Evaluation of Investigating the Height of a Stack of Cookies

CHM 101 Fall 2007 n = 10

1. How would you characterize the use of the "just add data" interactive Excel spreadsheet for this activity? Circle your choice. 3.4 100% no difficulty

| very easy | easy | so, so | difficult | very difficult |
|---|---|---|---|---|
| 1 | 2 | 7 | | |

2. Did you happen to notice that the rulers did not have the zero centimeter mark at the end? 40% noticed error

| Yes | No |
|---|---|
| 4 | 6 |

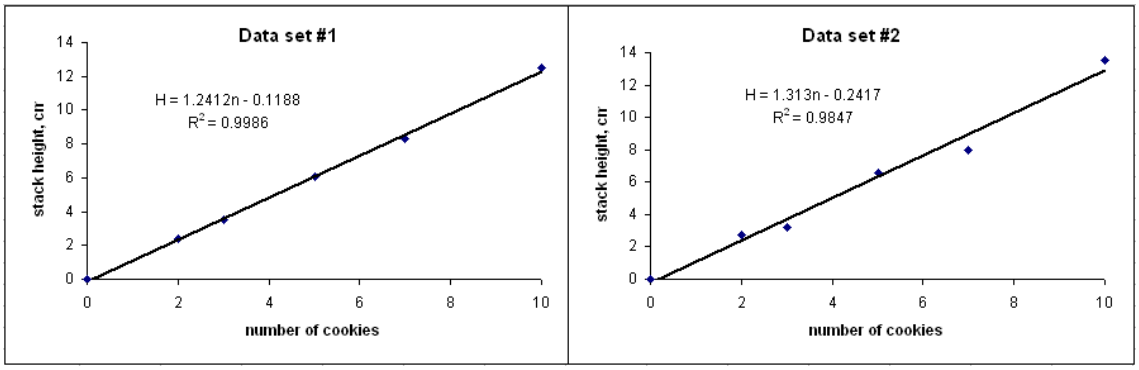
3. If you did (circled yes in question 2), did you correct for it? Be honest! 20% corrected error

| Yes | No |
|---|---|
| 2 | 2 |

4. What is the stack height of zero cookies? __0__ cm 100%

They know this but can't translate it to y = mx + b that b = 0.

5. Here are two graphs of different data sets.




Which data set shows more variation in the thickness of the cookies? 100% correct

| Data set #1 | Data set #2 | Don't know |
|---|---|---|
| 0 | 10 | 0 |

Explain your choice.

8 of 10 (80%) explained it correctly

3 of 10 (30%) used $r^2$ to address correctly

Correct explanation: All comments are typed verbatim including spelling!!!!

- Data set #2 points are scattered across the graph. Data set #1 is a straight line, meaning there was very little variation in thickness.
- Data set #2 shows more variation in thickness because the line doesn't exactly go through the dots meaning some cookies were thicker than others. $R^2$ is further away from 1.
- $R^2$ on data set #2 is farther it is from $R^2$ =1.000 so, there is more variation.
- Data set #2 shows more variation because the line doesn't go through dots meaning some cookies thicker than others.
- Data Table #2 shows more variation because the points vary off of the line more and the value for $R^2$ is farther from 1.
- The farther it is from the line the more variation it is and the closer it is to the line the more linear it is.
- Because the set of data is scattered throughout the graph indicating a variation among the thickness of each cookie. In data set #1, the data is consistent and does not have a variation of stack height of the cookies.
- Even though the $R^2$ is smaller than data set #1, data set #2 has a variety of points that have a change and difference in height of thickness that are not linear, causing a line and equation to not touch a majority of the points because the line and equation are an average.

Incorrect explanation:

- Data set #2 shows more variation in the thickness of the cookies because based on the graph there is a various changes in the number of cookies and the height of stacks itself. It also have a greater slope.
- Since it has a higher slope its rise causes it to show more variation in thickness of the cookie.

Any overall comments about the activity:

- Better understanding of linear regression
- It would have been a fun project. I was kind of confused about using the spreadsheet spinner.
- very interactive and detailed
- It was a good project knowing how to use Excel is challenging though.
- I feel good about this project and I felt I could have done the questions without the spreadsheet and just the data.

- very interesting and detailed.
- The activity was at time interesting and at time very puzzling to understand. But the idea of using Oreo cookies to illustrate the concept of measurement is both captivating and enjoyable. I enjoyed this activity to a certain extent, although it was a little difficult characterizing (?) the data on to excel. I prefer these sorts of activities rather than very difficult performance tasks.
- The activity was easy but questions about the slope and y-intercept confused me. Also the two different excel tabs on the height and thickness both showed the same graphs and seemed that there was no different between the two.
- At first it was confusing but in the long run I understand the basic concept between graphing and the use of linear regression.
- It was pretty easy self explanatory except I had a few problems with the variation of thickness. My data didn't scatter at 1$^{st}$ but once I changed something it did.