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Open Gateways Program - Professional Development Curriculum

Module 5: Spreadsheets - Real World Applications

Logistical Preparations for This Workshop

The following checklist summarizes the preparations necessary for you to have everything ready for the workshop:

- Familiarize yourself with the display unit that you will be using.
- Have enough handouts for all of the teachers. These handouts include:
 - The student lesson plans
 - A copy of the Glossary (glossary.html)
- Review the lesson plans and be prepared to walk the participants through the steps.
- Review the training slides and the talking points for this module (also, see the summary table for the training slides).
- Post the agenda prominently at the beginning of the workshop.
- It should be printed large enough to read across the room.

Skills Checklist

To be effective for this workshop, you should:

- Understand how to use the operating system - how to save files, find saved files, rename files, move files, and delete files.
- Be able to use the font features: change fonts, alter text attributes (bold, italics), and switch font color and size.
- Have a basic understanding of how fonts can be used most effectively in documents.
- Be comfortable using the vocabulary associated with spreadsheet components, such as cells, rows, columns, worksheets, and formulas.
- Know how to sort data, select ranges of data for graphing, enter formulas, and use relative and absolute addressing of cells.
- Be able to format cells for printing.

Overview

This module focuses on the uses of spreadsheets in the curriculum. Many professions employ spreadsheets for many different purposes: keeping track of lists of items (for example, inventories), calculating values based on entered data and formulas (for example, budget information or teacher grade sheets), and storing statistical information and using graphing tools to create dynamic displays of data (for example, in financial or scientific settings).

Learning Goals and Objectives

All participants will learn to perform basic spreadsheet functions and to chart information using various types of graphs (bar, line, and pie charts). Point out that the goals and objectives will be covered over four hours. Inform the teachers that they will have time to review the elements from the first workshop in the follow-up workshop.

By the end of this workshop, all teachers should:

- Have some clear ideas or plans for integrating spreadsheets into their own curriculum.
- Realize the importance of teaching students about spreadsheets.

- Be able to plan cooperative learning lessons that take into consideration the management techniques necessary to ensure effective computer use by small groups of students.
- Understand that spreadsheets are sophisticated software tools that a variety of professions and businesses in the "real world" employ to accomplish a wide range of tasks. Within their classrooms, they will use only a small portion of the power of spreadsheets.
- Know how to create a new document, save it, and print it.
- Be able to enter data (text and numbers) as well as simple formulas into spreadsheets.
- Be able to format a spreadsheet (add headers or footers, for example).
- Know how to create new worksheets.
- Be able to create graphs of data from the spreadsheet.

New Vocabulary

In the workshops outlined in this module, the following vocabulary may be new to the participants:

- cell
- range
- worksheet
- formula

Agenda

Supply teachers with an agenda for the meeting. Post it where they can refer to it during the workshop. Do the same thing for the norms. (Refer to Module 1 for a list of possible norms to establish throughout all workshops.) The agenda below is for teachers who are taking the workshop in two segments of two hours each:

Divide your teachers into two groups: novice and intermediate/advanced. (These terms refer to their familiarity with computers, not their teaching experience.) Move at a pace comfortable for your group. With novice teachers, go through the steps of the guided practice slowly, checking to see that all participants have completed each step before moving on. With intermediate/advanced teachers, proceed at a faster pace and walk around and assist teachers as they complete the guided practice from the worksheets.

First Session

5 minutes	Introductions, overview of goals, agenda, and norms
10 minutes	Introduction to spreadsheet concepts
5 minutes	Distribute and discuss the student lesson plan
30 minutes	Work through one of the student lesson plan
10 minutes	BREAK (Optional)
20 minutes	Discuss student skills needed in small groups and adaptations of lesson
30 minutes	Practice skills in lesson
10 minutes	Questions and answers, reflection on feelings

Second Session

5 minutes	Overview of goals and agenda for the workshop
25 minutes	Discussion of more advanced spreadsheet skills
20 minutes	Continue working with student lesson plans
10 minutes	BREAK
45 minutes	Continue working with lesson plans
15 minutes	Questions and answers, reflection on feelings

Beginning Session 1

- Introduce yourself
- Review agenda
- Introduce goals, objectives, and norms

If you haven't worked previously with these teachers, begin your training session by introducing yourself and telling a little about your background. Post your agenda for the workshop and briefly explain it. If you want, you can establish your norms for the workshop (see ideas in Module 1).

Some teachers in your group have already used spreadsheets such as Excel, Lotus 1-2-3, QuatroPro, ClarisWorks, or Microsoft Works. They will be familiar with the basic concepts of spreadsheets. For teachers who have never used a similar product, the concept of spreadsheets may be new.

Group teachers into heterogeneous groups based on experience with spreadsheets, each group consisting of three to five teachers. To help form groups, you can use the Four Corners method of grouping your workshop participants. For this workshop, assign each teacher to a computer; have group members sit together.

Introduction to Integrating Spreadsheets into the Curriculum

Discuss why spreadsheet use has become an important skill for students to learn. Explain how spreadsheets are used in business settings. For example, many companies use spreadsheets to analyze their financial data, present results of research, summarize numeric topics, and keep track of things (such as inventory or software installed on computers). Discuss how teachers use spreadsheets in schools. For example, they may keep track of student records such as test scores, total items, or sort information in a variety of ways. Offer practical examples from your own work, your experience with others, and your schooling, if applicable.

Introduction to StarCalc

View the Spreadsheets slide show at

http://www.sun.com/aboutsun/comm_invest/lessons/slides/spread.html.

- Use the training slides to introduce teachers to StarCalc
- Demo of tools and definition of terminology

Give the class an overview of the StarCalc software using the training slides. Run through the basic tools, showing them the icons for the tools and then giving them a quick demonstration. Pay particular attention to defining terms, and repeat the terms often. Ask the teachers to watch what you do, and tell them that after the demonstration, they will be able to practice what they have seen. Explain that by showing them the features in the software first, they will know what it can do when they use it.

Briefly run through the basic techniques they will be using during the hands-on practice session. Be certain to include:

- Entering data into cells (for novices, explain that you need to press the Enter key for the data to be entered and that you can move around by clicking on the cell you want to enter data into)
- Selecting text and changing fonts, font size, and font styles
- Selecting a cell and a range of cells
- Cutting, copying, and pasting information from one or more cells into one or more cells
- Saving files and opening saved files (for novice teachers)
- Entering a formula into a cell
- Copying a formula from a cell to a range of cells, and showing how the relative reference to the cells changes
- Understanding the difference between entering the number "4" and entering the phrase "4 people" (you can add the numbers but not the phrases)
- Printing spreadsheets

Lesson Plan Review and Practice

Hand out the Learning to Interpret Population Data with Spreadsheets lesson plan,

http://www.sun.com/aboutsun/comm_invest/lessons/population.html.

Hand out the Learning to Interpret Population Data with Spreadsheets lesson plan to participants in the workshop. The novice teachers may find it difficult to work through a whole lesson during the workshop, while advanced teachers may be able to work through the lesson quickly.

Have the teachers read through the lesson plan. Ask them to meet in their groups and discuss it. Is it at the right level of difficulty for their students? Will these organizational methods work for their classroom and students? Are the goals appropriate for their students? Do the students in their class have the prerequisite skills? What will they modify to make this lesson work with their students? Have each group report briefly to the class the results of their discussion.

Have the teachers go through the directions at the computer, doing each step as they follow along with the guided practice. Make the rounds of the room, offering encouragement; help when there are questions and watch for difficulties. If possible, have more than one volunteer work with the teachers while they are doing the hands-on portion of the lesson.

Ending Session 1

Wrap-up session

As you near the end of this workshop, give the teachers time to reflect on what they have done and what remains to be done in this module. Request that they be prepared at the beginning of the next workshop to discuss how they will use the lesson.

Beginning Session 2

Review goals and objectives. Reintroduce yourself at the start of this second session. Review the agenda, goals, and objectives. Ask the class to get out their copies of the lesson plans handed out during the last workshop. Discuss the Lesson Plan. Read the lesson plan. Encourage open discussion of anticipated difficulties and creative solutions.

Have the teachers read through the lesson plan and discuss in their groups how they anticipate using this lesson with their students or using the skills it contains for other purposes. You might suggest, for example, that although the steps may be too difficult for younger students to perform, this lesson can help teachers learn to use the spreadsheet as a "teacher productivity" tool. For lower grade teachers, consider grouping them and having them use their newly learned skills to create something that they could use - for example, an inventory of the science materials on hand or a list of the lessons they teach with columns for the number of days each takes.

Encourage the participants to discuss what they learned in the last workshop and to talk about problems they may have encountered when trying to implement the lessons. If they did not use what they learned with their students, ask them why they did not. Help them focus on adapting one of the two lesson plans for their students.

Have each group report briefly to the class the results of their discussion. Pay particular attention to the obstacles to implementation that teachers mention. Help the group brainstorm on solutions to these obstacles, and share the results with the class. If a problem cannot be resolved, tell them that you will seek a solution and get back to them. Then use your resources to help find a solution.

Introduction to Charting

Introduce charting features

During the first workshop, you probably won't be able to do both the basics and the charting in StarCalc. Use some instructional time to go through the basics of how to create charts. Have the teachers explain to you what kind of data they would want the students to enter, and create a few tables to use as examples. Show how to select a range of data, start the chart wizard, and create the graph. Then, show how it can be modified by double-clicking on the elements in the chart.

The materials developed for this workshop cover the basics of spreadsheets, but skip most of the more powerful features, such as how to link multiple worksheets and how to anchor calculations to particular cells. For teachers with

more advanced skills, you might encourage them to read through the online help files for the spreadsheet module and try some of the more advanced features.

Ending Session 2

Reflect on workshop

Provide time at the end of the workshop for the teachers to reflect on the process that they just went through. Important points to reflect on include:

- How do they feel about it?
- Are they comfortable with what they have learned, or do they feel they need more time to practice?
- What concerns do they still have?
- Do they feel ready to implement this lesson with students?
- If not, what do the teachers feel they need?
- What do they need to modify to make the lesson work with their students?
- Remind them of resources that are available to meet their goals of learning to use the software and implementing the unit successfully.