



Design Guide

Excel for 6th Grade

Hudson School

Hoboken New Jersey

Semester 3 2010

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Context

Class Size: 13 students

Previous computer classes for 6th grade at Hudson School: 0

Objectives: learn/practice keyboarding and basic applications.

Total Days of Classes: 21

Class length: 50 minutes – 7 weeks of three classes per week.

Unit 1: Spreadsheets, 7 classes, beginning level.

Use of English: American spelling used because of the location of the project/students.

Rationale

To fulfill The State of New Jersey ASK Grade 6 Mathematics 4.5.F.2. Standards: what is data, how to collect and record data, how to make judgments about data and how to present the information collected in a neat and structured chart/graph.

Use computer spreadsheets, software, and graphing utilities to organize and display quantitative information (cf. workplace readiness Standard 8.4-D).

“A study by F.W. de Klerk (president of South

Africa) found that students form negative attitudes about the technological world if there are no formal technological experiences during the early school years. This finding is a great concern to New Jersey business and industry. Other cognitive research suggests that "design-based learning" is important. Early studies with design and technology curriculum indicate that students who learn important technological concepts develop positive attitudes about technology, math, science and learning in general. For these reasons, an introduction to technology education, including engineering and technological design, is an essential component of a thorough and efficient K-12 education.”
(International Society for Technology in Education. (2000)

Students developmental stage

My pedagogy is based on the fact that the students have reached the formal operational stage as eleven year olds in 6th grade. Piaget's research on children of this age showed that students are able to make testing inferences from a prediction. In my example using graphs and charts of nutritional values, students hypothesize that the content of fast-foods lead to undesirable health consequences.

Evaluation of pre-existing material

I have evaluated several text books by Thomson Course Technology which offer very comprehensive and well laid out materials for used for students. I have decided not to use a text book such as this for the following reasons:

1. They are expensive (around \$100 US) per copy.
2. They are more suitable for an older audience.
3. Hudson School does not have them available.
4. They do not allow the opportunity to tailor the material to the interest to my particular group of students.

Furthermore I have evaluated the online tutorial and I have decided to not use them because:

1. They do not allow for the group work.
2. It is difficult to watch a video online and

do their work at the same time.

3. I will familiarize students with online tutorials for spreadsheets as it may sublimate their at home studies.

Audience and Instructional Objectives

This project is for a sixth grade class at a private school in New Jersey. It involves the students' first formal project in using computers for work other than looking up information in a search engine. They will be doing a spreadsheet project comparing the nutritional value of fast food restaurants with the fat, salt, sugar and calorie content. Following the formatting of their spreadsheet with this information they will be using Google Docs in a collaborative project to compare the difference between meals. This brings into play other values such as taking on responsibility for one's diet by making proper choices and not following the national trend which leads to heart problems, becoming over-weight, diabetes, and no date for the prom.

This unit will be to learn spreadsheet basics using Microsoft Office 2003. These lessons can be used also with Microsoft 2007 for Mac, Microsoft 2010

and Open Office 3.1 and earlier and Google Documents Spreadsheets.

The instructional objectives' primary purpose is to prepare students to be able to use a spreadsheet for mathematics classes as well as the sciences.

Spreadsheets should not be taught on one propriety software such as Microsoft. I will be requesting that we load Open Office on to our machines but at this time there has not been a decision made for this. We will have classes in both Microsoft Office Excel and Google Documents. It would be ideal if we also had Macs and we had other operating systems such as Ubuntu. From my testing of the simple sixth grade level of spreadsheet work this knowledge will be transferable to other applications:

Spreadsheets that are parts of suites

- Apple iWork Numbers, included with Apple's iWork '08 suite exclusively for Mac OS X v10.4 or higher.
- AppleWorks - for MS Windows and Macintosh. This is a further development of the historical Claris Works Office suite.
- WordPerfect and Lotus 123.
- IBM Lotus Symphony - freeware for MS

- Windows, Mac OS X and GNU/Linux.
- Microsoft Office Excel - for MS Windows and Macintosh. The proprietary spreadsheet leader.
 - Microsoft Works Spreadsheet - for MS Windows (previously DOS and Macintosh). Only allows one sheet at a time.
 - Quattro Pro - part of WordPerfect Office
 - OpenOffice.org.

As well as these suites with spreadsheets there are numerous spreadsheets available online. For sixth grade this will not be covered but for a high school class I would include different spreadsheets including online open source ones.

Assignment project

Two classes are spent learning how to format, use fonts, put in colors, and do some basic functions such as add, divide, multiple and subtract.

Why Groups?

I have chosen to use groups for the following pedagogical reasons:

1. It assists in classroom management
2. It develops student's relationships with each other
3. It enables full engagement with the project as student share their findings with each other

The following quote from the “Handbook for Classroom Management that Works” illustrates this.

“Cooperative learning and other group activities can be effective classroom instructional strategies, not only academically but also as ways to develop students' relationships with one another. By working with their peers, students can learn to express themselves clearly, to listen, to compromise, to value others, and to take leadership roles. For group work to be most useful, however, teachers should establish a foundation of rules and procedures and reinforce them throughout the year.” (2003)

Teachers should assign students to grouping, rather than choosing their own groups. I have based this instruction on research done by Michael Thompson (2002) where he discusses the power of friendships between children, and ways in which the negative effects of isolation can be mitigated by teachers' interventions.

Each group will pick different fast-food restaurant's

items and each person in the group will make a spreadsheet for a different meal such as breakfast, lunch and dinner. They will then compare each group's meals for calories, salt content and fat by creating collaborative spreadsheets in Google Documents. The students will share them with classmates later in the semester using Power Point presentations.

Resources

- Computer per student, PC desktops
- Programs on the computer for this project will be Microsoft Office 2003
- Each student will have an account on the school's server and a folder for this exercise
- Each student will be assigned a Gmail account with username and password so that they can do a collaborative project together
- Students in their group will be assigned a fast food restaurant online to choose their meals from: McDonalds, Taco Bell, Wendys, Chick-fil-A, KFC or Burger King. As shown on the Washington Post site,

'Fast Food Calorie Counter "How does your meal add up? Use our fast food calorie counter to calculate the calories and fat you consume when eating at fast-food restaurants."

<http://www.washingtonpost.com/wp-srv/flash/health/caloriecounter/caloriecounter.html>

- Or if the above site is not available each group will have one of the following assigned

Burger King <http://www.bk.com/>

Wendy's <http://www.wendys.com/>

McDonalds <http://mobile.mcstate.com/nutrition/>

Chick fil A [http://www.chick-fil-](http://www.chick-fil-a.com/#nutritiondata)

[a.com/#nutritiondata](http://www.chick-fil-a.com/#nutritiondata)

See also <http://www.nutritiondata.com/>

Test

Description of test and rationale

Multiple-choice test having the main advantage (Alexander 2006, quoted in Brady and Kennedy, 2009) for a broad coverage of content as well as making the test objective. The questions are based

on assigned tasks described below.

The test is in paper format (we still use paper and pencils in this part of the world) as students will need to work on their computer and see the questions in front of them at the same time.

The test will be one full class of 55 minutes.

Firstly, they will open Excel so this will test that they know how to find it. It will not be on the Desktop but in programs.

Secondly, students will need to download my spreadsheet with the data they will use and save it to their folder on the server which tests their finding and putting files in the proper place.

Thirdly, they need to look up a website not from clicking a link but from typing in properly the URL on the paper. This tests the accuracy of keying in the proper URL.

Finally they will need to put in the raw data I have on the spreadsheet made available to them and answer the multiple questions below.

The Test

1. I want to change the date format in cell 1A to how

it is read in Australia and without the day showing. What do I do? In other words to go from Friday April 02, 2010 to 04/02/10

- A. Select the cell > Tools> cells > date > format > language
 - B. Select the cell > Format > cells > numbers> format > language
 - C. Select the cell > data> format > date > format > language
 - D. Select the cell > Format > cells > date > format > language
2. Using best practices for spreadsheets which is correct?
- A. Using lots of different fonts and sizes
 - B. Using a very small font so that more data fits into the spreadsheet
 - C. Using a lot of different colors
 - D. Use the same font throughout the sheet with two or three different size fonts
3. Using your Excel 2003 spreadsheet we notice that there are 65,536 rows and 256 columns on one

sheet. We want to know how many cells per worksheet there are so we put our numbers in two cells and using the sum icon we find that there are how many cells?

- A. 16,777,216 cells per worksheet
 - B. There is no limit to a spreadsheet
 - C. Each cell can hold 32,767 characters
 - D. 1,677,721
4. Key in the following URL,
<http://www.cbssports.com/mlb/salaries/top50?tag=pageRow;pageContainer> Who runs this site?
- A. the Hudson School
 - B. The New York Yankees
 - C. CBS sports
 - D. no one owns this site because it is on the Internet
5. What tab is the merge cells under?
- A. The tools tab
 - B. The format tab

- C. There is no tab for this
 - D. The edit tab
6. What is the average salary of the top 25 baseball players for 2009?
- A. \$18,158,281.44
 - B. \$472,115,317.44
 - C. \$11,348,925,900.00
 - D. \$22,697,851.80
7. What is the difference between the top salary and the lowest salary in this sheet? Use the sort tab.
- A. \$18,500,000
 - B. \$47,500,000
 - C. \$.44
 - D. \$1,850,500
8. We want to keep the text in cell 2A and not have it go across the columns or across the page. What is the procedure?
- A. Insert > Rows > divide

- B. Format > cells > alignment > wrap text
 - C. Format > column > width > resize
 - D. View > tool-bars > align
9. Looking at the different chart options highlight your two columns and all the rows with data and with salaries sorted from least to most, which of these charts is the clearest to view the data?
- A. Area chart
 - B. XY (scatter) graph
 - C. Column graph
 - D. Pie Chart
10. To drop the cents from all the salaries at once, rounding off to the dollar, what do we do
- A. Select the row > format > cells > numbers > currency > decimal places > 2
 - B. Select the column > format > cells > numbers > currency > decimal places > 0
 - C. Select the column > format > cells > numbers > currency > decimal places > 2

D. Select the row > format > cells > numbers > currency > decimal places > 0

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