Using Excel To Present Data

Task Description

Students explore presenting class-generated data using the wide selection of graphs available in the Microsoft Office Excel program. The students examine the merits of each graph for presenting data effectively.

Length of Task

60 minutes

Materials

- Data projector/interactive whiteboard, computers, student generated data

Using the Activity

Introduction

The teacher selects class-generated data from a previous task (e.g. the frequency of letters in the English language) and demonstrates how to enter the data into the Excel spreadsheet. A data projector or interactive whiteboard should be used for viewing the computer.

Important points to address with the students are:

- Selecting cells to input information,
- Entering Column headings,
- Entering Row headings,
- Ensuring the data inputted is in the correct cell, and
- Using the AutoSum feature to calculate the total of a column or row.

Once all data is entered into the spreadsheet the teacher demonstrates how to create a graph from the data. The teacher highlights the various graph (charts) options made available in Excel and encourages students to consider the merits of each graph for effectively displaying data. The teacher also emphasises the importance of labelling graphs.

Main Activity

Individually or in pairs, the students are set the task of inputting their personalised data into the spreadsheet. These data are generated from exploring the frequency of letters in the English language in their selected text or a number of texts (see Most Commonly Used Letter). The students are allocated time to experiment with the selection of graphs offered to display the data. The students consider appropriate graph/s to display their data effectively. The students create the graph/s and ensure that they are labelled correctly. There are many additional features for “dressing-up” the graphs that the students enjoy utilising.

The whole class share and discuss their graphs. The students’ individual computer screens featuring their selected graph should be shown to the class during the sharing time.

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Reflection focus prompts
Discuss the different types of graphs students used.
What features of this graph make it suitable for displaying the data?
What types of data might you use for each different graph?
Why would a (insert name of any graph) not be suitable for displaying these data?
What other ways might you display these data?
If you could change your graph to a different type of graph which one would you select and why?

If time allows, students may return to their data and select an alternative graph that may be more appropriate for displaying their data based on the feedback from the group.

Key Mathematical Concepts

- Presentation of data.
- Interpreting data from different types of graphical representations.
- Identifying the features of a graph.

Prerequisite Knowledge

- Understanding the elements of a graph.

Links to VELS

Dimension	Standard
Measurement, Chance and Data (Level 3)	Students use a column or bar graph to display the results of an experiment (for example, the frequencies of possible categories).
Measurement, Chance and Data (Level 4)	Students present data in appropriate displays (for example, a pie chart for eye colour data and a histogram for grouped data of student heights).

Assessment

To be working at Level 4, students should be able to:

- Appropriately label a graph.
- Identify the types of graphs and their features used to represent data, e.g. bar, pie.
- Interpreting data from different types of representations.
- Evaluate the appropriateness of the graph used to represent selected data.

Extension Suggestions

For students who would benefit from additional challenges:

- Trial different types of graphs that are not commonly used (for example: box and whiskers, dot graphs, double bar graphs). Explore the types of data that may be displayed using these graphs.

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- The students could explore the various Excel training programs available free online to build their skills in utilising the Excel program. The students may wish to add pizzazz to their graphs through the range of display options or explore the use of formulas to generate statistics from the data.

Teacher Advice and Feedback

The students were completely engaged in this task and enjoyed the creative side of exploring and creating graphs in Excel. The technology assists in creating graphs quickly and therefore the focus was on exploring the suitability of the various graphs rather than the time consuming task of creating hand-drawn graphs.

The functions and processes for generating charts will vary depending on the Microsoft Office program you are using. Go online for the latest tutorials for your Excel program. A good tutorial to start with for Excel 2007 is “Charts I: How to create a chart in Excel 2007” http://office.microsoft.com/training/training.aspx?AssetID=RC101757361033

Potential Student Difficulties

The students did not have difficulty with accessing the task; however, it was the technical side of the lesson that proved more challenging. The teachers found that there were a number of students who found it difficult to input the data using a touch pad rather than a mouse. It appeared that most students used a mouse with their home computers and therefore found using a touchpad awkward.
While some students may have initially selected inappropriate graphs to display their data, redirecting them to focus on the elements that are important in presenting data assisted the students in reviewing their choices.

Source

Charts I: How to create a chart in Excel 2007
http://office.microsoft.com/training/training.aspx?AssetID=RC101757361033

Acknowledgements

Thank you to the teachers and students from Timbarra Primary School for providing valuable feedback on the use of this activity.

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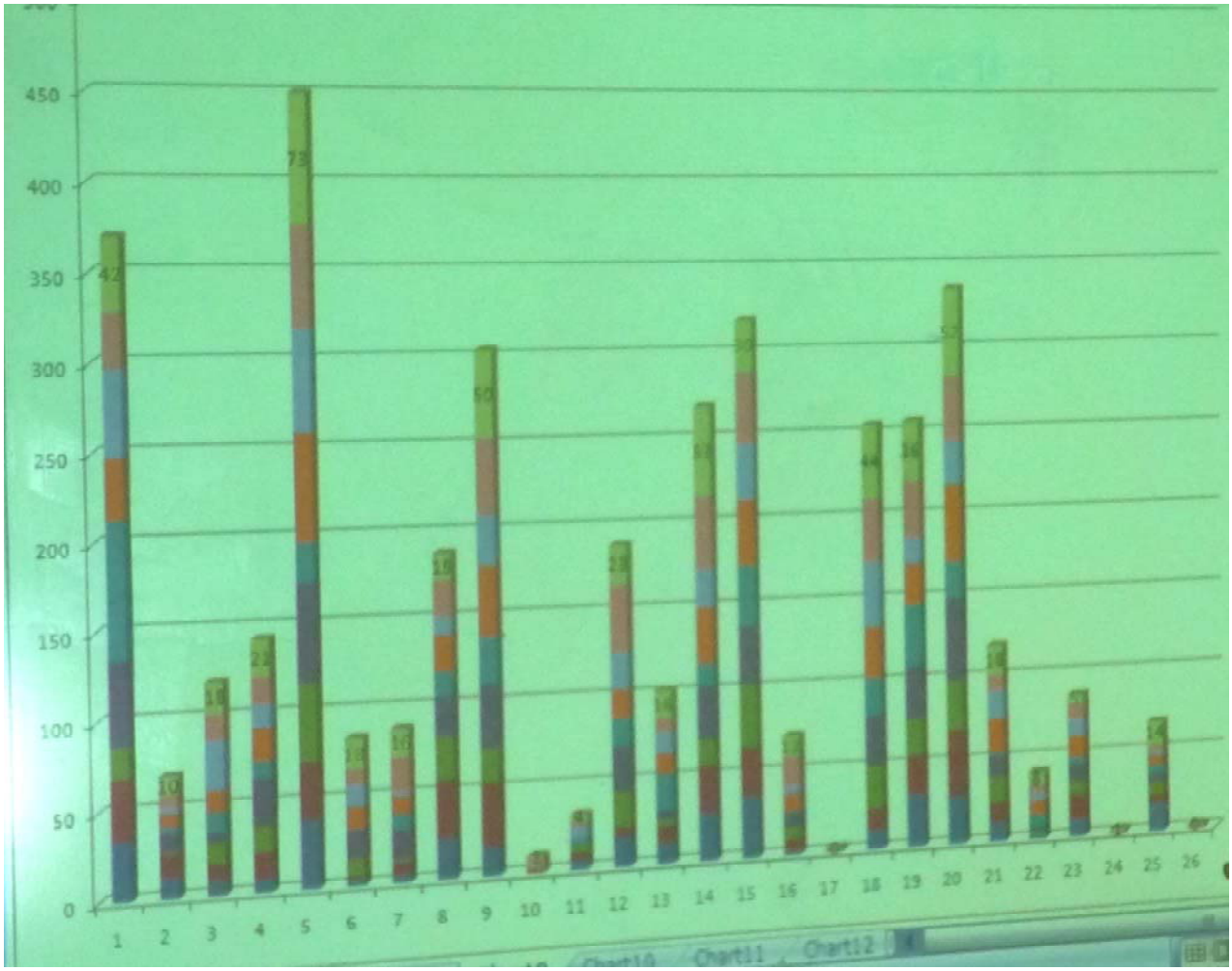
Student Work Samples

Example 1: Working at Level 4

These students combined the results of the frequency of letters present in nine difference texts to form a stacked column graph. At a glance the letter “e” is the most dominate letter in the nine selected texts. The colour coding assists in individualising each text. It may have been more helpful to label the x axis with the letters of the alphabet rather than their numeric order. The data can be further scrutinised through displaying each text individually. However, the combination of the nine texts assists in building a bigger picture of the frequency of letters in English texts.



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Student Work Samples

Example 2: Working at Level 3

These students have experimented with an exploding doughnut graph to display their data. This is not a suitable chart to use for these data as there are too many categories to read the graph accurately. Asking the students to answer questions about the data from the doughnut graph may help them to recognise the difficulties with interpreting these data through this style of graph. Placing the data in a bar graph alongside the doughnut graph and asking the students to respond to questions using either of the graphs may also allow the students to recognise the positive and negative features of each graph.