2016 NC Baptist Secretaries Conference
# Intermediate Excel

After you have created a worksheet, you can graphically represent the worksheet data by creating a *chart*. Charts can make worksheet data clearer and easier to understand. Excel enables you to create charts on a separate sheet or embedded on the same sheet as the data.

Create A Chart Sheet

You can quickly create a chart by selecting the data to chart and pressing the **[F11]** key. This automatically creates a column chart on a separate chart sheet.

Examine Chart Terminology

It is very important to know the different parts of a chart. When you click on a chart object to modify it, the **Current Selection** group on the **Format** tab under the **Chart** Tools ribbon will identify the part of the chart on which you are modifying. Below are the different parts of a 2-D column chart.
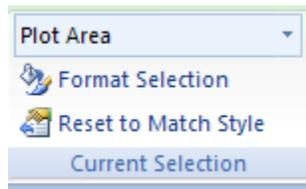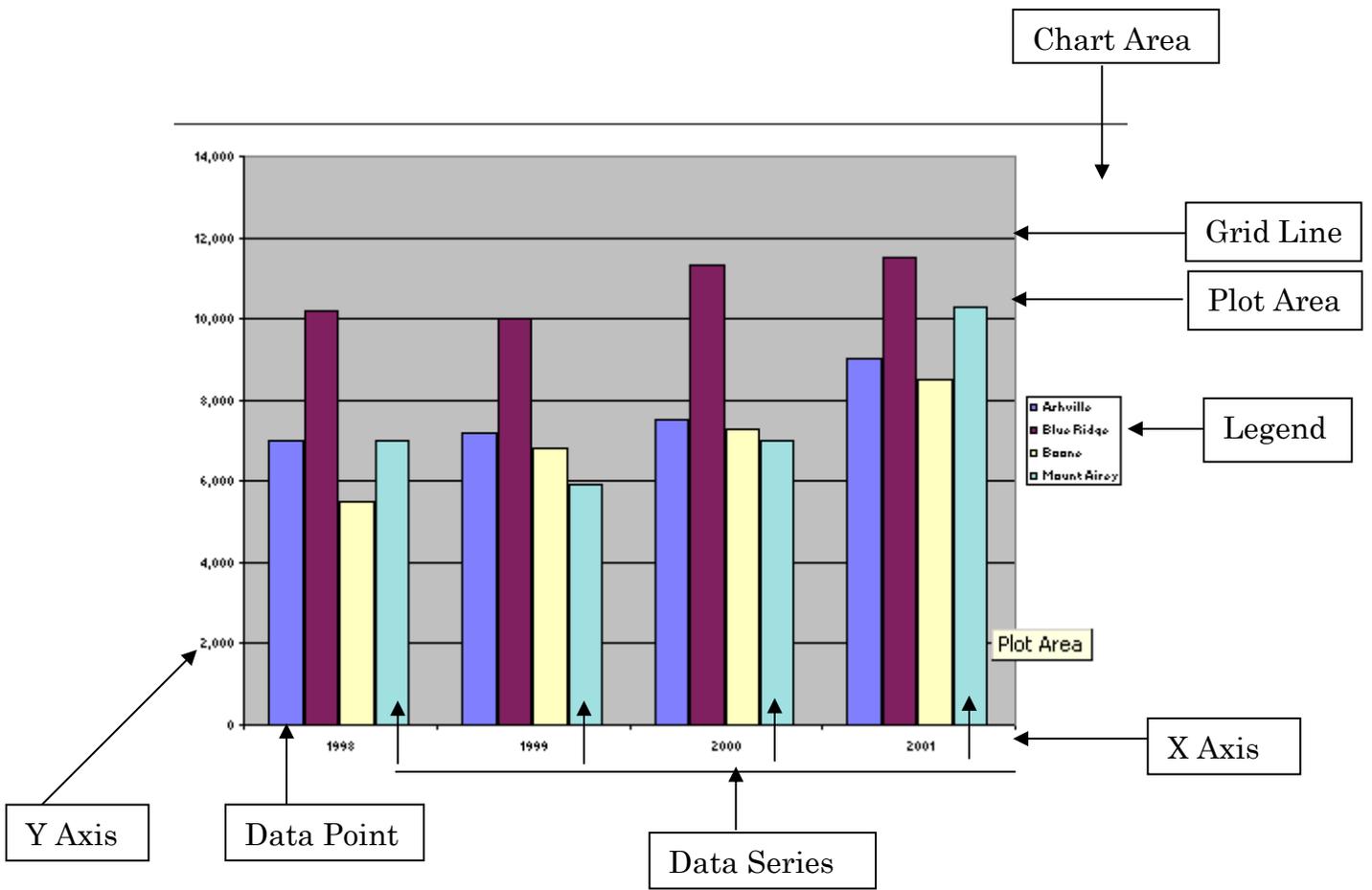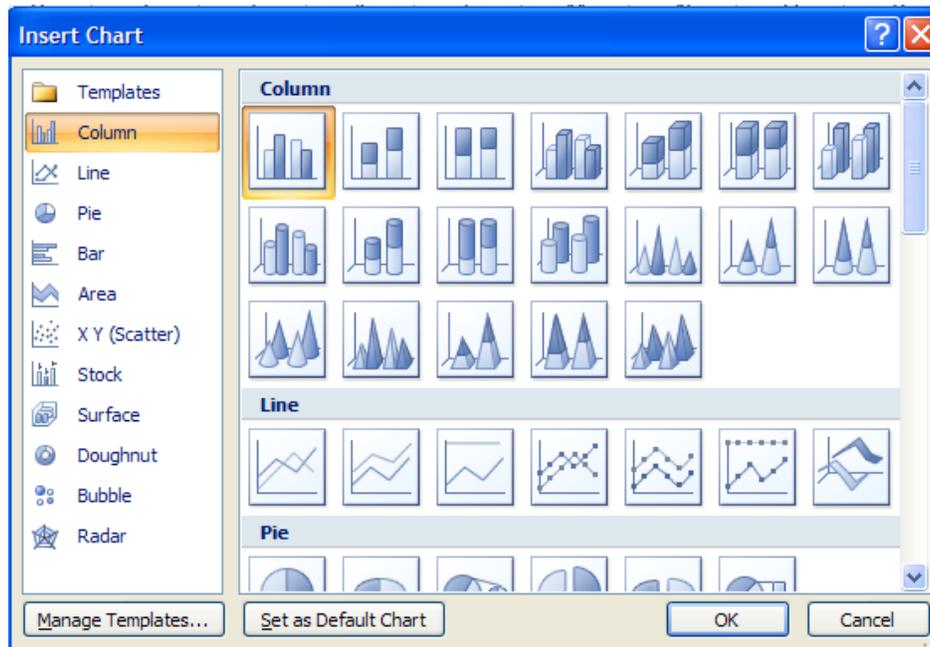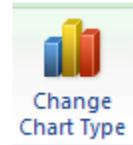
Chart Types

Excel provides many chart types to choose from when you are creating or modifying charts. The type of chart that you use depends on the data that you are charting. To change the chart type, click on the **Change Chart Type** icon on the **Chart** ribbon. Each of the chart types is represented graphically on the **Chart Type** palette. Below is a list of the chart types and a brief description of their uses.

| Chart	Use
Column	To display individual values for comparison. Categories are drawn from the horizontal axis, and values are drawn from the vertical axis.
Line	To show trends over time. Emphasizes time flow and rate of change, rather than the amount of change.
Pie	To display one data series as a whole, with each of its parts representing a percentage of that whole.
Bar	To display individual values for comparison. Categories are drawn from the vertical axis, and values are drawn from the horizontal axis.
Area	To display the importance of values over time. Emphasizes the amount of change, rather than the time or rate of change.
XY (Scatter)	To plot coordinate values. Shows the relationship between numeric values in several data series.
Stock	To illustrate the fluctuation of stock prices.
Surface	A three-dimensional surface that connects a set of data points. The Surface chart is useful when you want to find optimum combinations between two sets of data.
Doughnut	Similar to a pie chart, except that it can display more than one data series.
Bubble	A variation of a scatter chart in which the data points are replaced with bubbles, and an additional dimension of the data is represented in the size of the bubbles.
Radar	To show changes or frequencies of data relative to a center point and to each other.

Change Chart Types

1. Click on the **Change Chart Type** icon on the ribbon. A dialog box will display with all the chart types.


2. Click on the new chart type you want to select.
3. Click on the appropriate icon to the right of the chart type that you want to use.
4. Click **OK**.

Modify The Chart Sheet

Charts created by pressing the **[F11]** key do not always communicate the worksheet data as clearly as you would like. You can add information to a chart to enhance its readability. Anything on a chart that can be selected is considered an *item*, and can be added to or deleted from the chart. The options to modify the chart on listed as icons on the **Chart Tools** ribbon:
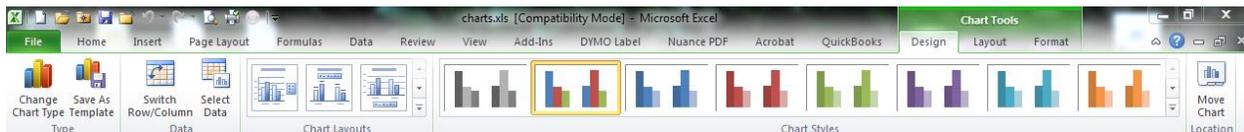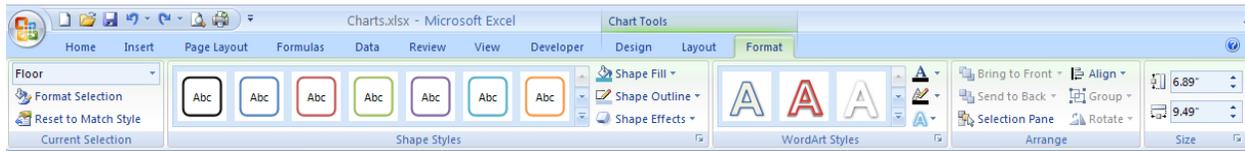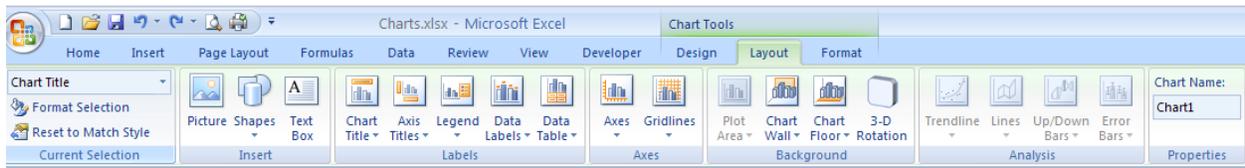
There are two simple ways to access existing data/items in a chart:

- Click the Left mouse button on the item to select a series of values in the chart, click on the **Format** menu under the **Chart Tools** ribbon, then click on the **Format Selection** icon on the ribbon...

- Click the Right Mouse Button on the data/item to display a shortcut menu, click on **Format Data Series**, then change the appropriate options in the dialog box.

Add Chart Titles

1. Click on the **Layout** menu on the **Chart Tools** ribbon.

2. Click on **Chart Titles** icon.

3. Click on **Above Chart**.

4. Type the text in the **Chart Title** box at the top of the page.

5. Click on the **Axis Titles** icon

6. Click on the **Primary Horizontal Axis Title** and/or click on the **primary Vertical Axis Title**.

7. Click on the appropriate option for the location of your axis title.

8. Type the text in the **Axis Title** box.
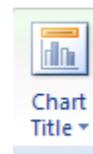
Change Data Series Colors

1. Click once on a column in the chart to select that **series**.

2. Click on the **Format** menu under the **Chart Tools** menu.

3. Click on the **Shape Styles** color that you want for the series.

4. Click on the **Shape Fill** icon to change the color of the series.

5. Click on the **Shape Outline** icon to change the color, weight and dash options for the series.

6. Click on the **Shape Effects** icon to choose an effect for the series.

Change Data Point Colors

1. Click the Left mouse button once on the first column in the chart. The entire series will be selected.

2. Click the Left mouse button again on the first column in the chart. Only the first column will now be selected.

3. Click on the **Format** menu on the **Chart Tools** ribbon.

4. Click on a new shape style, shape fill, and/or shape outline color

   You can also click on the **Picture, Gradient,** and/or **Texture** options in the **Shape Fill** icon's drop-down list to add gradient fills, texture, patterns, or pictures.


Add Data Labels

Data Labels are used to label individual data points. Data labels can be values or labels. Unless a specific series is selected before you insert data labels, they are automatically entered on the chart for all data series.

1. Click on the **Layout** menu on the **Chart Tools** ribbon.

2. Click on the **Data Labels** icon.

3. Click on appropriate option for the location of the data labels.
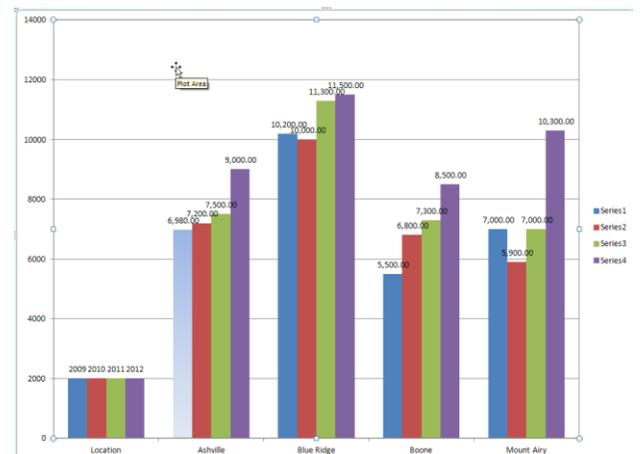
Change Data Label Alignment

1. Click on the first set of data labels to select all the labels for that series.

2. Click on the **Format Selection** icon in the **Current Selection** section of the **Layout** menu on the **Chart Tools** ribbon. The **Format Data Labels** dialog box will display.

3. Click on the **Alignment** menu.

4. Change the **Text Direction** to **Rotate all text 270°**.

5. Click on **Close**.

6. Repeat Steps 1-5 for each of the other sets of data labels.
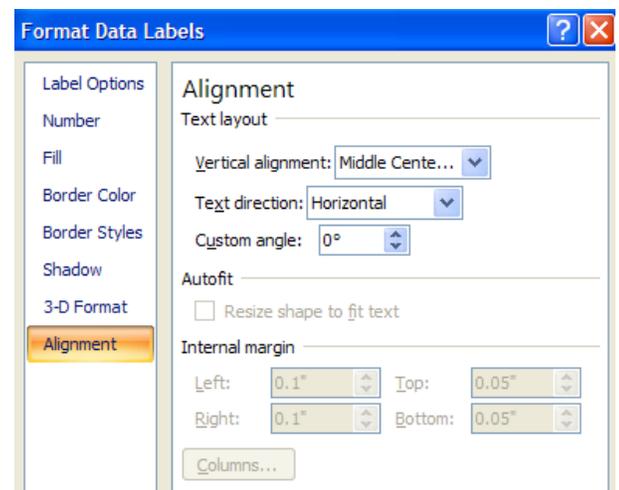
Modify Chart Values

1. Click on the **Sheet1** Tab at the bottom of the worksheet window to return to the worksheet data.

2. Click in cell whose value will be changed.

3. Type in the new value and press **[Enter]**.

4. Click on the **Chart1** Tab at the bottom of the worksheet window to return to the chart.

5. Notice that the value for that data point has changed.

Move The Legend

1. Click the Left mouse button on the **Legend** icon on the **Layout** menu on the **Chart Tools** ribbon.

2. Click on the appropriate option that will place the legend in the desired location.

Format Values In The Y-Axis

1. Click the Left mouse button on any value on the Y-Axis to select it.

2. Click on the **Format** menu on the **Chart Tools** ribbon.

3. Click on the **Format Selection** icon.

4. Click on the **Number** menu on the left side of the dialog box.

5. Click on the **Number** category.

6. Change the decimal places to **zero** (0).

7. Click on **Close**.
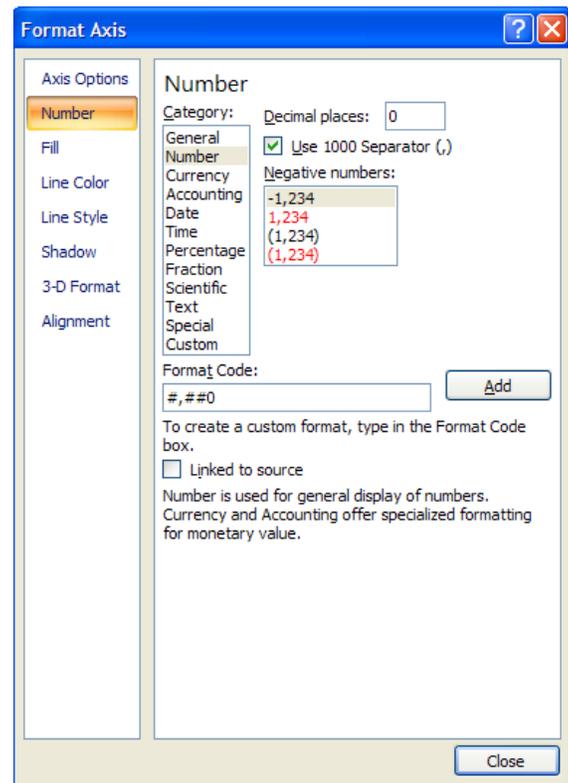
Create A Pie Chart

Pie charts represent one set of data in the worksheet. For example, you may want to compare total sales for all four quarters of one year, or you may want to see total costs for one area in the country. Below are instructions for creating a pie chart:

1. Select the range of data in the worksheet that will describe the numbers being charted.

2. Hold down the **[Ctrl]** key and select the range of data that is to be charted.

3. Click on the **Insert** menu.

4. Click on the **Pie** icon on the ribbon.

5. Click on the **Pie Chart** type that you want to create.
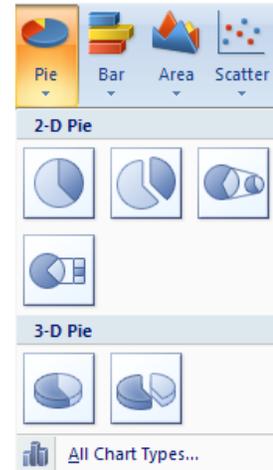
Print A Chart Sheet

When sending a **Chart Sheet** to the printer, the entire page is filled with the chart. If you are printing to a color printer, the chart will be in color. If you are printing to a laser printer, the chart will print in black and white. The print **Setup** options are available just as they are in a worksheet environment.

1. Click on the Print Preview icon on the Quick Access Toolbar.
2. Click on the **Page Setup** icon and view/change the options.
3. Click **OK**.
4. Click on the **Print** icon.
5. Click **OK**.

Create An Embedded Chart

When you use the chart icons found in the **Insert** menu, Excel draws the chart according to the selections you make in the dialog box and embeds the chart as an object on the worksheet. You format an embedded chart just as you would format a chart sheet.

1. Click on the **Sheet1** Tab at the bottom of the window.
2. Select the range to chart (The column headings and data.)

3. Click on the **Insert** menu on the ribbon.

4. Click on the appropriate **Chart Type**.

5. Click on the appropriate **Chart Sub-type**.

6. Click on the appropriate **Chart Layout**.

Move The Embedded Chart

Because an embedded chart is an object on the worksheet, you can move it around by dragging it. When you place the mouse pointer anywhere inside the chart, it turns into a four-headed arrow for moving the object.

1. Click once on the chart to make it active (it will have handles around the outside edge.)

2. Place the mouse pointer inside the chart area (it will turn into a four-headed arrow.)

3. Hold down the Left mouse button and drag the chart to another location on the worksheet.

4. Release the Left mouse button.

Size The Embedded Chart

You can size an embedded chart by using the selection handles that are displayed around the chart. When you place the mouse pointer on one of the selection handles, it changes into a two-headed arrow. Dragging the mouse in the direction of the arrow will either enlarge or reduce the size of the chart.

1. Place the mouse pointer on any outside handle (it will turn into a two-headed arrow.)

2. Hold down the Left mouse button and drag the mouse in the direction of the arrow (up, down, left, or right.) The object will change sizes accordingly.

3. Release the Left mouse button.

Print An Embedded Chart

You can print an embedded chart as part of the worksheet or separately. When you print an embedded chart as part of the worksheet, the size, proportions, and position of the chart on the printout correspond to how the embedded chart is sized on the worksheet.

1. Click off of the chart onto the worksheet to de-activate the chart.

2. Press **[Ctrl] + [Home]** to return to the top of the worksheet.

3. Click on the **Printer** icon or click on the **File, Print** Menus to display the Print dialog box.

To print an embedded chart on a page by itself, you must first activate the chart by clicking on it.

1. Click on the chart to make it active.

2. Click on the **Printer** icon or click on the **File, Print** Menus to display the Print dialog box.

Sorting Data

A list is an organized collection of related information. Lists are arranged in a column and row format. A common example of a list is a telephone book. Lists can be sorted in ascending and/or descending order. Lists can be sorted by one column at a time, or by multiple columns. Sorting by one or more columns will sort the entire list, not just the column(s) you sort. Clicking on the **Undo** icon will undo the sort.

Perform A Quick, One-column Sort

To sort a list of information by one column, all you have to do is click in the column by which to sort and click on the **Ascending** or **Descending** icon on the **Home** ribbon.
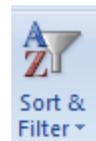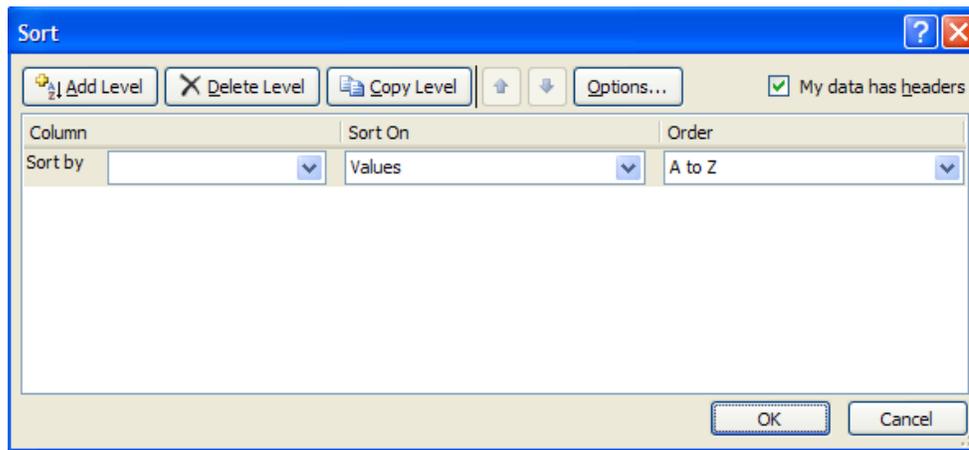
Perform A Multi-column Sort

To sort by more than one column, you must click on the **Data** menu then click on the **Sort** icon. The **Sort** dialog box will display on the screen allowing you to add levels by which to sort.

1. Click anywhere inside the worksheet data.

2. Click on the **Data** menu then click on the **Sort** icon.

3. Click on the down arrow to the right of the **Sort by** box and choose the column by which to sort.

4. Click on the down arrow to the right of the **Sort On** box and choose the appropriate option.

5. Click on the down arrow to the right of the **Order** box and choose the appropriate order.

6. Click on the **Add level** button at the top of the dialog box to add additional levels on which to sort the data.

7. Click **OK** when finished.

Create A Custom Sort List

There may be times when you have data in your list that will not sort correctly in **Ascending** or **Descending** order. For example, if you had the months of the year in a list and you wanted them sorted in the order that they are on the calendar, clicking on the **Ascending** or **Descending** icons would not do it. Sorting the months in **Ascending** order would result in April, August, December, February, January, July, March, May, November, October, and September.

The only way to sort the months in the correct calendar order is to create a custom sort option.

1. Click in the appropriate column in which you want to sort the data.

2. Click on the **Data** menu then click on the **Sort** icon.

3. Click on the down arrow to the right of the **Sort On** box and choose the appropriate option.

4. Click on the Down Arrow to the right of the **Order** option and click on the **Custom List** option. The **Custom Lists** dialog box will display.
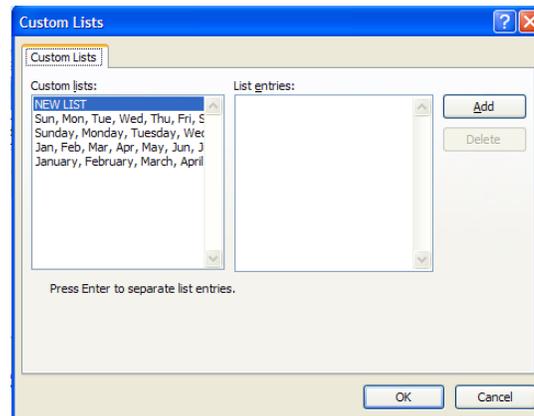
5. Click on the options in the **Custom Lists** section that matches the order in which you need to sort.

6. Click **OK**.

7. Click **OK**.

Creating Sort Order Lists Not Found In Excel

There may be times that you will want to sort a list in a manner that is not found in the **Options** button in the **Sort** dialog box. For example, if you have a list that is **High, Low, Medium**, sorting it in Ascending or Descending order will never put it in **Low, Medium, High** order. Excel allows you to create customized sort lists to resolve this problem.

1. Click in the appropriate column in which you want to sort the data.

2. Click on the **Data** menu then click on the **Sort** icon.

3. Click on the down arrow to the right of the **Sort On** box and choose the appropriate option.

4. Click on the down arrow to the right of the **Order** box and choose the appropriate order.

5. Click on the Down Arrow to the right of the **Order** option and click on the **Custom List** option. The **Custom Lists** dialog box will display.
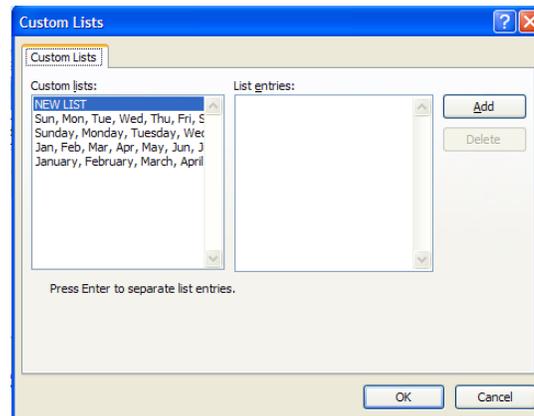

6. Click in the **List Entries** box and type your list. The entries must be separated by a comma.

7. Click on **Add**.

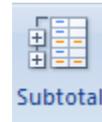8. Click **OK**.

9. Click **OK**.

Using Subtotals

Automatic subtotals are useful in summarizing the data contained in a list. Subtotals are created by using Sum, Count, or Average functions. To use **subtotals,** the data must be organized in a properly designed list.

Turn On Subtotals

1. Open **Sort Data.xlsx**.
2. Click on the **Payroll** worksheet tab.

3. Click in the **LOCATION** column and click on the **Sort Ascending** icon on the **Standard** Toolbar.

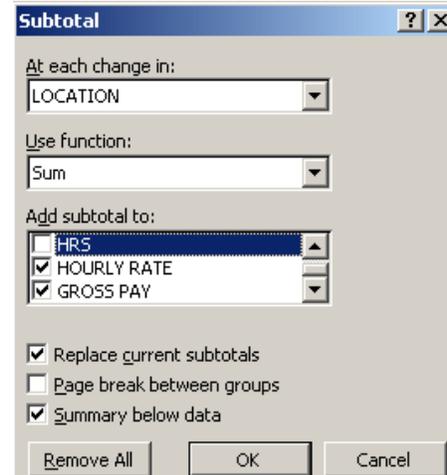4. Click on the **Data** menu**,** then click on the **Subtotals** icon.

5. Click on the Down Arrow at the **At Each Change in** field.

6. Click on **LOCATION**.

7. Click in the **HOURLY RATE** and **GROSS PAY** boxes to add a checkmark.

8. Click **OK**. Notice that the list is subtotaled at the end of each location.

Remove Subtotals

1. Click anywhere inside the list.

2. Click on the **Data** menu**,** then click on the **Subtotals** icon.

3. Click on **Remove All**.

Filtering A List

Filtering a list only displays the sets of data that meet a certain set of search conditions called *criteria*. There are two types of filters: **AutoFilter** and **Advanced Filter**. The **AutoFilter** command displays drop-down list arrows next to each column label in the list. When you click on the drop-down list arrow, a list of all the unique entries for that column is displayed. The **Advanced Filter** is used to filter complex criteria.

Turn On AutoFilter

1. Open **Sort Data.xlsx**.

2. Click on the **Data** menu then click on the **Filter icon**. Drop-down arrows will display to the right of each column heading.

3. Click on the drop-down arrow for the appropriate field and click on the field by which to filter the data.

Perform Custom Filters

The **Custom** filter criterion allows you to filter a list to display sets of data that contain either of two unique entries in one column. This creates an **OR** condition. You can filter a list by selecting a criterion from multiple columns. This creates an **AND** condition.

1. Click on the Drop-down arrow to the right of **LOCATION**.

2. Click on **Text/Number Filters**.

3. Click on **Custom Filter**.

    The **Custom AutoFilter** dialog box will display on the window.
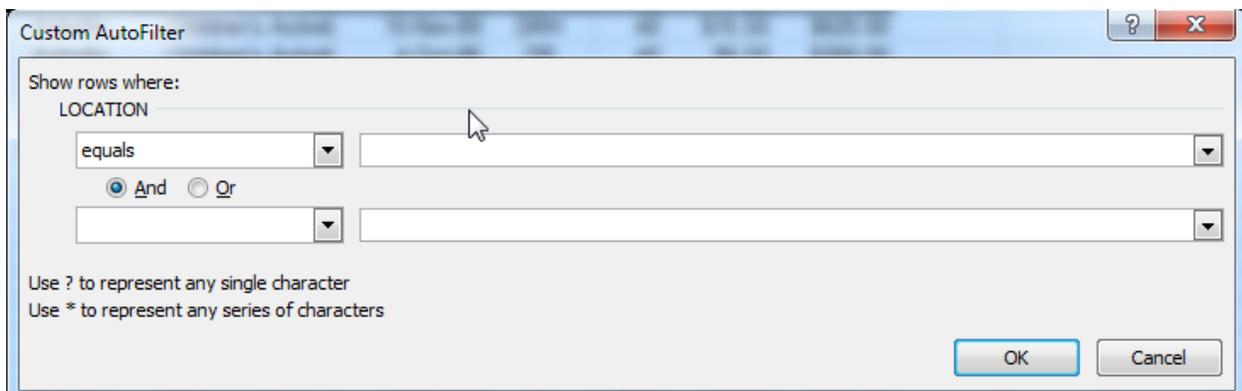
4. Ensure that the first box has **equals** in it.

5. Click on the down-arrow to the right of the blank box and click on **Ashville**.

6. Click on **Or**.

7. Ensure that the second box has **equals** in it.

8. Click on the down-arrow to the right of the second blank box and click on **Boone**.

9. Click **OK**. The list will display only those two criteria.

10. Click on the down-arrow to the right of the **LOCATION** column.

11. Click on **Clear filter from 'LOCATION'** to display all the rows again.

12. Click on the Down-arrow to the right of **LOCATION** and click on the **(Select All)** box to remove all the check marks from the list.

13. Click on **Blue Ridge**.

14. Click **OK**.

15. Click on the down-arrow to the right of **BEN** and click on the **(Select All)** box to remove all the check marks from the list.

16. Click on **R** to create an **AND** condition.

17. Click **OK**.

18. Click on the down-arrow to the right of the **LOCATION** column.

19. Click on **Clear filter from 'LOCATION'** to display all the rows again.

20. Click on the down-arrow to the right of the **BEN** column.

21. Click on **Clear filter from 'BEN'** to display all the rows again.

Turn Off AutoFilter

When you no longer need to filter a list, you can turn it off.

1. Click on the **Data** menu then click on the **Filter** icon.


Perform An Advanced Filter

Sometimes, the filter criteria that you specify with **AutoFilter** will not yield the needed results. For example, you cannot use **AutoFilter** to filter a list to display the more complex criteria of two separate **And** conditions combined with an **Or** condition.

Advanced Filters require a list of information and a criteria range. The result can be displayed in a separate section in the worksheet or it can hide all the rows in the list that do not meet the specified criteria. The criteria range must contain column headings exactly as they are entered in the original list. The easiest way to do this is to copy the heading(s) from the list into the criteria range.

(Ensure that **Sort Data.xlsx** is open and that you are on the **Payroll** worksheet)

1. Select the **LOCATION** and **ACTIVITY** column headings.

2. Click on the **Copy** icon on the **Home** menu on the ribbon.

3. Click in Cell **M1** and press **[Enter]**. To copy the column headings into Cells **M1** and **N1**.

4. Click in Cell **M2** and type **Boone**.

5. Press **[Tab]**, type **Art Galleries** and press **[Enter]**.

6. In Cell **M3,** type **Ashville**.

7. Press **[Tab]**, type **Parkway Drive** and press **[Enter]**.

8. Click anywhere inside the list of information.

9. Click on the **Data** menu and click on the **Advanced** button. The **Advanced Filter** dialog box will display on the window.

10. Click on **Copy to Another Location**.

11. Click in the **Criteria Range** box and type **M1:N3**.

12. Click in the **Copy to** box and type **M10**.

13. Click **OK** to create the new **Advanced Filter** results.

14. Close the document without saving the changes.
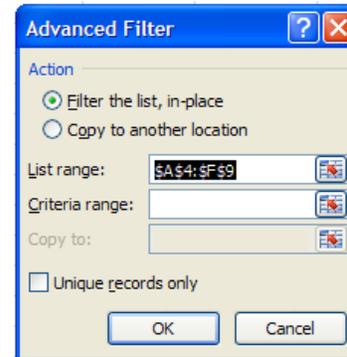
Data Forms

A data form is a convenient way to enter or display one complete row of information, or record, in a list at a time. Before you can use a data form to add a record to a new list, the list must have labels at the top of each column in the list. Microsoft Excel uses these labels to create fields on the form. Note: Data forms can display a maximum of 32 fields at one time.

The following requirements must be met when creating a data form:

* The field names must look different from the rest of the data. It can be bolded, uppercase, italicized, etc.
* There can be no space between the field names and the first line of data.

Create A Data Form

1. Create a new worksheet.

2. Type the appropriate column headings across Row 1 (i.e., First, Last, Address, City, State, Zip).

3. Select the column headings and apply a formatting option (i.e., bold, underline, italicize).

4. Add the **Form** button to the Quick Access Toolbar, using the following instructions:

   a. Click the arrow next to the Quick Access Toolbar, and then click **More Commands**.

   b. In the **Choose commands from** box, click **All Commands**, and then select the **Form button** in the list.

   c. Click **Add**, and then click **OK**.

5. Click on one of the column headings and then click on the **Form** icon on the Quick Access Toolbar. The **Form** dialog box will display.

Enter Data Into The Form

- Type information into each field.
- Press **[Tab]** to move between the fields.
- Press **[Enter]** to create a new blank record.
- Click on **Close** when finished.