

Creating and Maintaining a Gradebook Using Microsoft Excel: Supplementary Materials

Teaching and Learning with Technology

Table of Contents

Topic	Page
TABLE OF CONTENTS	1
USING FORMULAS	2
USING FUNCTIONS	2
FORMATTING CELLS	3
MANIPULATING COLUMNS AND ROWS	8
USING LARGE WORKSHEETS	9
WORKING WITH MULTIPLE WORKSHEETS	10
CREATING CHARTS	13

Using Formulas

Formulas are used to perform calculations on values entered into the cells of a worksheet. They consist of the addresses of the cells containing the values and the appropriate mathematical operators. Formulas begin with an equal sign (=) because they contain cell addresses. This prevents Excel from interpreting the formula as text, since cell addresses begin with letters. For example, to add the numbers in cells A1 and A2, you would type the formula =A1+A2.

You enter the formula in the cell where you want the result to appear. Because formulas use cell addresses, they automatically recalculate when the value of a cell used in a formula changes. When a cell containing a formula is selected, the actual formula appears in the formula bar. The calculated results of the formula appear in the cell.

1. Select the cell into which you want to enter the formula.
2. Begin the formula with an equal sign (=).
3. Enter the rest of the formula.
4. Press [Enter].

Using Functions

Some formulas are used so commonly that Excel has created special functions that produce the results of those formulas. Some example functions are included in the following table:

Function	Syntax	Description
SUM	=SUM(A1:A20)	Provides the sum of all the numbers in a range.
AVERAGE	=AVERAGE(A1:A20)	Returns the average of a range of numbers. If a cell in the range is empty, it is not included in calculating the average. If a cell in the range contains the number zero, it is included in calculating the average.
MAX	=MAX(A1:A20)	Returns the highest value in a range of numbers.

Function	Syntax	Description
MIN	=MIN(A1:A20)	Returns the lowest value range of numbers.
COUNT	=COUNT(A1:A20)	Returns the number of cells that contain numbers.

Another Function: Autosum

Since the SUM function is used frequently, there is an AutoSum button on the toolbar that writes the formula in the active cell for you. The AutoSum button is an easy way to sum values in a row or column of a worksheet.

1. Select the cell into which you want to enter the formula.

2. Click the AutoSum button .

3. Press [Enter].


Formatting Cells

1. Change cell appearance You can change the appearance of the contents of cells by changing the alignment, borders, color, font, format, etc. Some of the more unusual formatting procedures are discussed below.

2. Use the Merge and Center button You can select several cells, merge them into one cell, and center the entry in that cell over the columns in a worksheet. This option is useful when you want to center a title above specified columns in a worksheet.

1. Select the cells you want to merge and center.


2. Release the mouse button.

3. Click the Merge and Center button .

3. Use the Borders button Cell borders are lines you can place on the edges of the cells in a worksheet. For example, you may want the column headings, row titles, and row totals of a worksheet to appear with wider lines to emphasize these cells. Excel contains twelve border styles that place lines of varying widths at different edges of the cells. In addition, you can add cell borders to an entire range of cells. Borders are attached to the cells and appear regardless of the cell entry.

The Borders button has two parts. You can use the list to display a list of border styles and choose a desired border style. The display on the button changes to display the currently selected border. To apply the currently selected border to other cells, you can click the button.

1. Select the range to which you want to add a border.

2. Click the arrow on the Borders button  on the Format toolbar.

3. Select the desired border style.

4. Use the Fill Color button You can add shading to the background of cells using the Fill Color button. For example, you can use shading to make the column headings distinct from the rest of the worksheet. Although color displays on the screen, it will not print unless you have a color printer. Colors will print as shades of gray on a black and white printer.

The Fill Color button has two parts. You can use the list to display the color palette and choose the desired color. The display on the button changes to display the currently selected color. To apply the currently selected color to other cells, you can click the button.

1. Select the range to which you want to add a color.

2. Click the arrow on the Fill Color button  on the Format toolbar.

3. Select the desired color.

5. Use the Format Painter button The Format Painter button copies formats from a cell or range to another cell or range. This button prevents you from having to individually apply the formats to each cell or range every time you want to format cells. For example, if you apply bolding, italics, underlining, and shading to a cell, you can apply all of these formats, at one time, using the Format Painter button.

1. Select the cell containing the format you want to copy.

2. Click the Format Painter button .

3. Select the range to which you want to apply the format.


You can use the Format Painter button to copy cell formatting to several non-adjacent cells or ranges at once. You do not have to reselect the Format Painter button each time you want to format a non-adjacent cell or range. For example, you may want to copy all the formats from range A1:A5 to both A10:A15 and A20:A25.

1. Select the cell containing the format you want to copy.

2. Double-click the Format Painter button .

3. Select the cells to which you want to apply the format.

4. Select any additional cells to which you want to apply the format.

5. Click the Format Painter button  to deselect it.

6. Clear formats You can clear all the formats in a cell or range all at once. Clearing formats removes all formatting attached to the cell or range, including number formats, font formats, cell borders, and shading. If you only want to clear a single format, such as bolding, you should remove that format individually.

1. Select the cells containing the formats you want to clear.
2. Select the Edit menu.
3. Point to the Clear command.
4. Select the Formats command.

7. Use conditional formatting You can use the Conditional Formatting feature to emphasize data that meets certain conditions in cells or formulas. For example, you can set up the Conditional Formatting feature so that all sales that are greater than or equal to a certain value will appear in a different color. You can change the formatting option that is used to emphasize data which meets a condition.

The Conditional Formatting feature has two options, the Cell Value Is and Formula Is. The Cell Value Is option allows you to compare the values of selected cells to conditions, such as greater than or less than. The Formula Is option allows you to compare the results of a logical formula to a selected range of cells, where the formula produces either a true or false result indicated by the selected formatting.

1. Select the range to which you want to apply conditional formatting.
2. Select the Format menu.
3. Select the Conditional Formatting command.
4. Select the first list under Condition 1 to choose the criteria (which you want to apply the conditional formatting).
5. Select the desired option.
6. Select the second list under Condition 1 to choose the desired condition.
7. Select the desired condition.
8. Select the text box under Condition 1.
9. Type the value to be used as the formatting criteria.
10. Select Format.
11. Select the Color list.
12. Select the color you want to apply to the values that meet the specified condition.
13. Select OK.
14. Select OK.

You can **change a conditional format**. For example, you may have a worksheet that displays cells with values less than \$4000 in red. You can change the condition to recognize a different value.

1. Select the range containing the conditional format you want to change.
2. Select the Format menu.
3. Select the Conditional Formatting command.
4. Select the second list under Condition 1 to choose the desired condition.
5. Select the desired condition.
6. Select the text box under Condition 1.
7. Type the value to be used as the new formatting criteria.

8. Select OK.

You can **delete one or more conditions** from a conditionally formatted range. For example, you may have a worksheet that displays cells with values less than \$4000 in red and cells with values greater than \$8000 in blue. You may want to delete the condition which displays values in blue so that only one condition is emphasized.

1. Select the range containing the conditional format you want to delete.
2. Select the Format menu.
3. Select the Conditional Formatting command.
4. Select Delete.
5. Select the check box of the condition you want to delete.
6. Select OK.
7. Select OK.

Manipulating Columns and Rows

Select columns and rows You can select a column by clicking on the header row.

1. Change the width of columns To adjust column width, place cursor in between column headers (A, B) until you get a sideways arrow. Click and drag to adjust width.

2. Change the height of rows To adjust row height, place cursor in between row headers (2,3) until you get a vertical arrow. Click and drag to adjust height.

3. Hiding / Unhiding Rows You can hide columns or rows to conceal the entries in them. For example, you may want to hide columns or rows that contain salary data. Hidden columns and rows do not appear in the worksheet and do not print. Any number in a hidden column or row is still calculated while the column or row is hidden.

1. Select the column(s) or row(s) you want to hide.
2. Click the right mouse button on one of the selected column row(s).
3. Select the Hide command.

You can **redisplay hidden columns and rows**. For example, after making a presentation in which confidential information was hidden, you can unhide the columns or rows to continue your normal worksheet process. Unhidden columns and rows are reset to the column width or row height prior to being hidden.

1. Select the column(s) or row(s) on either side of the hidden columns or rows.
2. Click the right mouse button on one of the selected column row(s).
3. Select the Unhide command.

Using Large Worksheets

1. Split the window You can split the workbook window into two or four panes. With two panes, you can have either horizontal or vertical panes. With four panes, the display is divided into four sections.

To split the window, you use the horizontal and vertical split boxes. The horizontal split box is located at the top of the vertical scroll bar. The vertical split box is located at the right end of the horizontal scroll bar. When you drag the split boxes, a line appears in the worksheet indicating where the split is located. You can drag the line to readjust the size of the panes.

1. To split the workbook window into horizontal panes, position the cell pointer in the row below the desired split.
2. Double-click the split box.
3. To view different areas of the worksheet in the horizontal panes, click either vertical scroll bar.
4. To split the workbook window into vertical panes, position the cell pointer in the column to the right of the desired split.
5. Double-click the vertical split box.
6. To view different areas of the worksheet in the vertical panes, click either horizontal scroll bar.

2. Remove panes You can remove the panes from a workbook window by double-clicking the horizontal or vertical split bar. You can remove the panes when you no longer need to view distant areas of the worksheet. For example, after you have viewed the regional totals in a large sales worksheet, you may want to view only the figures for one region.

1. To remove horizontal panes, double-click the horizontal split bar.
2. To remove vertical panes, double-click the vertical split bar.

3. Freeze panes Occasionally a worksheet is so large you cannot view the column or row headings and all the data at the same time. When this happens, it

is difficult to view the headings for the data in the worksheet. For example, in a worksheet containing sales figures for several hundred sales representatives, you cannot view the column headings and the representatives at the bottom of the list at the same time. To solve this problem, you can freeze worksheet titles in panes. Freezing panes prevents the row and column headings from scrolling out of view as you navigate the worksheet. Frozen panes are indicated by a line below a row and a line to the right of a column.

1. To freeze both row and column headings, place the cell pointer in the cell directly below the column headings you want to freeze and to the right of the row headings you want to freeze.
2. Select the Window menu.
3. Select the Freeze Panes command.

4. Unfreeze panes After you have frozen headings in a large worksheet, you can unfreeze the panes. Unfreezing removes the panes so that title rows or columns are no longer frozen on the screen.





1. Select the Window menu.
2. Select the Unfreeze Panes command.

Working with Multiple Worksheets

Workbook files can contain multiple worksheets. Using multiple worksheets is a convenient way to manage related data in the same workbook. For example, you can enter sales data for individual months, quarters, or regions in separate worksheets. You also can create summary worksheets that add numbers from each of the worksheets in a workbook. In addition, you can group worksheets to apply consistent formatting, as well as to print all the worksheets as a group.

By default, a new workbook contains three worksheets. The name of each worksheet appears on a tab above the status bar. The default name is Sheet followed by a number. You can change the name to indicate the type of information on the worksheet (Expenses, for example). A workbook can contain up to 255 worksheets. Worksheets can be moved and copied within the current workbook.

1. Navigate between worksheets You can display a worksheet by clicking its tab. However, by default, only six worksheet tabs appear in the workbook window. If you have more than six worksheets, you cannot see all the worksheet tabs at one time. For example, in a workbook that contains worksheets for every month of the year, the tabs for the last few months of the year would be hidden, depending on how the months are named. If the worksheet tab you want to view is not visible, you can use the tab scrolling buttons to display hidden tabs.

Button	Function
	Displays the next worksheet tab to the right.
	Displays the previous worksheet tab to the left.
	Displays the last worksheet tab in the workbook.
	Displays the first worksheet tab in the workbook.

2. Rename worksheets You can replace the default worksheet names with descriptive names. For example, a worksheet containing January sales figures can be named January. Worksheet names can be up to 31 characters long, but cannot include colons (:), slash marks (/), backslashes (\), question marks (?), or asterisks (*). In addition, the name cannot be enclosed in square brackets ([]). Each worksheet name in a workbook must be unique.

1. Double-click the worksheet tab you want to rename.
2. Type the desired worksheet name.
3. Press [Enter].

3. Insert worksheets You can insert new worksheets into a workbook. For example, in a workbook containing worksheets for each month of the year, you can add worksheets for each quarter of the year. New worksheets are inserted to the left of the current worksheet. Excel gives new worksheets a default worksheet name, which you can change, if desired.

1. Select the worksheet to the right of which you want to insert a new worksheet.
2. Select the Insert menu.
3. Select the Worksheet command.

Copying and moving data between worksheets is as simple as selecting and copying cells, selecting the desired worksheet, selecting the desired location in the worksheet, and pasting the cells.

Creating Charts

A chart uses values in a worksheet to create a graphic representation of their relationship to one another. You can use charts to make it easier to spot trends, highlight important changes, and compare individual figures. For example, when comparing sales amounts, a column chart dramatically illustrates differences between two or more sales amounts. Using charts in reports and presentations displays numbers to your audience in a format that is easy to understand.

When you create a chart, each row or column of data on the worksheet makes up a data series. Each individual value within the row or column is called a data point.

The range you chart can include row and column headings. These headings are used as the category labels and the legend text. If the range does not include headings, Excel creates default headings.

In Excel, you either embed a chart in the worksheet, or you create it on a chart sheet. An embedded chart is a chart object in the worksheet. When you want the chart and the worksheet data viewed or printed together, you should use an embedded chart.

A chart sheet is a separate worksheet in the workbook that contains only the chart. If you want to use the chart by itself (for example, in a presentation) you should use a chart sheet. Both kinds of charts are linked to the worksheet data and update automatically if the data is changed.





1. Create charts - Chart Wizard The Chart Wizard assists you in creating a chart by leading you through a series of dialog boxes that allow you to choose options for the chart. The Chart Wizard contains four steps. In the first step, you select the chart type and sub-type. In the second step, you select or verify the data that will be used to create the chart. The third step allows you to select various chart options. The last step determines whether the chart will be embedded in the worksheet or displayed in its own chart sheet.






2. Move and resize charts A chart can be moved to a desired location on a worksheet by dragging it to the new location. It can be resized using the resizing tabs at the corners and midpoints of the chart edges.

Identify chart objects The various chart objects and their descriptions are listed in the following table:

Object	Description
Chart area	The entire area inside the chart border including the chart itself and all related elements.
Plot area	The area in which Excel plots data.
Category axis (x axis)	The axis that contains the categories being plotted. It is usually the horizontal axis.
Value axis (y axis)	The axis that contains the values being plotted. It is usually the vertical axis.
Chart title	Text describing the chart that is automatically centered and placed at the top of the chart.
Legend	Describes the data series being plotted.
Series markers	Graphic elements that make up your data plot, such as bars or lines. The chart tip names the series using the name displayed in the legend.
Data points	The individual parts of a data series. Data points can be bars, points on a line, a slice of a pie, a circle, etc. Data points are identified in chart tips using the series name and the value of the data point.
Gridlines	Lines that extend from an axis across the plot area to help guide the eye from the data point to its corresponding value.

3. The chart toolbar The tools available on the Chart toolbar along with their functions are listed in the following table:

Tools	Use
 Chart Type	Changes the chart type.
 Legend	Shows or hides the legend.
 Format	Provides formatting options for the selected chart object.
 Data Table	Adds or removes the data table that displays the data used to create the chart.

Tools	Use
 By Row	Changes the plot direction so that the data is plotted by row.
 By Column	Changes the plot direction so that the data is plotted by column.
 Angle Text Downward	Angles the text in the selected object downward.
 Angle Text Upward	Angles the text in the selected object upward.
 Chart Objects	Provides a list of chart objects.

4. Print a chart Charts embedded on a worksheet print automatically when you print the worksheet. If you want to print the chart alone, select the chart before you print. For example, you can print the chart alone if you want to use the chart to create a slide overhead for a presentation.

1. To print the chart without the worksheet, select the chart.

2. Click the Print button .

3. To print the chart with the worksheet, click outside the chart in the worksheet area.

4. Click the Print button .