# Introduction

Explain to the class that Excel is a type of spreadsheet software. A spreadsheet is the computer replacement for paper ledgers. It has a grid that organizes data into columns and rows and often contains financial information. Formulas can be used to work with data quickly and easily while information can be sorted and filtered.

Share the following definitions and use the program on the projector to demonstrate the concepts.

* **Active cell**: An active is the cell you are currently working on (selected).
* **Auto sum**: A formula that will add up a column of numbers.
* **Cell Reference**: The column letter and the row number of a cell.
* **Cell**: Each individual box on the spreadsheet.
* **Column**: The vertical reference on the spreadsheet.
* **Fill**: To fill a cell with color using the paint bucket tool
* **Fill handle**: The dot at the bottom right of each cell while it is active.
* **Filter**: The procedure to select certain information in a spreadsheet.
* **Formula**: A formula must always starts with “=”signs and what the calculations for each cell.
* **Formula Bar**: Where data and formulas are typed in.
* **Graph**: A visual representation of data.
* **Grid Lines**: The horizontal and vertical lines on the spreadsheet.
* **Row**: The horizontal reference on the spreadsheet.
* **Selecting**: To highlight a set of cells.
* **Sheet (worksheet)**: One page of a workbook.
* **Sheet tabs**: Tabs that identify the worksheets in a workbook.
* **Value**: A number that can be entered into a cell.
* **Workbook**: Many worksheets.



# Working With Worksheets and Entering Data

Explain that when you start a new file, you have created what’s called a workbook. Point out the three tabs at the bottom – these are the worksheets. Click through the three worksheets you get by default to switch between them.



Right click on one of the tabs to show the popup menu of actions you can take. Rename the tab, then show that you can drag it to rearrange it relative to the others.

Point out that the active cell (the last cell you clicked) appears with a black border and the row/column are highlighted in orange.



Explain that you can enter the following types of data into the active cell (and demonstrate it as you go):

* **Text**: this data is essentially like a label (e.g. the car, budget, etc)
* **Numerical data**: constant numbers (e.g. 5, 3.7, 1 1/4)
* **Dates**: use a slash or hyphen to separate the parts (e.g. 03/04/2011, 3-July-2011)
* **Time**: enter the time followed by an a for am or p for pm (e.g. 6:00 a, 6:00 p)
* **Formulas**: mathematical equations that do all the work, must start with an equals sign (e.g. =5+3, =8\*5/2)

Show that the TAB key moves the active cell to the right. The ENTER key moves it down one cell. Show that arrows also work as well as simply clicking on various cells.

# Auto Filling, Editing and Formatting Cells

Demonstrate auto fill. Enter a few rows of data (say, Monday, Tuesday, and Wednesday in one column, and 1, 2, 3 in the next). Select the cells you entered in the first column. Click and drag the Fill Handle (square dot at bottom right of bottom cell). Repeat for second column of data.

 

Repeat the demonstration with just a single value/cell. This time, that value will be repeated in the result.

Show that double clicking a cell allows you to edit it. The status bar on the bottom says “edit” and you can edit the data in the formula bar. When you press enter or tab, the changes are saved. If you press ESC your changes will NOT be saved.



Show how each individual cell can be formatted differently. Right click the cells and select Format Cell. Common formats include: General (no special formatting), Numbers (adds in commas and decimals appropriately), Currency (adds in dollar signs and rounds to the nearest cent), Text, Percentage (adds percentage sign). Try to apply these to data that will clearly demonstrate how they work.

Show that the formats can also be changed in the Numbers area of the Home tab.

Show that formatting can be removed by selecting the cells you want to affect, and go to the Home tab, Editing area, and use the Clear Formatting button that looks like an eraser. Be sure to say “Clear Formats” in the drop down menu.

# Inserting, Deleting, and Decorating Cells

Show how to insert a row between two rows that currently have data. Click on any cell immediately below where you want the new row to appear. In the Home tab, click Insert, then Insert Sheet Rows. Repeat for columns.

Show that you can align the contents of cells, similar to how it is done in Word. You can also align vertically so that the contents of the cell appear at the top, middle, or bottom of the cell (you can only tell the difference if the row height is big enough).



Show that you can change the font type, size, and colour like in Word.

Insert an image with the Insert tab, Picture button.

Show how to add borders. Explain that the cell outlines will not appear when printed unless a border is explicitly added. Click the cells you want to add borders to and add a variety of different borders from the Home tab to show what they look like. Try to use as many options as you can.



# Sorting and Styles

Point out the Sort and Filter button on the Home tab. Add some numerical data in a column that could be sorted. Select all the values you entered. Click Sort and Filter, click the order you want (ascending or descending), and check out the new order. Show both ascending and descending.

Now add some text and have it sorted. Notice that the value at the top stayed there whether it was the first value alphabetically or not. That’s because Excel assumes you are using column headers and thus ignores the first element. To fix this, use the Custom Sort option.



You can do all kinds of interesting sorting here, but first let’s just uncheck “my data has headers.” The resulting sort should now be what we expect.

Demonstrate how to highlight a cell to make it stand out more. Select a cell(s) and click Fill Colour on the Home tab. Choose a colour.

Just like Word has styles we can use for headings, etc, Excel supports styles for cells. The advantage is that when you want to change how that style looks, it will automatically update all the cells using it, avoiding the need to make changes manually.



To apply a style, just select the cells you are interested in, and click the style you want to apply.

# Merging/Splitting Cells

Just like with Tables in Word, we can merge cells together or split them back apart. Demonstrate how to do this with the Merge and Center or Merge Cells button.



Demonstrate that you can merge cells from different rows and columns as long and they’re adjacent to each other. If more than one cell had data, only upper-most-left cell’s data will be kept in the merging result.

Show that merge across will merge the columns of one or multiple rows together.

Point out that the cell reference of a merged set of cells will be the reference of the old upper left cell.



Show how to unmerge cells (that is, split them apart) after merging using the Unmerge Cells option in the same Merging button.

# Charts

In a new worksheet, create two columns of numerical data (for example, perhaps the first column is the “Midterm” grade out of 100, and the second column is the “Final” grade). To the left of these, create a column that lists names (just use generic first names). Select the numerical data, and then go to the Insert tab and look in the Chart area. Click the Column button and select a 2-D column chart.



We now want to update some of the chart’s information. Right click on the chart and choose Select Data. Click Series 1 on the left, and then click the edit button just above it. Rename the Series Name to Midterm. Do the same to rename Series 2 to Final. Press OK to see how the chart looks so far.

Instead of numbers under the columns, we want to show the student names. Right click the chart again and click Select Data. Click the Edit button of the Horizontal (Category) Axis Labels. Instead of retyping all the names, we can just use the names already in the spreadsheet (kind of like using the value of a variable). Just select the cells containing the names. You’ll notice a the cell references will appear in the Axis label range box.

By default, charts do not have a title or axis labels. Show how to add these. Double click the chart to make the Design tab appear. On the Quick Layout button, you can choose a layout that includes both a title and axis labels. Now when you click on the title and the axis labels you can update them to something appropriate. You can also add a Title or Axis label from the Layout tab, which will become available when you select a chart.

Click around some of the other options in the Layout Tab to show what is possible with the chart including Legend, Data Labels, and Gridlines.

Show that you can change the chart type by right clicking on the chart and choosing Change Chart Type.

Move and resize the chart.

Change one of the grades in the cell, and show that the chart will update.