

**21things4students.net 13. Dig the Data Quest 2**  
**Cell Phone Student Activity**

Your teacher has been contacted by an advertising agency that represents several cell phone companies. Your job is to investigate the data of a typical, middle school student and their phone usage. The data needs to be graphed and analyzed so that the companies can create new usage packages for the middle school aged population customer and their families.

Please use the given data to create a profile of Sean Smith's phone usage. Then create a graph to represent each set. Once you graph the results you will be asked to draw conclusions from the information.

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**Steps:**

Here is your data:

Sean Smith's cell phone usage (in minutes) by month

| Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sept | Oct | Nov | Dec |
|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|
| 216 | 204 | 235 | 209 | 273 | 302 | 322 | 201 | 205  | 197 | 220 | 181 |

Sean Smith's text messages by month

| Jan | Feb | Mar | Apr | May | Jun  | Jul  | Aug  | Sept | Oct | Nov | Dec |
|-----|-----|-----|-----|-----|------|------|------|------|-----|-----|-----|
| 901 | 889 | 925 | 955 | 910 | 1178 | 1567 | 1601 | 927  | 892 | 900 | 989 |

1. Create a new spreadsheet in Excel (Google docs, open office, etc).
2. Input Sean Smith's data on 2 sheets. (Advanced users can create 2 columns on 1 sheet and use the ctrl command to highlight the needed data for each graph).
3. Create a new row below the names of the months and title it Total. Use the sum feature shown in Quest 1, to get a total number of cell phone minutes, and also for the number of text messages.
4. Create a new row below the total and title it Average. Calculate the average number for the year by putting your mouse in the cell for the average and type = (click in the total cell) and / (divided by) and enter the number of months.
5. Create a bar graph for each set of data. (2 graphs) by selecting the cells with the names of the months, and the cells with the data for the months. (Highlight both columns of data).

Click the insert tab

Select the bar or column graph

Select your chart type as a 2 Dimensional chart

Click on the layout tab & work in the chart title and axis title buttons.

Be sure to use specific information for your titles.

Take a screenshot of each page of data and chart

**Copy and answer these questions in your document:**

- 1. How many months did Sean exceed the average?**
- 2. Which representation was the most useful? The excel bar graph or the numbers on the spreadsheet? Why?**

**6. Open a word processing document and paste an image capture of both sheets of your spreadsheet with the graphs showing. Save it and continue.**

**7. Copy and paste the following questions into your document below the image capture and answer them.**

**What is the average number of minutes Sean used on cell phone calls?**

**What is the average number of text messages that Sean used?**

**What is the yearly total for minutes used and the total for texts?**

**How do these numbers compare?**

**Looking at both sets of data, explain a trend that you see in Sean's cell phone use.**

**What is a logical explanation for what you see in the usage throughout the year?**

**Find the three highest text message months in your bar graph and put a 0 in the spreadsheet for those 3 months (exclude them).**

**What changes does this cause in the graph?**

**How does this effect the total and the average?**

**8. Help Sean pick a plan. Explore the different wireless plans Sean could choose from with a limited budget of \$50 per month. Use the average number of minutes per month and the average number of text messages per month for this activity. Sean does not have a smart phone, so does not have any data useage.**

**Click on this link to go to the [My Rate Plan site](#)**

**Use the sliders provided to set the number of average minutes and text messages per month.**

**Use the Price per month sliders so that the plan does not exceed the budget of \$50 per month.**

**What plan do you recommend? Will Sean need a 2-year contract plan or will a monthly plan work? If Sean gets a smartphone for a Christmas or Birthday present, how much data could Sean use and still be within his budget of \$50.? Be sure to check and uncheck the contract or pre-paid plans as you make your recommendation.**

**Write a paragraph summarizing which features seem to make the most difference in the cost of plans? Compare your recommendations with others in your class.**

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**Completing this Quest**

**Save your document with the images and answers to your File Space or as specified by your teacher to submit your work and recommendation.**