

Excel 2007 – Beginning / Intermediate

103-123 / 103-124

Tutorial 4 - Charts

Notes	Activity
<p>Quick Links</p> <ul style="list-style-type: none"> • Chart Concepts Pages EX 162 – EX 165 • Selecting Source Data Pages EX 163 – EX 164 • Creating a Chart Pages EX 164 – EX 166 • Charting Contextual Tabs Page EX 166 • Chart Locations Pages EX 166 – EX 167 • Resizing and Positioning Pages EX 166 – EX 167 • Selecting Chart Objects Pages EX 168 – EX 169 • Changing Object Appearance Pages EX 169 – EX 173 • Formatting Labels Pages EX 171 – EX 173 • Formatting Axes Pages EX 183 – EX 184 • Formatting Backgrounds Page • Pie Chart Specifics Pages EX 173 – EX 180 • Column / Bar Chart Specifics Pages EX 180 – EX 186 • Line Chart Specifics Pages EX 187 – EX 196 • Adding Shapes to Enhance a Chart Pages EX 199 – EX 202 	<p>Open Tutorial 4 Start.</p> <p>Save as Appliance Sales Charts</p>




This icon designates a video is available as an additional reference.
Video DVD is available in the Stevens Point library.

Notes	Activity
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Chart Concepts

- Charts, like data bars, display data in a graphical format, but with many additional options and features.
- For the most part, you can get by with three basic types of charts
 - Line chart: effective for showing data over a period of time (trends)
 - Column or bar chart: effective for showing differences between data items (largest, smallest, in between)
 - In column charts the bars are vertical, in bar charts, the bars are horizontal.
 - Pie Chart: effective for showing each piece of data in relation the whole (percentages).
- Column charts and line charts have two axes (plural of axis)
 - Horizontal axis aka X-axis aka *category* axis
 - Vertical axis aka Y-axis aka *value* axis
- All charts include a *legend* that ties the series names to the colors used in the chart.
- Excel charts are made up of many *objects* (titles, axes, etc.) (aka *elements* in the book), each of which can be formatted independently.

Notes	Activity
<p>Selecting the Source Data</p> <ul style="list-style-type: none"> • In order to create charts, you'll need data—the values to chart. Excel refers to these as category data. • Some types of charts (column, line) can show multiple groups of data, called <i>series</i>, at the same time • When specifying the range of data to be charted, select the row and column headers as well. <ul style="list-style-type: none"> ➤ Excel will assign the row headers to the horizontal axis and the column headers to each series ➤ Actually, if there's only one series you could skip the column header, but if you include it, Excel will ignore it if it's not needed. ➤ Tip: pie charts can only display one series of values. Do not select multiple groups of data and try to make a pie chart of them. ➤ Tip: in most circumstances, it is best to graph data and totals (statistics) separately. <p> Excel 4: Creating Charts</p>	<p>Activity</p> <p>Select A5:M9 as the source data.</p>


Creating a Chart



- After selecting the source data (this has to be done first), select the chart type from the Charts group of the Insert tab.





- Note, additional pre-defined chart types are available by clicking Other Charts.
- You can change the chart type after creating the chart if you wish.
- Each chart type has different styles available. This list of styles appears when you click the chart type (except for Other Charts). Select the appropriate chart type style.
 - For the homework, you'll have to select the appropriate style. Point to the style and wait for the screen tip to appear. The screen tip includes the chart style name.

Select a 2-D Cluster Column chart



Notes	Activity
<h3 data-bbox="199 233 618 268">Charting Contextual Tabs</h3> <ul style="list-style-type: none"><li data-bbox="248 296 1040 363">• After creating a chart, three new Ribbon tabs appear whenever any object (part) of the chart is selected.<li data-bbox="248 369 1040 510">• The Chart Tools Design tab allows you to change the appearance (colors, chart style) of the chart. You can also use this tab to redefine the data source used for the chart after it has been initially created.<li data-bbox="248 516 1040 621">• The Chart Tools Layout tab allows you quick access to the most commonly modified chart objects (title, axes, etc.)<li data-bbox="248 627 1040 695">• The Chart Tools Format tab allows you to control the appearance of text and borders of chart objects.<li data-bbox="248 701 878 737">• Most of these features support Live Preview.	<p data-bbox="1076 233 1373 300">Preview different chart styles.</p>
<h3 data-bbox="191 779 451 814">Chart Locations</h3> <ul style="list-style-type: none"><li data-bbox="248 842 1040 940">• In Excel, charts are either <i>embedded</i> in a worksheet with data or stored in a separate <i>chart sheet</i> that is included with the other chart sheets at the bottom of the workbook.<li data-bbox="248 947 1040 1014">• When you first create a chart, Excel embeds it in the same worksheet as the data.<li data-bbox="248 1020 1040 1583">• Excel makes it easy to convert the embedded chart to a chart sheet and even to move it to a different worksheet<ul style="list-style-type: none"><li data-bbox="305 1098 1016 1165">➤ The book likes <i>summary sheets</i> that include all of a workbook's chart.<li data-bbox="305 1171 1040 1360">➤ Click the Move Chart  button in the Location group of the Chart Tools Design tab. Conveniently, the Design tab is the first tab selected after you create a chart. Move the chart to the appropriately location immediately.<li data-bbox="305 1367 1008 1583">➤ The Move Chart dialog box will appear.<ul style="list-style-type: none"><li data-bbox="362 1409 1008 1507">– Click the New sheet button and enter a sheet name to convert the embedded chart to a chart sheet.<li data-bbox="362 1514 979 1583">– Click the Object in: arrow (▼) to move the chart to a different worksheet.	<p data-bbox="1076 779 1349 846">Move the chart to the Charts sheet</p>

Notes	Activity
<p>Resizing and Positioning Charts</p> <ul style="list-style-type: none">• Embedded charts can be resized and repositioning in the worksheet<ul style="list-style-type: none">➤ Chart sheets aren't normally moved or resized, though like any other worksheet and can change the position of the sheet in the list of sheets.• Click the edge of the chart to select it.<ul style="list-style-type: none">➤ If you click the middle of the chart, you may accidentally select one of the chart objects instead.➤ The entire chart itself is an object that contains all the other objects of the chart.➤ <i>Handles</i> will appear around the chart (but not around any other chart objects).  <ul style="list-style-type: none">• To reposition the chart, point to the any edge, but not where the handle are. The mouse pointer will change shape to a move arrow . Drag the chart to its desired location.• To resize the chart, point to any handle. The mouse pointer will change shape to a double-headed arrow (↕). The arrow will be horizontal if you touch one of the side handles or diagonal if you touch one of the corner arrows. Drag to resize the chart.<ul style="list-style-type: none">➤ When you resize a chart, all the chart objects adjust to the best fit possible for the new size.	<p>Reposition and resize the chart to fill B2:J21</p>

Notes	Activity
<p>Selecting Chart Objects</p> <ul style="list-style-type: none"> As mentioned before, charts are made up of many objects (elements) To select an object, simply click it (you may have to select the chart first) Handles will appear. <ul style="list-style-type: none"> ➤ If needed, you can drag the object to a new location (what for the move  pointer) or resize it (drag handle) once the handles appear (object is selected). ➤ If the Chart Tools Layout tab is active, the object's name will appear as the first item in the Current Select group. <ul style="list-style-type: none"> – You can also use this drop down list to select a specific object. In the <i>real world</i>, you normally just select the appropriate object by clicking it. Tip: once an object is selected, you can quickly remove it from the chart by pressing the Delete key. Some objects are actually <i>groups</i> of objects—they contain other objects. <ul style="list-style-type: none"> ➤ Example: a pie is an object that contains slice objects. ➤ The first time you click these objects, the entire group is selected and the entire group adopts any changes made. ➤ The next time you click an object in the group, that object is isolated—only that object is selected. ➤ In some cases the objects in a group may be groups themselves whose objects can be further isolated. <p> Excel 4: Working on Chart Design</p>	<p>Select the Legend.</p> <p>Move the Legend to a different position</p> <p>Delete the Legend. Note how Plot Area resizes.</p> <p>Undo.</p> <p>Select the Microwaves series.</p> <p>Select the Microwaves bar for May</p>


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Changing an Object's Appearance

- Once an object is selected, you can change its appearance.
- When any part of the chart is selected, you can change the overall color scheme of the chart by using the Chart Styles group of the Chart Tools Design tab
 - Because of the complexity of charts, Live Preview is not available. You'll have to click to see the effects of the style.
 - Don't forget you can click the *More*  button to see all the available chart styles at once
- When any part of the chart is selected, you can also change the type of chart (bar to line, line to column, etc)
 - Click the Change Chart Type  button in the Type group of the Chart Tools Design tab.
 - Select the appropriate chart type and sub-style.
 - Don't forget, you can undo (Ctrl-Z) if you decide the original chart type was better.

Change column chart to a bar chart.

Undo

- If you resize object, the other objects in the chart will adjust to accommodate the new object.
- If the selected object contains text, you can change the font size, color, name, etc. by using the formatting tools on the Home tab.
- Most objects have dozens of *properties* whose value you can change to change the appearance of the object. To open a dialog box that provides access to those properties
 - Click the Format Selection  button in the Current Selection group of the Chart Tools Layout tab
 - **Tip:** Alternatively, you can right-click the object and choose the Format item from the popup menu.
- Describing the options in each dialog box would take forever. With experience, you'll remember where properties are and how to change them.
 - **Tip:** Some properties (Line Color for example) don't appear until you turn other properties on (Solid Line must be on for Line Color to appear)

Use Live Preview to view the effects of changing the font size of the Legend.

Change the font size of the vertical axis to 8.

Select the Microwaves series. Choose Format Selection in the Current Select group of the Chart Tools Layout tab.

Close the dialog box. Right-click any red bar and choose Format Data Series.




Solid Fill Yellow

Notes

Activity

Formatting Labels



- The Labels group of the Chart Tools Layout tab provides quick ways to include and format the chart objects that contain text.
- If you add objects to a chart, the existing objects will adjust to accommodate the new object.
- The Home tabs formatting tools allow you change the appearance of titles once they exist.
- Each of these options includes a More Options choice that opens the Format dialog box for this object.
-  Chart Title: Add a title to a chart if one doesn't exist at a specified location
 - Above Chart inserts a title above the Chart Area (moves the chart down).
 - Overlay inserts the title within the Chart Area
 - To change the text in a title, simply select it and type the appropriate title.
-  Axis Titles: add a title to one of the chart axes.
 - When you click this button a list of the available axes appears. Click the appropriate axis, then select from the location options that appear.
 - Not available for pie charts (no axes).
 - The vertical axis title can be rotated.
 - Tip: Any axis title can be rotated. Open the Format dialog for that object (see above) and click Alignment to see what options are available
-  Legend: quickly reposition or remove the chart's legend.
 - Don't forget, you can also remove the Legend by selecting it and pressing the Delete key.
 - Some options allow you *overlay* the Legend on top of the chart. This can save the space normally taken up by the Legend. The chart area will automatically enlarge to fill that space.
 - You can also simply drag the Legend to overlay it on the chart. However, when you drag the Legend, the chart area doesn't automatically adjust. You must use one of the Overlay options to make the chart area adjust.

Add a title:
Appliance Sales by Month.



Format using the Home tab.

Add *Units* to the vertical axis (rotate).

Add *Month* to horizontal axis. Undo (redundant)



Overlay the Legend in the upper right of the chart. Fill with Light Blue

Remove the Legend.

Notes	Activity
<ul style="list-style-type: none">  Data Labels: Normally, bars, lines and pie slices are not labeled with the value they represent. This button allows you to add labels to the selected object(s) in the chart. <ul style="list-style-type: none"> ➤ Tip: if you select just one item of a series (see above for how to select an item in a group), just that item will show a data label. ➤ Tip: Choose the More Data Labels Options menu item to get even greater control of the type of data and the format of the data labels (pie charts)  Data Table: Particularly for chart sheets (not so much for embedded charts), it's occasionally handy to be able to see the data a chart is based on. This button provides choices for adding a data table to the bottom of the chart, showing the data the chart is based on. <ul style="list-style-type: none"> ➤ This is a better idea than Data Labels for charts with lots of data. ➤ The Data Table is an object that can be selected and customized. 	<p>Display Data Labels, Outside End.</p> <p>Undo.</p> <p>Select only Microwave. Display Data Labels Outside End.</p> <p>Add a Data Table with Legend Keys to the chart</p> <p>Change font size to 8</p>

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Formatting Axes

- The Axes group of the Chart Tools Layout tab allows you to quickly control the appearance of the axes' data and their gridlines.
- These options are not available for pie charts (no axes)
-  **Axes:** This button provides choices for the appearance and location of the data on each axis.
 - Horizontal axis control allows you to designate which order the data appears.
 - Vertical axis control allows you to specify the units (thousands, millions, etc) for the axis
-  **Gridlines:** Gridlines are drawn across from vertical axis values or up from horizontal axis values.
 - Gridlines make it easier to determine the value of bars or line points.
 - This button allows you to control the display and appearance of the gridlines.
 - Select the horizontal or vertical gridline option.
 - Select from the appearance options that appear.
 - Major and minor. Charts can contain *major* and *minor* tick marks on the axes representing values
 - You can control the appearance of both types.
 - **Tip:** Choose the More Options item to control the style and color and associated values of gridlines.

Note the options available (under Axes) for both horizontal and vertical axes.





Add vertical gridlines for every month.

Change gridlines to dashes. Note dash type not available for 3D cluster

Remove all gridlines.

Notes	Activity
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Formatting Backgrounds

- The Background group of the Chart Tools Layout tab allows you to show or hide the backgrounds of chart walls or plot area.
 - This is different than the *Chart Area* which is the background of the entire chart.
 - Each button includes a More Options choice that allows you to control how the background appears, beyond just whether it appears or not.
-  Plot Area.
 - 2-D charts have a Plot Area.
 - The Plot Area is the actual graph itself between the axes
-  Chart Wall.
 - 3-D charts have a Chart Wall.
 - The Chart Wall is the flat space behind the graph
-  Chart Floor.
 - 3-D charts also have a Chart Floor.
 - The Chart Floor is the flat space underneath the graph.
-  3-D Rotation.
 - 3-D charts can be rotated to make the data easier to read.
 - This button displays the Format Chart Area dialog box with the 3-D Rotation option already selected
 - Live Preview does work for rotation, but you may have to wait a second or two for the changes to appear.
 - Each axis can have its own rotation
 - You can also control the *perspective of some charts* (how far it tips forward)
 - You may have to change the Y-rotation first
 - You can also change the depth of the Chart Floor on charts that have one.
 - You may have to change the Y-rotation first.
 - **Tip:** If you really mess up a chart by rotating it, you can restore it to its original rotation using the Default Rotation button.

Change the Plot Area to light green

Change the chart to a 3-D (not clustered) column chart.

Change Chart Wall color.
Change Chart Floor color.




Experiment with rotation and perspective.



Click the Default Rotation button.




Select Data button (Data group of Design tab).



Reorder series:
Ovens, Dishwashers,
Refrigerators, Microwaves.

Save.

Notes	Activity
<h2 data-bbox="199 233 503 268">Pie Chart Specifics</h2> <p data-bbox="280 300 708 352">  Excel 4: Working on Chart Design </p> <ul style="list-style-type: none"> • Remember, with pie charts, pick one group of data that you want to show <i>percentages of the whole</i> for. • Don't include totals with the data. • To change the color/appearance of one pie slice, click the pie, then click the slice you want to change. • To change the format or location of the slice data values: <ul style="list-style-type: none"> ➤ Click Data Labels  button in the Labels group of the Chart Tools Layout tab. ➤ Choose More Data Label Tools ➤ Under Label Options, designate whether the value or the percentage (of the whole) should be displayed (or both). ➤ Under Label Options, designate where the label should appear. ➤ Use the Number tab to designate how the data label should be formatted. ➤ Once the data labels have been added to the chart, you can move or format them individually. <ul style="list-style-type: none"> – Click any data label – Click it again to select just the one. • You can easily <i>explode</i> one of more slices of the pie. <ul style="list-style-type: none"> ➤ Click the pie ➤ Click the slice you want to explode. ➤ Drag the slice away from the rest of the pie • To rotate the pie (move slices to different locations) <ul style="list-style-type: none"> ➤ Select the pie ➤ Click the 3-D Rotation  button in the Background group of the Chart Tools Layout tab. ➤ Change the value of the X: Rotation (Live Preview is available). 	<p data-bbox="1076 264 1349 296">Select A5:A9 H5:H9</p> <p data-bbox="1084 348 1357 380">Insert a 3-D pie chart</p> <p data-bbox="1076 420 1373 485">Change the title to <i>July Sales</i></p> <p data-bbox="1076 531 1373 632">Change the color of the Dishwashers slice to Yellow.</p> <p data-bbox="1076 678 1382 743">Add data labels Outside End, then Inside End</p> <p data-bbox="1076 789 1398 854">Change the data labels to %,1</p> <p data-bbox="1076 1079 1390 1144">Explode the Dishwasher slice.</p> <p data-bbox="1076 1299 1409 1400">Rotate the entire pie until the Dishwasher slice is on the bottom.</p>

Notes	Activity
<h2 data-bbox="199 233 669 268">Column / Bar Chart Specifics</h2> <p data-bbox="215 304 634 352">  Excel 4: Creating a Column Chart </p> <ul data-bbox="248 388 1032 829" style="list-style-type: none"> • Remember bar charts are just column charts turned on their sides. • It's still not a great idea to graph totals with data. • Instead of boring bars, you can graph using pictures. <ul data-bbox="305 535 1032 829" style="list-style-type: none"> ➤ Select the appropriate bar ➤ Right-click and choose (Format Data Point) <ul data-bbox="362 619 1000 682" style="list-style-type: none"> – Or, Format Selection in the Current Selection group of the Chart Tools Layout tab ➤ Under Fill, choose the Picture or text fill option ➤ Click the File button and locate the picture you want to use ➤ Stack works well in most circumstances. 	<p data-bbox="1076 262 1373 331">Select the range A5:A9 H5:H9</p> <p data-bbox="1076 380 1365 449">Insert a 2-D Clustered Column chart.</p> <p data-bbox="1076 491 1422 560">Change the title. Delete the Legend.</p> <p data-bbox="1076 602 1360 672">Click any bar to select them all.</p> <p data-bbox="1076 714 1344 783">Change the fill to the Dollar Sign graphic.</p> <p data-bbox="1076 825 1146 852">Undo</p> <p data-bbox="1076 894 1422 921">Select the Microwaves bar.</p> <p data-bbox="1076 970 1354 1039">Change the fill to the Microwaves graphics.</p> <p data-bbox="1076 1081 1154 1108">Stack.</p> <p data-bbox="1076 1150 1354 1178">Move to Charts sheet.</p>
<h2 data-bbox="199 1190 522 1226">Line Chart Specifics</h2> <p data-bbox="215 1262 581 1310">  Excel 4: Creating a Line Chart </p> <ul data-bbox="248 1346 943 1409" style="list-style-type: none"> • Line charts work best displaying values over time. • Multiple data groups can be easily compared. 	<p data-bbox="1076 1220 1395 1289">Create a Line chart using A5:M9</p> <p data-bbox="1076 1304 1385 1373">Move Legend to bottom right.</p>

Notes	Activity
<p>Adding Shapes to Enhance a Chart</p> <ul style="list-style-type: none"> • Though charts can help clarify data, sometimes additional clarification is needed. • An effective way to this is using Excel's built-in shapes <ul style="list-style-type: none"> ➤ Actually, all Office products provide access to these shapes. ➤ Tip: Shapes can be added to any worksheet, not just charts. • Click the Shapes  button in the Illustrations group of the Insert tab. • Select (click) the shape you'd like to use • The mouse pointer will change shape to a + sign. • Drag the mouse to draw the shape. • The shape will appear with handles <ul style="list-style-type: none"> ➤ If not, click the shape ➤ Drag the handles to resize the shape. ➤ Position the mouse pointer on the outside edge of the shape. When the mouse pointer changes shape to a  drag the mouse to move the shape. ➤ To change the appearance of the shape, use the Shape Styles group buttons in the Drawing Tools Format tab. ➤ To add text to the shape, simply select it and then start typing. <ul style="list-style-type: none"> – Use the WordArt Style group of the Drawing Tools Format tab or the Font group of the Home tab to change the appearance of the text in the shape. – Use the Alignment group of the Home tab to change the alignment of the text within the shape. • Use the Shape Styles group of the Drawing Tools Format tab to change the appearance of the shape. <ul style="list-style-type: none"> ➤ Don't forget you can click the <i>More</i>  button to see all the available shape styles at once ➤ Shape Effects includes options for adding a shadow to a shape and giving a 3-D appearance to a shape. • Tip: To copy a shape, you can copy it to the clipboard (Ctrl-C) and then paste in a new location. Alternatively, you can Ctrl-Drag a shape (hold Ctrl while dragging) to copy it. 	<p>Insert 10-point star shape</p> <p>Fill light red, outline light red</p> <p>Add shadow</p> <p>Add text: <i>Microwaves are top sellers!</i></p> <p>Change text to dark red Align text center, center</p> <p>Add Microwaves.gif.</p> <p>Resize and move to beginning of Microwaves line.</p> <p>Copy microwave to end of line</p>

Notes	Activity
<ul style="list-style-type: none">• If you have more than one shape, you can select multiple shapes by Shift-Clicking on each shape.<ul style="list-style-type: none">➤ Click the Align  Align ▾ button in the Arrange group of the Drawing Tools Format tab to line up the items.➤ Click the Group  Group ▾ button to group multiple shapes into one shape.<ul style="list-style-type: none">– Don't do this until the shapes are completely defined (text, etc), sized, and aligned.	<p>Align images.</p> <p>Group</p> <p>Move chart to Charts sheet.</p> <p>Save</p>