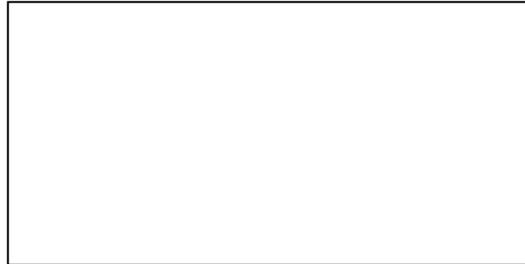


Name _____

Date _____

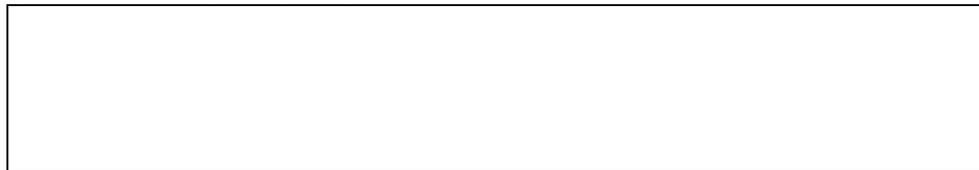
Lamont Data Puzzle #1: "Where did the water go?"

1. On the topographic map, find the stream. The name of the stream is Cascade Brook.
 - a. In what state is Cascade Brook located? _____
 - b. Notice the shape of the brown contour lines that go over the Brook, sketch a section of the Cascade Brook (the thin, blue stream near the middle of the map) and three of the contour lines that cross the stream, in the box below:



- c. In what compass direction (N, S, E, W, etc) is the stream flowing? (Remember, the contour lines point upstream so the river flows in the direction OPPOSITE to how the contour lines point.) _____
 - d. Notice the area of the map that is outlined in red. That is the boundary of the Cascade Brook watershed.
 2. Notice the grid superimposed on the map. Each square in the grid represents 100m by 100m in the real world. Using the grid, estimate the area of the watershed for Cascade Brook. Include each square that is more than 50% inside the watershed. Show your work, and include units in your answer.

- a. There are about _____ boxes in the watershed.
 - b. Since each box is 100m by 100m, the area of one box is _____
Show work in the box below: $A = L \times W$



- c. The total area of the watershed is _____
Show work in the box below: $A = (\# \text{ of boxes}) \times (\text{area of one box})$



Supporting Worksheet

Designed by Deena Bollinger, South Orangetown Middle School, New York

3. You have just calculated the *area* of the watershed feeding into the stream monitoring station. Now we want to calculate the *volume* of water falling within this area. This region received 114 cm of precipitation in a year. In other words, if the year's worth of precipitation were to be spread evenly across the landscape, it would form a layer 114 cm deep. **What was the volume of water that fell into the watershed this year?**

Show your work and include units in your answer.

- The area (length x width) of the watershed from #2 was _____ m²
- Volume = length x width x height and the height of the water given in this problem is _____ cm
- Convert 114 cm into meters by moving the decimal point 2 places to the left
114 cm = _____ m
- Now calculate the volume: Area x height = _____

Show work:

4. Look at the data table on the back of the map. The table shows how much water passed through the Cascade Brook stream monitoring station each month for one year. Think of two reasons why the amount of stream flow varies so much from month to month. Hint: Think about the seasons of this region. Record your ideas below.

5. What is the total volume of water that flowed through Cascade Brook at the stream monitoring station over the entire year? Show your work and include units in your answer.

6. Compare the total amount of water flowing through the stream monitoring station over the year with the amount of water falling in the watershed as precipitation during that same time (volume from #3). What is the numerical difference between the amounts?

7. Suggest two reasons why these amounts are not the same. Be prepared to defend your favorite ideas with the class.