container along the base. Mark each centimeter along the base, until you reach the right corner of the base. (**Note:** The scale is 1 cm along the base of the container equals 1,000 ft of horizontal distance.)

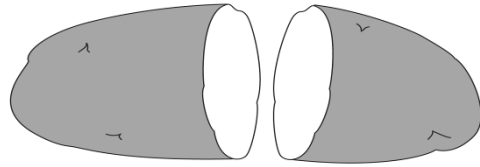


3. The side of the container you just marked with the horizontal scale will represent north. At the bottom of the container above your scale, write “N” for north. Write “S” on the opposite side for south. Then label the side of the container to your left “E” for east and the opposite side “W” for west.
4. Next, mark and measure the vertical scale. Starting from the 0 cm that you labeled in the northeast corner of the base, draw a line from the bottom to the top of the container with the marker. The line should be perpendicular to the bottom and extend along the length of the container. Just like before, mark the line off in 1-cm increments. For this lab, 1 vertical cm = 100 vertical ft. The bottom of the container will represent sea level.

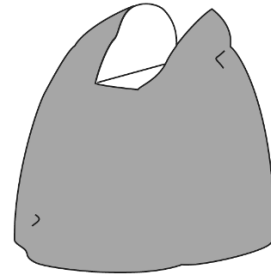


Step 2: Prepare the potato.

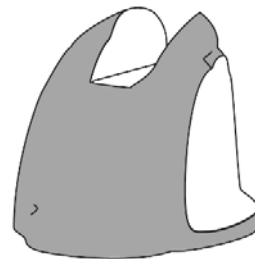
1. With the knife, cut the potato in half. You can cut the potato lengthwise or widthwise, depending on the size of the potato. You will only need one half (keep the other half in reserve, in case you make a mistake).



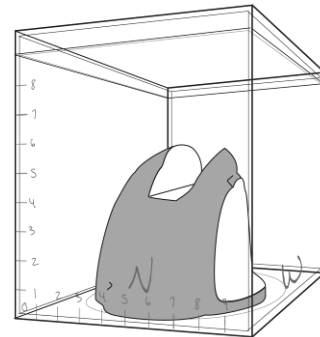
2. With the knife, carve a "valley" in the center of the potato across the short axis. Make the valley at least 1 cm wide and 1 cm deep. The valley itself may be straight or curved. The valley floor can be level or at an angle.



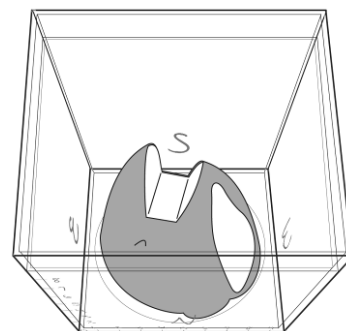
3. On the right side of the potato, carve a steep vertical "cliff," almost perpendicular and about 2 cm deep and 1 cm from the edge.



4. Place the potato in the center of the container, flat side down. The steep vertical cliff should face west.

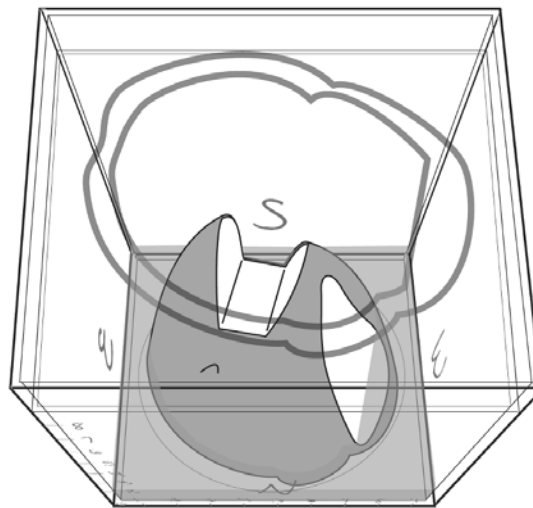
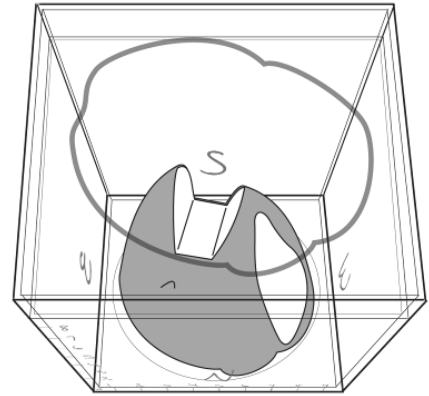


5. Place the transparent lid on the container. Be careful not to disturb the potato's position.



Step 3: Make the topographic map.

1. Look into the container through the lid, straight down at the top of Potato Island. With the transparency marker, trace the outline of the potato on the lid. This is the contour line at an elevation of 0 ft.
2. Lift the lid and pour water into the container to the first 1 cm mark. (Adding food coloring to the water may make it easier to draw the potato's outline.)
3. Carefully replace the lid so as not to disturb the potato.
4. On the lid, use a dry erase or washable marker to trace the outline of where the water touches the edge of the potato. Because the water is level, the line you trace will represent a line of equal height around Potato Island. The new line should be inside the previous one, and the new line should not cross the previous line.

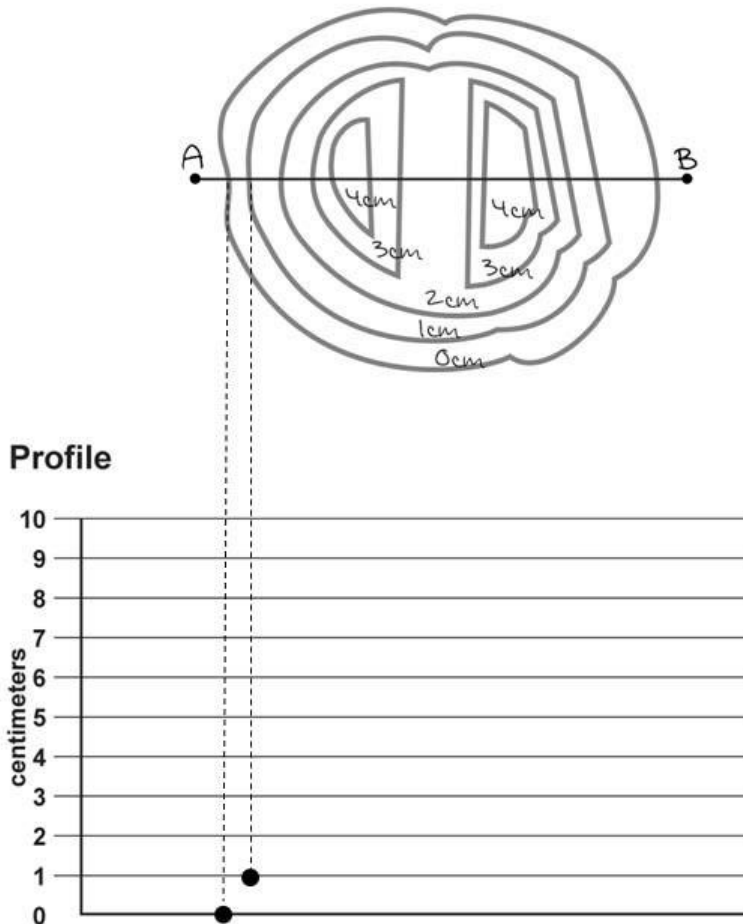
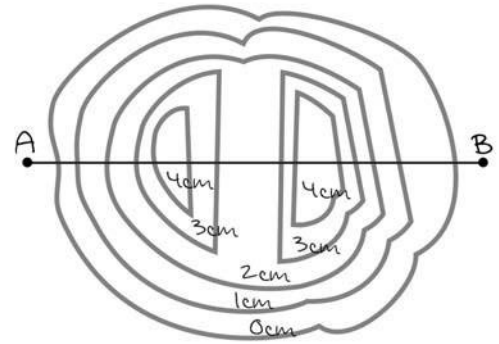


5. Repeat steps 2 through 4 until you have completely covered the potato with water.
6. When you have finished, you should have a series of contour lines that represent the topography of your potato.
7. You've made a map of Potato Island on your container. Now transfer your map to your Lab Report. In good lighting, you should be able to see the lines through the paper. You can use tracing paper instead, but you will then need to transfer the drawing to your Lab Report.
8. Darken the outer line on your map and label it 0 ft. This is the coastline of Potato Island.
9. Darken every other line on your map and label the darkened lines with the appropriate elevation. (**Remember:** 1 vertical cm = 100 ft elevation.)
10. In the lower corner of your map, write "Contour interval = 100 ft."
11. In the same lower corner, draw a horizontal scale 4 cm long with increments every 1 cm. Label the left end of the scale "0" and the right end of the scale "4000 ft."
12. Label the sides of the map with North, South, East, and West corresponding to the appropriate sides of your container.

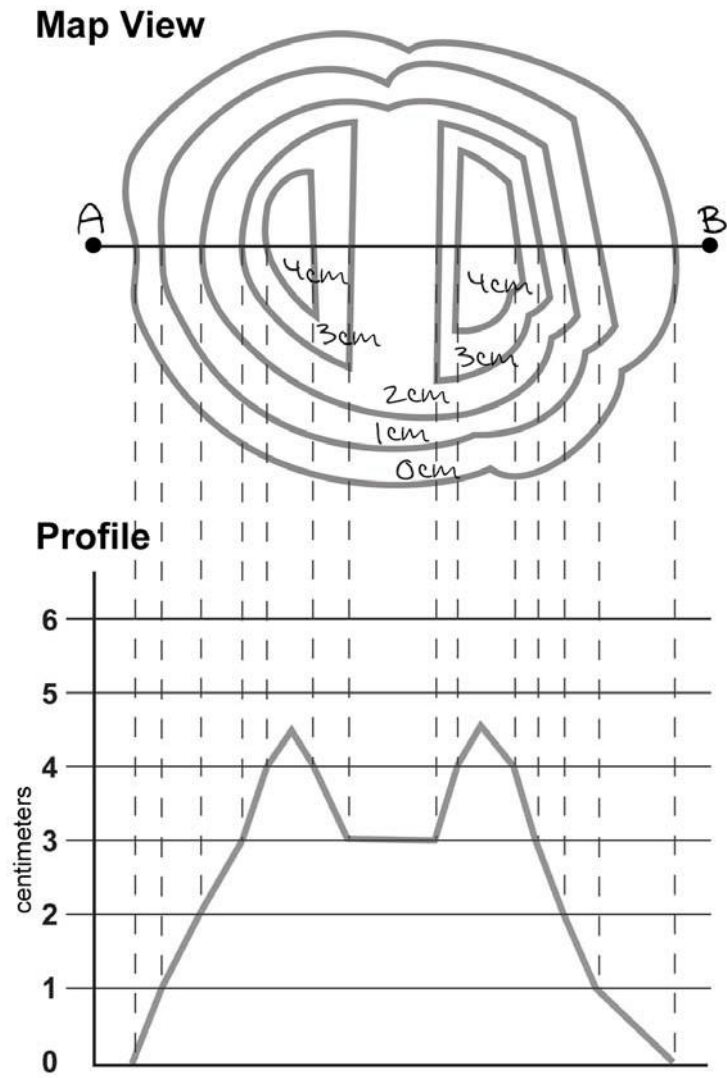
Step 4: Make the map profile from your topographic map.

A profile is a side view of your island. The cross section you make should resemble a slice of Potato Island. To make a profile from a topographic map, you need to draw a line across the map and transfer the elevations to a sheet of paper.

1. Draw a line through the center of the long axis of your topographic map (that is, through the longest part of your potato). Where the left outer edge of the map of the island meets the line, place the label "A." Where the right outer edge of the map meets the line place the label "B."
2. Next place the blank profile below your map. Using a ruler, mark the scale on the profile, directly below each place where the A–B line crosses each contour line. All of the marks need to line up, so be careful not to move the map as you are drawing the marks.
3. Connect marks to complete your profile.
4. In this example, the first two points are marked on the profile. Use this sheet to practice. Complete the profile of this island on the scale below, then can check your work on the following page.



How did you do? Your practice profile should look like this:



Now you are ready to create a profile of your map on your Lab Report (pages 7-9, below). Use your map and the blank profile scale on your Lab Report to make your profile.

Note: If you still have your potato, and want to get a sense of what your profile should look like, you can cut your Potato Island along the A-B line. The side view of your sliced potato should look like your cross section.

Lab Report

Answer the questions below. You may choose to print this Lab Report if possible (the last three pages of this document), and draw the map and the profile. If you do not have a printer, you can choose to use Paint



and/or Word to draw on the document. Printing the document is preferred when possible. When you are finished, submit this assignment to your teacher by the due date for full credit.

Map and Profile

(14 points)

1. Draw your topographic map in the space below.

Answer:

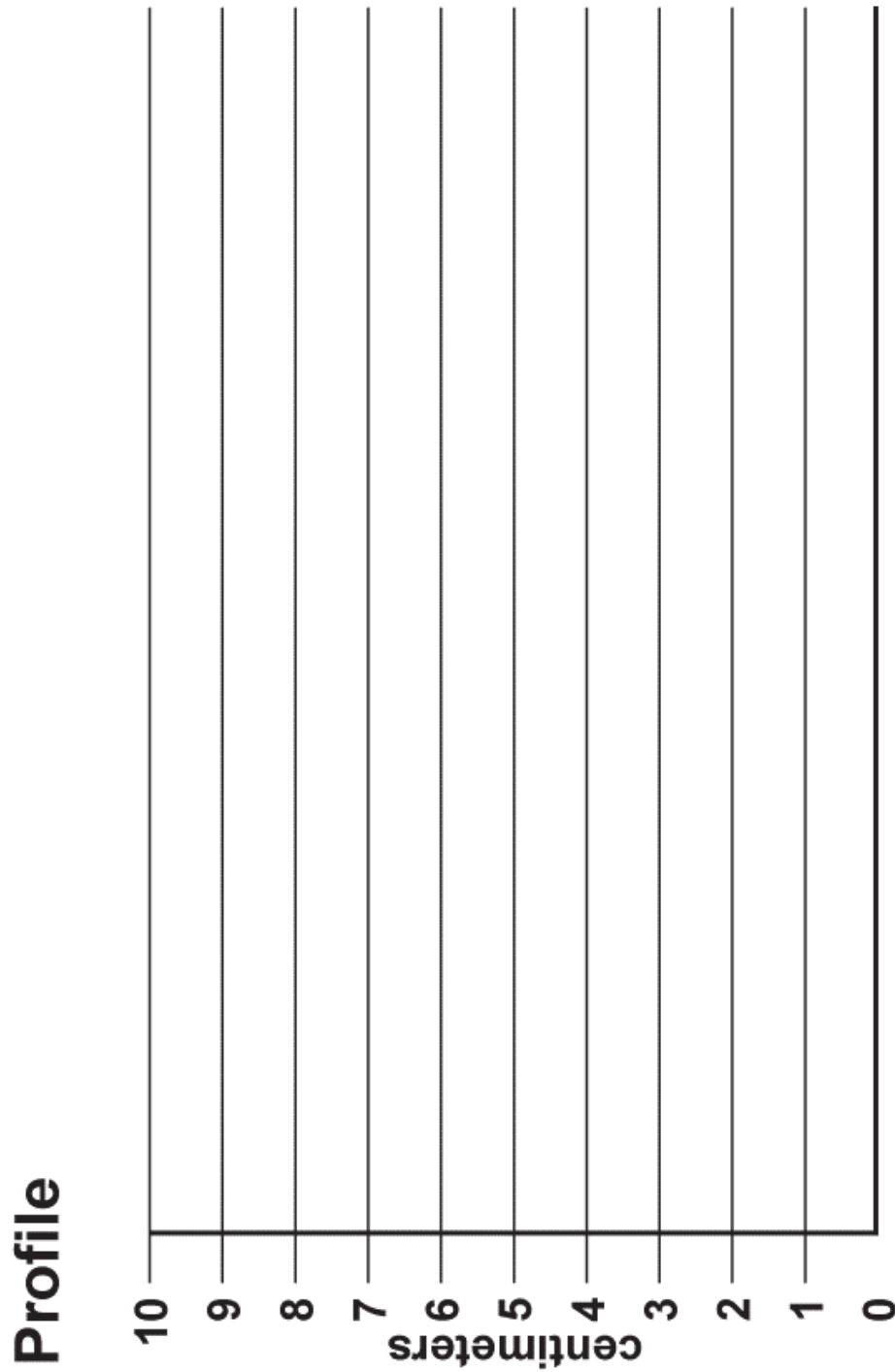
| Score |
|-------|
| |

(12 points)

2. Make your profile using your topographic map and this profile scale.

Answer:

| Score |
|-------|
| |



Analysis Questions

(3 points)

3. Describe the major features of the potato mountain system as shown in your topographic map. For each feature, explain how you know what it is from the map. Are there peaks? If so, how high are they? Are there valleys? If so, how long are they and how deep are they compared to the surrounding sides? If present, how high are any cliffs?

| Score |
|-------|
| |

Answer:

(3 points)

4. How can you tell if a slope is shallow? Are any ends of the potato mountain system shallow? If so, which directions?

| Score |
|-------|
| |

Answer:

(3 points)

5. How can you tell if a slope is steep? Are any ends of the potato mountain system steep? If so, which directions?

| Score |
|-------|
| |

Answer:

Note: To turn in this printed document, you must scan it, save it, and turn it in. If you do not have a scanner, you can take a picture of each page using a cell phone or digital camera. If you are using a cell phone to take the pictures, simply send text messages of the pictures to your email address. (Type in your email address instead of a phone number as the recipient). From there, you can login to your email on your computer, save the pictures, and send them to Dropbox to be graded. 😊

| | |
|-------------------|-----------|
| Your Score | ___ of 35 |
|-------------------|-----------|