Data Analysis

Part I: Making a 2D map

1. Look over the original copy of Data Sheet#2. Color in all the squares of the same height with the same color. Color in all the 5 cm squares in red, all the 4 cm squares in orange, 3 cm squares in yellow, 2 cm squares in green, and 1 cm squares in blue. This will give you a two-dimensional (2D) map of the unknown landscape.
2. Using your map, answer the following questions.

How "peaks" does your landscape have?

Would you describe your landscape as very hilly, somewhat hilly, or quite flat?

Part II: Making a 3D Model

3. With the members of your group, mount an extra copy of Data Sheet#2 on a piece of cardboard or poster board. Now carefully glue marshmallows on each square of the grid. Since the marshmallows are about 1 cm in height, you should glue 3 marshmallows on top of one another if the a square contain the number 3. Do this for all the squares. To avoid knocking over marshmallow towers, start in one corner and move outward.
4. Does the completed marshmallow model look like what you imagined when you looked at the 2D map? Were your observations from Part I correct?

5. How do you think your marshmallow model will look different from the landscape in the box? How do you expect the landscape in the box to differ from the marshmallow model?

Part III: Making a computer 3D image

1. Open up a Microsoft Excel spread sheet. Use the original copy of Data Sheet#2. Enter the numbers from Data Sheet#2 into the spreadsheet just as they appear on the Data Sheet#2. The data from the intersection of column A and row 1 on the Data Sheet#2 should be put in cell A,1 of the spreadsheet.
2. When all the data has been entered, go to the chart function. Select "Surface" chart. Choose the colored 3D surface icon. Continue to press "Next >>" until you come to "Finish." Press "Finish". The 3D image of your landscape will appear on the screen. You make the image larger by pulling on the corners of the image box. You may also rotate the image by clicking on the corners of the graph, holding down the mouse, and free rotating the image.

3. How is the Excel image different than the marshmallow model?

4. How is the Excel image similar to the marshmallow model?

Part IV
1. Open the landscape box, and look at the landscape.
2. Is the landscape what you expected based on the images, maps, and models you created above? How is it different? Similar?

3. Are there any significant errors in your maps or models? If so, how would you explain these errors?