Module 9

Applying Spreadsheets

Description: The objective of this module is to have you apply your spreadsheet skills to create one or more additional productivity tools that you can use in your classroom. You will also showcase and share your work, view the work of others, and exchange ideas and practices.

Pair and Share: Reflecting on Module 8

Share your answers to the Take-Home Exercise: Reflecting on Module 8 with a colleague and the whole group as directed. Record any new and good ideas on the lines that follow.

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Exercise 1: Creating Spreadsheet Productivity Tools

Step 1

Learn more about the four elective spreadsheet activities—Classroom Inventory, Seating Chart, Pictograph, and Roll Book.

Step 2

Determine which activity you want to do first. You can work alone to create a productivity tool that is uniquely meaningful and relevant for you in your classroom, or you may collaborate with a colleague who shares a similar interest or need.

Step 3

Plan, do, review, and share the activity or activities as directed.

Classroom Inventory

Classrooms contain many desks, chairs, books, supplies, and even computer equipment. Sometimes, keeping track of everything in a classroom can be challenging. What are some ways you might keep inventory of your classroom? One way is to use the computer to create a classroom inventory spreadsheet.

✎ Plan It

Create an inventory worksheet of the furniture, equipment, and supplies in your classroom. Look at the following example:

	A	B	C	D	E	F
1	**Room 6 Inventory**					
2						
3	**Category**	**Item**	**Product Number or Description**	**Quantity**	**Cost per Item**	**Item Subtotal**
4	book	All About Dinosaurs	1-898722-35-7	1	$14.95	$14.95
5	book	Dictionary	1-365564-59-0	2	$19.95	$39.90
6	equipment	printer	223443-59C	1	$250.00	$250.00
7	equipment	monitor	1344-5BCN-45	1	$200.00	$200.00
8	equipment	computer	893-54CPX	1	$800.00	$800.00
9	furniture	desks	wood top with metal legs	30	$100.00	$3,000.00
10	furniture	chairs	brown plastic	30	$50.00	$1,500.00
11	supplies	paper	packages of lined writing paper	2	$7.50	$15.00
12	supplies	pencils	yellow pencils with erasers	53	$0.25	$13.25
13					Grand Total	$5,833.10

Classroom Inventory Worksheet Example

Think about the following questions, and if working with a partner, discuss your ideas. Writing your ideas on a sheet of paper and drawing a table that shows how you might put the information in order might be helpful.

▪ What furniture, equipment, books, and supplies do you have in your classroom? How might you organize the individual items into groups of similar items?

▪ How many of each item do you have? What is the approximate cost of each item?

▪ What descriptive information might help you identify a particular item? Does your electronic equipment have serial numbers? Do books and supplies have ISBN or SKU numbers?

Applying Spreadsheets

For help on how to do certain tasks, look at the following groups in the Intel® Education *Help Guide:*

- **Spreadsheet Group 2:** Selecting Cells, Rows, and Columns

- **Spreadsheet Group 3:** Using Worksheets

- **Spreadsheet Group 4:** Adding and Working with Information

- **Spreadsheet Group 5:** Changing the Look of Information and Worksheets

- **Spreadsheet Group 7:** Doing Math

Do It

1. Start the spreadsheet software, and open a new, blank worksheet.

2. Rename Sheet 1 with a name that describes the information in the worksheet.

Steps 3 and 4: Changing the look of the worksheet title and column labels will occur in a later step.

3. In cell A1, type a title for the worksheet.

4. Now you will add the column headings to your worksheet. Type "Category" in cell A3, "Item" in cell B3, "Product Number or Description" in cell C3, "Quantity" in cell D3, "Cost per Item" in cell E3, and "Item Subtotal" in cell F3.

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Step 5: When entering quantity and cost information, make sure to use actual numerals instead of writing out the numbers.

5. Enter the Category, Item, Product Number or Description, Quantity, and Cost per Item information in columns A through E. Make sure you type the information in the correct columns. Change the column widths as needed.

6. Format the numbers in columns E and F so they look like money or currency. (For help, see Spreadsheet Skill 4.9: To show numbers as decimals, currency, and percentages.)

Step 7: Entering your own multiplication formulas; follow the instructions in Spreadsheet Skill 7.5: To multiply numbers by writing your own math sentence or formula.

7. In cell F4, insert a formula that multiplies the quantity in cell D4 by the cost per item in cell E4. (For help, see Spreadsheet Skill 7.5: To multiply numbers by writing your own math sentence or formula.)

8. In the first empty cell in column E, type "Grand Total". Then in the cell immediately to the right in column F, insert a **Sum** function to total all of the item subtotals. (For help, see Spreadsheet Skill 7.1: To sum or add the numbers in a row or column.)

9. Sort the rows of information in an order that makes sense. For example, you might want to sort the information alphabetically according to the category or item. **Note:** Do not include the grand total information when sorting the information.

> **Challenge:** You may want to sort the information alphabetically according to both the category and the item. (See the Challenge Example at the end of this section.) (For help, see Spreadsheet Skill 6.7: To sort or change the order of rows based on certain information.)

Step 9: When sorting information,, select only the rows containing the information about the item, not the rows containing the title, the column headings, or the grand total. Then, try a few options and select the sorting option you like best. Remember that you can use the **Undo** function to return the rows to their original order.

10. Change the look of the worksheet's title.

11. Select all of the rows containing information (from row 3 to the grand total row). Change the look of the table by applying an AutoFormat. (For help, see Spreadsheet Skill: 5.11: To apply an AutoFormat to a worksheet.)

> **Challenge:** After applying an AutoFormat, you might want to make minor changes to the text formatting, cell borders, and cell shading that are applied. Make these changes on your own as desired. (See the Challenge Example at the end of this section.) (For help, see Spreadsheet Skill 5.8: To add borders to cells, rows, columns, and worksheets, and Spreadsheet Skill 5.9: To add background color or shading to cells, rows, or columns.)

Challenge: When applying the AutoFormat, avoid selecting the top row containing the worksheet title. Explore a few AutoFormats before picking the one you want to use.

12. Delete any unused worksheets.

13. Save your work as directed.

	A	B	C	D	E	F
1	**Room 6 Inventory**					
2						
3	**Category**	**Item**	**Product Number or Description**	**Quantity**	**Cost per Item**	**Item Subtotal**
4	book	All About Dinosaurs	1-898722-35-7	1	$14.95	$14.95
5	book	Dictionary	1-365564-59-0	2	$19.95	$39.90
6	equipment	computer	893-54CPX	1	$800.00	$800.00
7	equipment	monitor	1344-5BCN-45	1	$200.00	$200.00
8	equipment	printer	223443-59C	1	$250.00	$250.00
9	furniture	chairs	brown plastic	30	$50.00	$1,500.00
10	furniture	desks	wood top with metal legs	30	$100.00	$3,000.00
11	supplies	paper	packages of lined writing paper	2	$7.50	$15.00
12	supplies	pencils	yellow pencils with erasers	53	$0.25	$13.25
13					**Grand Total**	**$5,833.10**

Classroom Inventory ✓

Classroom Inventory Worksheet Challenge Example

Applying Spreadsheets

Review It

Look over your classroom inventory worksheet. Make sure it has the following elements:

- A title that explains the type of information in the worksheet

- Information about the books, equipment, furniture, and supplies found in your classroom

- Multiplication formulas that calculate the subtotal cost for each item, and a **Sum** function that calculates the grand total

- Rows sorted in a way that makes sense, and an AutoFormat that makes the information easy to read

If any elements are missing, add them to the worksheet now. You should also make other desired changes. Remember to save your work when you are finished.

Share It

Be prepared to discuss your answers to the following questions during sharing time:

- What is the benefit of creating this type of classroom inventory worksheet? What other inventory worksheets might you or others use spreadsheets to complete?

- What new spreadsheet skill did you use today? How might you use that same skill again?

- What was the hardest step in completing this inventory worksheet? How did you manage to complete that step?

Seating Chart

At the beginning of a new school year, learning the names of all of your new students can be challenging. Learning students' names can be even more difficult for substitute teachers who may need to teach your students in your absence. What are some ways you can help a substitute teacher know the names of the students in your class? One way is to create a seating chart spreadsheet.

✎ Plan It

Create a seating chart spreadsheet with the names of the students in your classroom. Look at the following example:

Seating Chart Worksheet Example

Think about the following questions, and if working with a partner, discuss your ideas. Writing your ideas on a sheet of paper and drawing a classroom seating diagram might be helpful.

▪ How many different classes of students do you teach during the day? What general information about each class might a substitute teacher need to know? How many different seating chart worksheets might you want to create?

▪ How many students are in each of your classes? How are the students' desks physically arranged in the classroom? How might you use the cells in a worksheet to show the arrangement of desks?

▪ What special information might you need to tell a substitute about specific students?

If instructing the same group of students all day long, it may only be necessary to create a single seating chart worksheet. However, if teaching the same subject to multiple classes, consider creating more than one worksheet. Given the time required to complete each worksheet, if there are several different classes of students, please note that it is not an expectation to create a worksheet for each class or period. However, plan on creating a second worksheet for another period or class. Complete this worksheet during this activity's second challenge.

For help on how to do certain tasks, look at the following groups in the *Help Guide:*

- **Spreadsheet Group 2:** Selecting Cells, Rows, and Columns

- **Spreadsheet Group 3:** Using Worksheets

- **Spreadsheet Group 4:** Adding and Working with Information

- **Spreadsheet Group 5:** Changing the Look of Information and Worksheets

Do It

1. Start the spreadsheet software, and open a new, blank worksheet.

2. In the cells at the top of the worksheet, type any general information that the substitute teacher may need to know. For example, you may want to type your name, your class or room number, and the subject that you teach. Change the look of the information.

3. Leave a blank row below the general information at the top of the worksheet. Then, type the names of your students in the cells below. Be certain to type the names in the cells that reflect where they actually sit in the classroom. Adjust the width of the columns as needed.

Step 4: Refer to the classroom seating diagram drawn during the planning stage to determine which cells should contain which students' names.

4. Change the look of the students' names. You might also want to change the position, or alignment, of the names in the cells.

5. Type labels that show the front of the classroom, the location of the doors and windows, and any other features. You may need to insert rows or columns first to create enough space for the labels. You might also want to cut the general information at the top of the worksheet and paste it into new cells so it is positioned properly.

6. Insert comments or notes that provide helpful information about some of your students. Be certain to delete any text that automatically appears in the comment box before you start typing. (For help, see Spreadsheet Skill 4.11: To type a comment in a worksheet cell.)

> **Challenge:** Change the look of your comment boxes or note boxes. For example, you might change the font, pick a different border width and color, or add shading to the comment box. (See the Seating Chart Worksheet Period 1 Challenge Example at the end of this section.)

7. Add borders and fill colors to the cells. Remember that the goal is to help this worksheet look like your classroom.

Challenge: Duplicate the worksheet and complete another seating chart for another class or period that you may teach. Replace the general information at the top of the worksheet and the students' names. (Note: Depending on class size, you may need to include more or fewer names.) You will also need to delete the old comments and add new comments about the students. (See the Seating Chart Worksheet Period 2 Challenge Example at the end of this section.)

8. Give your worksheet tabs new names that describe the information. Delete any unused worksheets.

9. Save your work as directed.

Seating Chart Worksheet Period 1 Challenge Example

Seating Chart Worksheet Period 2 Challenge Example

Review It

Look over your seating chart worksheet. Make sure it has the following elements:

- General information about your class at the top of the worksheet

- Your students' names typed into cells that resemble the arrangement of desks in your classroom

- Helpful comments or notes about certain students

- Labels, cell borders, and cell shading to help the worksheet diagram look more like your actual classroom

If any elements are missing, add them to the seating chart now. You should also make other desired changes. Remember to save your work when you are finished.

Share It

Be prepared to discuss your answers to the following questions during sharing time:

- How might the seating chart be helpful to a substitute teacher?

- How is this activity different from the first spreadsheet activity that you completed?

- What other sorts of diagrams might you create in a spreadsheet?

Pictograph

For some classroom content, charts are used to explain numeric data in a way that can be easily understood. One type of chart, called a *pictograph*, uses pictures to make information even clearer than regular charts. What classroom content might you use a pictograph to teach your students? What numeric data might the pictograph show?

✏️ Plan It

Create a worksheet, a column chart, and a pictograph that can be used to teach a specific topic. Look at the following examples:

	A	B	C	D
1	**Destruction of the Rainforests**			
2				
3	Year	Acres Cleared for Lumber	Acres Burned for Farmland	Total Acres Destroyed
4	1950	1250	1600	2850
5	1960	2270	1975	4245
6	1970	6900	4500	11400
7	1980	10350	7150	17500
8	1990	23100	14500	37600
9	2000	29800	19350	49150

Rainforest Destruction / Rainforest Destruction I

Pictograph Worksheet Example
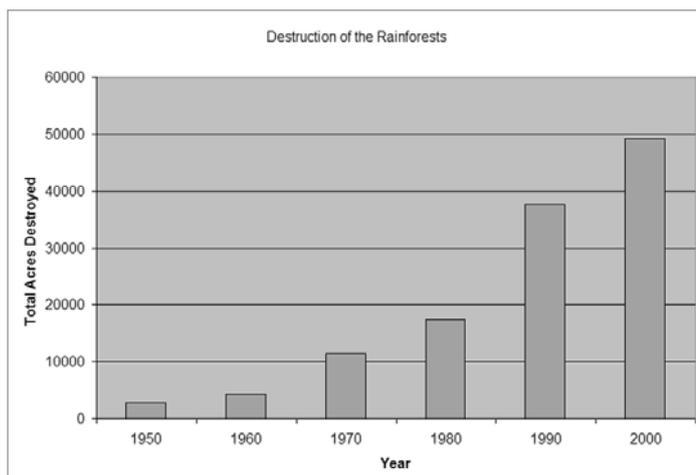
Column Chart Example

Applying Spreadsheets
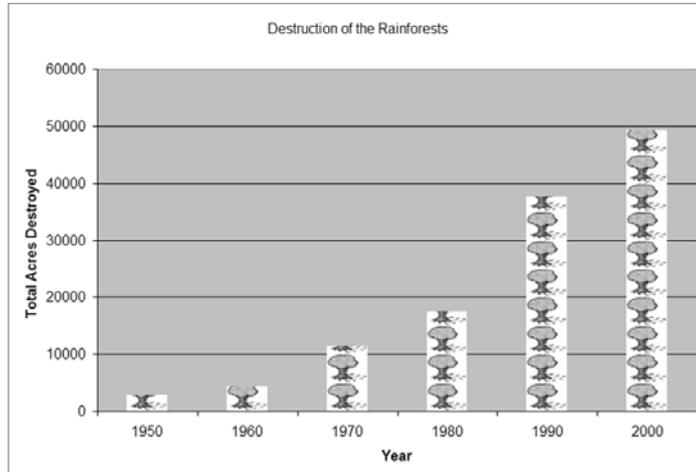
Pictograph Example

Think about the following questions, and if working with a partner, discuss your ideas. Writing your ideas on a sheet of paper and drawing a table that shows how you might put the information in order might be helpful.

To create a pictograph, pick a topic that compares quantities or values in the form of a column or bar chart. You may not achieve the desired result if you create a line chart that shows changes over time or a pie chart that shows the relationship of parts to a whole.

- What classroom content do you use charts to teach? For what specific topic might you create a pictograph?

- What numeric data do you want the pictograph to show? How might you organize the information into a worksheet that can be used to create the pictograph? What row and column labels might you use? What formulas might you need to include to calculate the information in your columns or rows?

- What pictures might you use in the pictograph to help make the information clear to students?

For help on how to do certain tasks, look at the following groups in the *Help Guide:*

- **Spreadsheet Group 3:** Using Worksheets

- **Spreadsheet Group 4:** Adding and Working with Information

- **Spreadsheet Group 5:** Changing the Look of Information and Worksheets

- **Spreadsheet Group 7:** Doing Math

- **Spreadsheet Group 8:** Making Charts

This activity is based on the content you teach; therefore, choose a subject that you know well. For best results, try to limit the amount of information that you want to show in your pictograph.

Do It

1. Start the spreadsheet software, and open a new, blank worksheet.

2. In cell A1, type a title for your new worksheet. Change the look of the title.

3. In cell A3, type a label for the first column of information that you want to include in your worksheet. Type the other column labels in the cells to the right.

4. If desired, change the text wrapping in each cell. You might also want to make the columns wider.

5. In the cells below the column heading in cell A3, type the row headings.

6. If desired, change the text wrapping in each cell. You might also want to make the columns wider.

7. Type the rest of the information you need to complete your worksheet. You might want to include row labels in column A in addition to the numeric information.

8. Format the numbers in your worksheet as needed. For example, you might want them to be displayed as currency, decimals, or percentages. (For help, refer to Spreadsheet Skill 4.9: To show numbers as decimals, currency, and percentages.)

9. Perform any required calculations. For example, you may want to insert a **Sum** or **Average** function. Or, you might want to write your own formulas to subtract, multiply, or divide numbers. (For help, refer to Spreadsheet Group 7: Doing Math.) Fill the function or formula into adjacent cells as needed.

10. Select the information that you need to create your chart. If you need to select information that is not in neighboring rows (such as the column labels and the calculation results), select one group of cells, hold down the **Control** key, and then select the next group of cells.

11. Make a column chart with the series in columns. Use the title on your worksheet as the title for your chart. You might also want to type labels for the X axis and Y axis. Save the chart as a new sheet. Delete the legend if you feel it is not needed. (For help, refer to Spreadsheet Skill 8.1: To make a column or bar chart that compares values or amounts.)

> **Challenge:** Change the look of the chart's background area and the bars by picking different colors or adding a fill effect. You can also change the look of the main chart title and the two axis titles. (See the Column Chart Challenge Example at the end of this section.)

Step 9: Depending on the information used in the worksheet, it may not be necessary to perform any calculations. If performing calculations is necessary, make sure to insert a function or enter a formula instead of doing the math in your head and entering the results. For help, refer to the appropriate Spreadsheet Group 7 skills.

Step 10: When selecting information for a chart, a good rule is to select the minimum amount of information that you think is required. Usually, you will want to select the column or row headings and the final calculation results.

Step 11: If information is incorrectly selected, delete the chart and try again.

Applying Spreadsheets

Steps 13 and 14: Follow the instructions in the referenced graphics skills for identifying a clip art picture and saving it on the computer.

12. Duplicate, or make a copy of, the sheet with the column chart. Move the copied chart to the end.

13. Open the Clip Art Gallery, find a picture that you would like to use in your chart, and copy the picture. For best results, use a simple picture. (**Note:** If you are using OpenOffice.org Calc*, skip Steps 13 and 14.) (For help, see Graphics Skill 3.15: To copy and save a picture from the Clip Art Gallery/Clip Organizer.)

14. Start the graphics program, and paste the copied clip art picture into a blank canvas. As needed, resize the canvas so it is the same size as your picture. (For help, see Graphics Skill 2.12: To change the size of a painting canvas.) Then, save the new picture in a place where you can easily find the file.

15. Go back to the second chart in the spreadsheet program, and turn the chart into a pictograph by formatting the columns with the copied picture. If you are using OpenOffice.org Calc, format the columns with the preset bitmaps. (For help, refer to Spreadsheet Skill 8.10: To make a pictograph.)

Challenge: Repeat Steps 13 through 15 to use a different picture for each of the columns in the chart. (**Note:** If you are using OpenOffice.org Calc, use a different preset bitmap in the chart.) (See the Pictograph Challenge Example at the end of this section.)

16. Rename all of your worksheet and chart tabs, and delete any unused worksheets.

17. Put all of the tabs in order so the worksheet is first, the column chart is second, and the pictograph is third.

18. Save your work as directed.
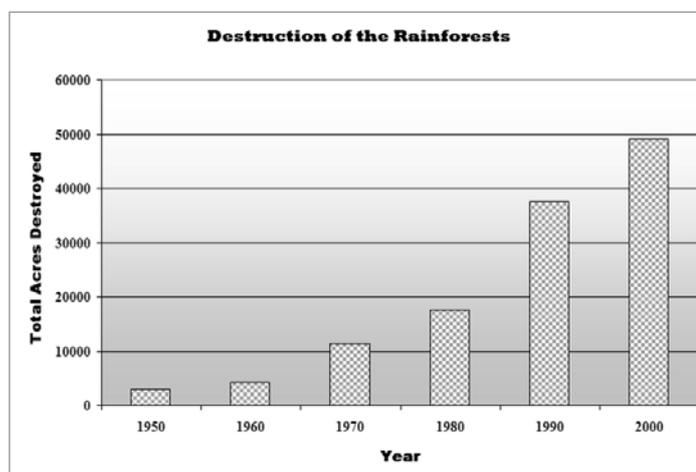
Column Chart Challenge Example
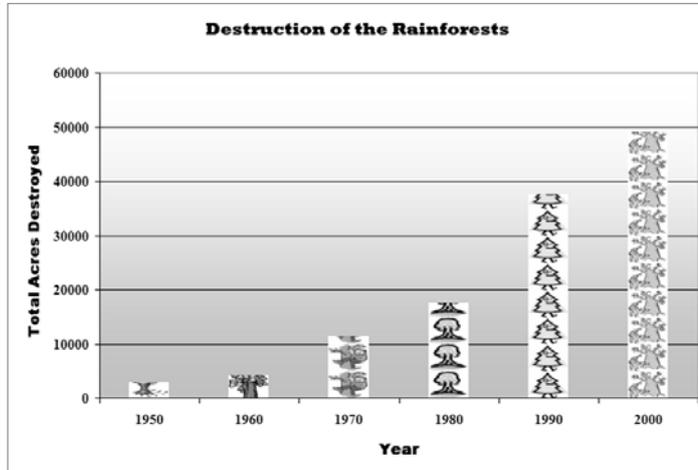
Pictograph Challenge Example

Review It

Look over your spreadsheet. Make sure it has the following elements:

- A worksheet with numeric information about your chosen subject and any required calculations

- A column chart and a pictograph that show the information

- Worksheet tabs that have been renamed and put in the proper order

If any elements are missing, add them to the spreadsheet now. You should also make other desired changes. Remember to save your work when you are finished.

Share It

Be prepared to discuss your answers to the following questions during sharing time:

- What information does your pictograph show? In what ways does a pictograph make it easier to understand the information than a regular chart?

- What was the hardest task in completing your pictograph? How did you manage to complete the task?

- What other types of information might you show in a pictograph?

Applying Spreadsheets

Roll Book

Many teachers have a roll book that contains their students' names and contact information. Teachers often use their roll books to also keep track of students' attendance in class. How might you be able to use a computer to create a classroom roll book and attendance record?

✏ Plan It

Create a spreadsheet with a roll book worksheet and an attendance record worksheet. Look at the following examples:

Roll Book Worksheet Example

Attendance Record Worksheet Example

Think about the following questions, and if working with a partner, discuss your ideas. Writing your ideas on a sheet of paper and drawing a table that shows how you might put the information in order might be helpful.

▪ What important contact information should you have for each of your students? Will you need to know their address, telephone number, and their parents' or guardians' names?

▪ What type of attendance information do you record? Will you keep track of the days when they are absent or late to class?

▪ How might you organize the students' contact and attendance information on separate worksheets?

For help on how to do certain tasks, look at the following groups in the *Help Guide:*

▪ **Spreadsheet Group 2:** Selecting Cells, Rows, and Columns

▪ **Spreadsheet Group 3:** Using Worksheets

▪ **Spreadsheet Group 4:** Adding and Working with Information

▪ **Spreadsheet Group 5:** Changing the Look of Information and Worksheets

Do It

1. Start the spreadsheet software, and open the grade book spreadsheet that you previously completed.

2. Copy the worksheet to a new book. (For help, see Spreadsheet Skill 3.6: To make a copy of a worksheet.) Notice that the completed grade book worksheet is now in a new spreadsheet document. Close the original grade book spreadsheet.

3. Change the worksheet's title and the name on the tab to "Roll Book".

4. Keep the Last Name and First Name column headings in cells A3 and B3. Then, type the new column headings "Street Address" in cell C3, "City" in cell D3, "State" in cell E3, "Postal Code" in cell F3, "Telephone Number" in cell G3, and "Parents' Names" in cell H3. Delete any other column headings remaining in row 3.

   Step 4: If desired, type column labels based on the contact information most useful.

5. Leave the students' last and first names in the cells below the headings in columns A and B. Then, complete the worksheet by typing the missing information in columns C through H. Delete any other grade scores from the original worksheet.

   Step 5: Since the actual contact information for students is not available, use made-up information in the spreadsheet.

   Real information can be added later, as well as additional student names and contact information.

6. Change the text and the width of the columns as needed. You might also want to change the text wrapping and the alignment of the information in the cells.

7. Duplicate the worksheet. Change the worksheet's title and the name on the tab to "Attendance Record".

8. Delete the contents in columns C through H. Then, insert a new row above row 3.

9. In cells C4 through G4, type abbreviations for the days of the school week. Change the width of columns C through G to automatically fit the information.

> **Challenge:** Select cells C3 through G3 and merge them into a single cell so you can type the date information in Step 10. (See the Challenge Example at the end of this section.) (For help, see Spreadsheet Skill 5.10: To combine or merge cells.)

10. In a cell above the abbreviated days of the week, type information about the range of dates covered.

11. Repeat Steps 9 and 10 to create three more weeks of attendance columns (for a total of four).

Step 12: Borders and shading are being added primarily for clarity, not necessarily for visual interest.

12. Add borders and cell shading to separate the columns for the four weeks.

13. Type letters or symbols that could be used to show the days when students are absent or late. Then in an empty area on the worksheet, type information that explains what these letters or symbols mean.

> **Challenge:** Insert comments or notes that provide additional information about a student's absence or lateness. (See the Challenge Example at the end of this section.) (For help, see Spreadsheet Skill 4.11: To type a comment in a worksheet cell.)

14. Save your work as directed.

Attendance Record Worksheet Challenge Example

Review It

Look over your completed spreadsheet. Make sure it has the following elements:

- A roll book worksheet with the contact information for students listed in the grade book worksheet that you previously completed

- An attendance record worksheet containing information about the days when students were absent or late

- Cell borders and shading that makes the information easier to see and understand

If any elements are missing, add them to the spreadsheet now. You should also make other desired changes. Remember to save your work when you are finished.

Share It

Be prepared to discuss your answers to the following questions during sharing time:

- How might the roll book and attendance record worksheets make your job as a teacher easier?

- What other information might you want to add to the worksheets? Why?

- How is this activity different from the first spreadsheet activity that you completed?

Exercise 2: Showcasing Spreadsheet Productivity Tools

Step 1

Before the Showcase Begins

1. Decide by yourself or with a colleague about which elective spreadsheet product you would like to share with others.

2. Determine your answers to the following questions:

   - How might the product increase your productivity in the classroom?

   - How did others help you create the product?

   - What new technology skills did you learn?

   - What was one problem you had? How did you solve it?

Step 2

When It Is Your Turn to Share

1. Show your product to others.

2. Tell others:

   - How the product might increase your productivity in the classroom

   - How others helped you create the product

   - What new technology skills you learned

   - One problem you had and how you solved it

3. After you finish answering the questions, ask your colleagues the following questions:

   - What do you like about the product? Why?

   - What suggestions do you have to make the product better?

4. Thank your colleagues for their comments and suggestions.

Take-Home Exercise: Reflecting on Module 9

Reflect on the exercises, activities, skills, and approaches addressed in this module. Record your answers to the following questions and be prepared to share your answers at the beginning of the next module.

1. Reflect on the products shared during the showcase. Which ones might you want to create or learn more about? How might those products enhance your productivity in the classroom?

2. How might you use the Internet, word processing software, multimedia software, spreadsheet software, and other technology resources to collect and analyze data, interpret results, and communicate findings to improve instructional practice and maximize student learning?

Module 9 Summary

Step 1

What did you accomplish in this module? List your ideas and those of others as directed on the lines that follow.

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Step 2

What key points are addressed in this module? List your ideas and those of others as directed on the lines that follow.

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Step 3

Ask any questions and share any comments. Learn about and prepare for Module 10: Developing 21st Century Approaches.