Collecting, Displaying and Analyzing Data

WebQuest Description: You will be collecting data and learning about the different kinds of graphs that can be used to display that data. You will also be interpreting various kinds of graphs as well. For this webquest you will be creating your graphs by entering the data into a spreadsheet.

Grade Level: 6-8
Curriculum: Math
Keywords: Graphing, data, bar graph, circle graph, histogram
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Introduction

Numbers are all around us and in many cases we can use numbers to solve problems or answer questions. In this webquest you will be studying various ways to gather data and how to create displays from that data. You will be working with bar graphs, double bar graphs, histograms, circle graphs, line graphs, line plots, scatter plots and stem-and-leaf plots. In addition you will be working on reading and interpreting graphs that have already been created.

Tasks

You will be gathering data, creating graphs, finding examples for and defining the various types of graphs. Your final product will be a PowerPoint presentation that holds all of the graphs you have created along with the answers to several questions that you will be asked along the way.

Process

1) Download the PowerPoint presentation outline for this project. It is available on the school fileserver. It is also available for viewing or download at slideshare.com. Follow this link to see it.
2) http://www.slideshare.net/smacdermaid/chapter-7-project-presentation2
3) Title Page and Slide #1 (Title & Formal Paper Heading) Edit the title slide and slide #1 to reflect your title as well as your information. Remember that we are using a formal paper heading here. The date on the heading should be the date that you turn the PowerPoint in not the date that you are starting it. Please note that tehe title slide has no number.
4) You will need to follow the numbering at the top of the slides, not the numbering within PowerPoint. If you feel that you need more room, you may add slide but must&nb;label them "Slide #1", "Slide #1 Continued" etc.
5) Review mean, median, mode and range. Follow this link and work through the "Rags to Riches" game found there to brush up on your understanding of these terms.
6) Complete Lab Activity 7-6. The Lab recording sheet can be found at this link http://go.hrw.com/resources/go_mt/hm2/rs/7_6.pdf if you need another copy. You will be working through the activity step by step using the Excel as your spreadsheet program. Remember to save the graphs and insert them, along with the required answers, into Slide #2.5)
7) Surveys and Data Collection - Survey your classmates. You will be forming two questions which you will need to ask at least 25 people. Please stick to the guidelines on the recording sheet and do not use the examples given.
8) Fill out the second half of the recording sheet information related to how you spend your day.
9) Please be sure that the total number of hours adds up to 24 when you are done.
10) You will need to round time to 15 minute increments and must record them in the spreadsheet in decimal form.
11) Excel.
12) Slide #3 (Survey #1) Enter your data into an Excel Spreadsheet. Using the chart wizard create either a Bar Graph and/or a Histogram of your data.
13) If you plan on making a bar graph for Slide #4 please do not use one. Place both your data and your graph(s) on Slide #3.
14) Slide #4 (Survey #2) Enter your data into an Excel Spreadsheet. Using the chart wizard create either a Bar Graph and/or a Circle Graph of your data.
15) If you made a bar graph for Slide #3 please do not use one.
16) Place both your data and your graph(s) on Slide #4.
17) Slide #5 (How I Spend My Day) Enter your data into an Excel Spreadsheet. Using the chart wizard create a Circle Graph of your data.
18) Place both your data and your graph on Slide #5.
19) Slide #6 (Scatterplot) Read problem #5 on page #418 of your
You will need a computer with access to the internet for searches as well as to access this webquest. In addition, you will need a computer with access to the internet to complete this webquest. If at anytime you feel you need help with something, don't what to do next, please visit "Graphing with Excel" at http://www.ncsu.edu/labwrite/res/gt/gt-menu.html for help on graphing in Excel. I also have some tips for you on how to create graphs with Excel. "Graphing with Excel" at http://www.ncsu.edu/labwrite/res/gt/gt-menu.html for help on graphing in Excel. I also have some tips for you on how to create graphs with Excel. "Graphing with Excel" at http://www.ncsu.edu/labwrite/res/gt/gt-menu.html. Next, search the internet for a misleading graph. Copy and paste the image of the misleading graph on the slide along with an explanation for why it is misleading. The last thing you need to do on your PowerPoint presentation is delete the last slide with the "Other Reminders" listed on it. Be sure to pay attention to what is written on this slide, but be sure to delete it before turning in your presentation.

**Evaluation**

<table>
<thead>
<tr>
<th>Category and Score</th>
<th>Beginning</th>
<th>Developing</th>
<th>Very Good</th>
<th>Exemplary</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creating Graphs and Excel Spreadsheet</td>
<td>Some graphs are missing. Graphs are incomplete and/or inaccurate.</td>
<td>All graphs are included but some are incomplete or inaccurate.</td>
<td>Graphs are complete and all elements are included but occasionally the graph presented does not match the graph requested.</td>
<td>Graphs are clear and concise. All labels are included and each graph correlates to the kind of graph that was requested.</td>
<td>%25</td>
</tr>
<tr>
<td>Lab 7-6 Creating a Scatterplot</td>
<td>Scatterplot is missing and questions were answered incorrectly.</td>
<td>Scatterplot is present but is incomplete or inaccurate.</td>
<td>Scatterplot is complete but questions are answered incorrectly.</td>
<td>Scatterplot is complete and accurate. Questions are answered completely and correctly.</td>
<td>%25</td>
</tr>
<tr>
<td>Definitions and Examples</td>
<td>Many definitions and/or examples are missing or inaccurate.</td>
<td>Some definitions and/or examples are missing or inaccurate.</td>
<td>Most definitions are accurate and more the most part examples are also correct.</td>
<td>All definitions and examples are accurate and are matched up with the correct terms.</td>
<td>%25</td>
</tr>
<tr>
<td>PowerPoint Presentation</td>
<td>Much of the PowerPoint Presentation is largely incomplete.</td>
<td>PowerPoint Presentation is missing some required elements.</td>
<td>PowerPoint Presentation is complete but is not well organized and shows little creativity and/or is not logical or neat.</td>
<td>PowerPoint Presentation is complete and in the designated order. It shows creativity and is logical and neat.</td>
<td>%25</td>
</tr>
<tr>
<td>Total Score</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>%100</td>
</tr>
</tbody>
</table>

**Conclusion**

Through this webquest you have explored many different types of graphs. It is my hope that the next time you need to create a graph that you will feel comfortable using a computer to do so. Remember that you can always visit "Graphing with Excel" at http://www.ncsu.edu/labwrite/res/gt/gt-menu.html for help on graphing in Excel. It is also my hope that you have learned a bit about misleading graphs and how to recognize them. Graphs are all around us. Some are well done and accurate and some are not. It is important to understand the difference.

**Teacher Page**

Focus: This WebQuest focuses on collecting, displaying and analyzing data. For 7th grade students with translations into studying different kinds of graphs. &nbsp;Objectives/Goals: This project can be used as a stand alone unit at just about any time in the year. &nbsp;It is assumed that the students have had exposure to the concept of mean, median and mode prior to the start of this webquest. Students will come to understand that mathematics is not a "dead" subject, but a constantly expanding science. Students will have "fun" with math.

**Resources:**

- Prerequisite Skills: Basic understanding of Mean, Median and Mode
- Time Required: 5-7 class periods (45-50 minutes each)
- Technology Needs/Materials Needed: Each student will need a computer with access to the internet for searches as well as to access this webquest.

In addition...
Each student will need access to Microsoft Excel. Credits: The resources and web links included on this website are external websites and I would like to thank them for creating such useful WebPages.

Standards

Credits

Other