

THE CHARTING PROCESS

Charts provide a way of seeing trends in the data in your worksheet. The charting feature in Excel is extremely flexible and powerful and allows you to create a wide range of charts from

any of the **Insert** commands in the **Charts** group on the

Inserting Charts

The first step when creating a chart is to select the data from the worksheet that you want to chart. It is important to remember that the selected range (which can be either contiguous or non-contiguous), should include *headings* (e.g. names of months, countries, departments, etc). These become *labels* on the chart. Secondly, the selected range should not (normally) include totals as these are inserted automatically when a chart is created.

The second step is to create a chart using the **INSERT** tab on the ribbon. You can choose a **Recommended Chart** where Excel analyses the selected data and suggests several possible chart layouts.

Alternatively you can create the chart yourself from scratch by choosing one of the **Insert** commands in the **Charts** group. Charts that you create in Excel can be either *embedded* into a worksheet, or they can exist on their own sheets, known as **chart sheets**.

Embedded Charts

Charts that appear within a worksheet are known as embedded charts. A chart is really an object that sits on top of the worksheet – unlike numbers and letters, charts are not actually placed into worksheet cells.

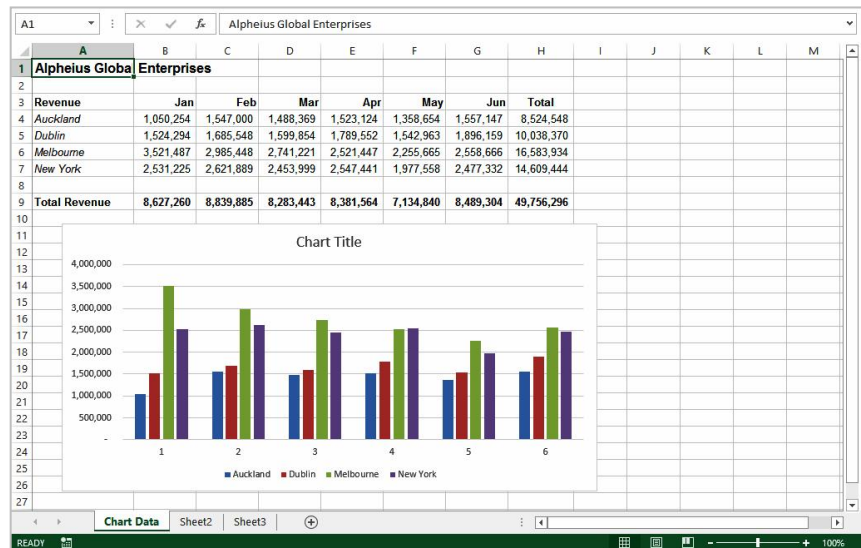
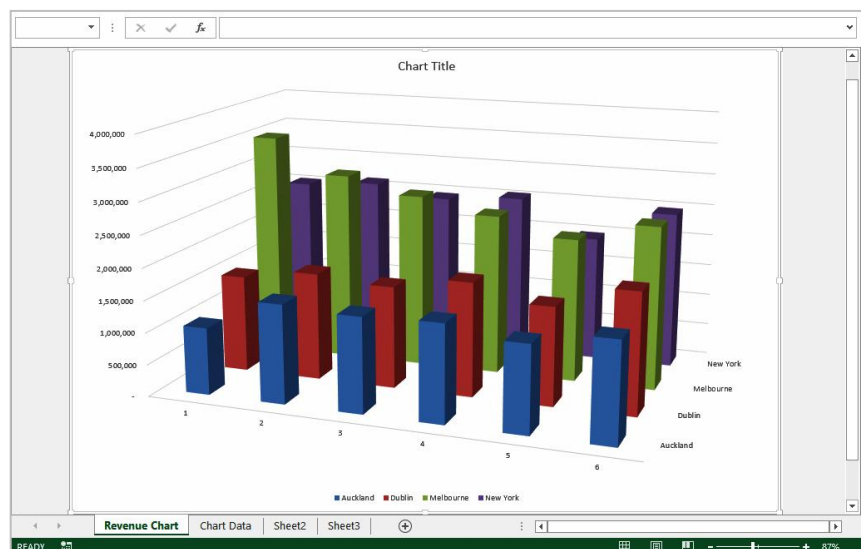


Chart Sheets

If you want to keep your chart separate from the data you can move the chart to its own sheet. Chart sheets make it easier and more convenient to work with your chart because you'll see more of it on the screen – since the data is not there!

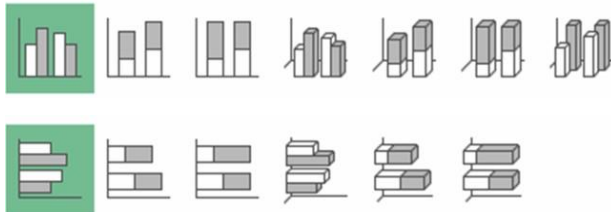


CHOOSING THE RIGHT CHART

A chart is far more effective at communicating results, outcomes or trends than a table of figures displaying the same information. Different **chart types** have been created to

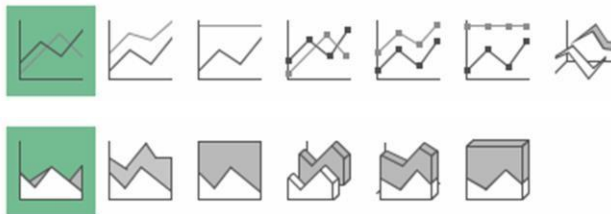
communicate different types of information. Some charts show simple relationships between values, while others are designed for quite technical purposes. Here is a summary of the use of different chart types.

Column, Bar



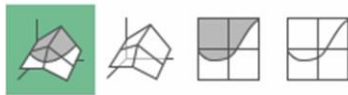
These chart types, either in 2D or 3D, are used to compare values across categories. For example, they could compare the populations of different countries.

Line, Area



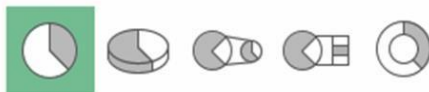
Lines in 2D or 3D are useful for showing trends such as sales or employment figures. An area chart is a line chart with the area below the line filled in.

Surface



The surface chart plots trends in two dimensions. You could use this to plot departmental sales figures over time. The chart then shows you the trends between departments, as well as the sales trends over time.

Pie, Doughnut



If you want to show proportion, such as the sales figures from different departments that make up a total, then the pie and doughnut charts are for you. The only variation between the doughnut chart and the pie chart is that the doughnut chart can display more than one series of values.

Stock



The stock chart type has been designed to show the stock figures for a day, and the trend over time. At its simplest, you can plot the high, low and close figures, and at its most complex, the volume, open, high, low, and close. It can be adapted to show the relationships between any five sets of values.

XY (Scatter)



Scatter diagrams are used to display the relationship between two variables. For example, you could research the age and price of a series of cars, and plot the values you find. You could also investigate the height and weight relationship of a group of people.

Radar



A radar diagram is designed to show the change in values from a central point. For example, it can be used to show mobile telephone coverage, including multiple networks and multiple measurements.

USING A RECOMMENDED CHART

If you are undecided about the best type of chart for the data you have selected to graph, then you may wish to use Excel's **Recommended Charts** feature. This feature analyses your

selected data and presents you with what it considers to be the best way to chart that data. Several alternatives are presented and you simply choose the one you like most.

Try This Yourself:

Open
File

Before starting this exercise you **MUST** open the file *E1317 Charting_1.xlsx*...

Click in cell **A3**, hold down **Shift**, then click in cell **G7** to select the range **A3:G7**

Click on the **INSERT** tab, then click on **Recommended Charts** in the **Charts** group

The *Insert Chart* dialog box will display with a number of recommended chart options...

Click on each of the alternatives in the left pane to see a preview of how the chart will appear in the right pane and spend a few moments reading the descriptions

Click on **Line chart** (the second alternative in the left pane), then click on **[OK]** to embed the chart in the worksheet

Point to the top border of the chart, then click and drag the chart immediately below the data

Click in cell **A1** to deselect the chart

	A	B	C	D	E	F	G	H
1	Alpheius Global Enterprises							
2								
3	Revenue	Jan	Feb	Mar	Apr	May	Jun	Total
4	<i>Auckland</i>	1,050,254	1,547,000	1,488,369	1,523,124	1,358,654	1,557,147	8,524,548
5	<i>Dublin</i>	1,524,294	1,685,548	1,599,854	1,789,552	1,542,963	1,896,159	10,038,370
6	<i>Melbourne</i>	3,521,487	2,985,448	2,741,221	2,521,447	2,255,665	2,558,666	16,583,934
7	<i>New York</i>	2,531,225	2,621,889	2,453,999	2,547,441	1,977,558	2,477,332	14,609,444
8								
9	Total Revenue	8,627,260	8,839,885	8,283,443	8,381,564	7,134,840	8,489,304	49,756,296

1

You can also use the *Quick Analysis* tool that appears at the bottom right corner of a selected range to create a quick chart. However, this method will not allow you to preview a wide variety of charts.

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For Your Reference...

To use the **Recommended Charts** feature:

1. Select the data to be charted
2. Click on the **INSERT** tab, then click on **Recommended Charts** in the **Charts** group
3. Click on the desired chart and click on **[OK]**

Handy to Know...

- When selecting data for a chart you should include headings (e.g. names of the month, regions, etc.) but not the totals derived from the data. In the example above the names of the months and the cities are selected but the total revenue and the regional totals are not.

CREATING A NEW CHART FROM SCRATCH

The easiest way to create a chart is by using the **Recommended Chart** feature. However, you can create a chart yourself from scratch using

INSERT tab of the ribbon. This may be faster if you have a specific style of chart in mind.

Try This Yourself:

Open
File

Before starting this exercise you **MUST** open the file E1317 Charting_1.xlsx...

Click in cell **A3**, hold down **Shift**, then click in cell **G7** to select the range **A3:G7**

Note that we have selected the data including headings but excluding the totalling...

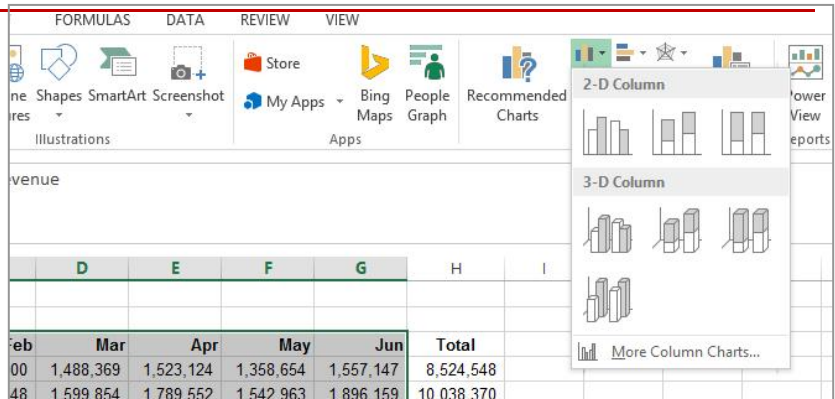
Click on the **INSERT** tab, then click on **Insert Column Chart** in the **Charts** group to see a gallery of **Column** chart types

Under **2-D Column**, click on **Clustered Column**

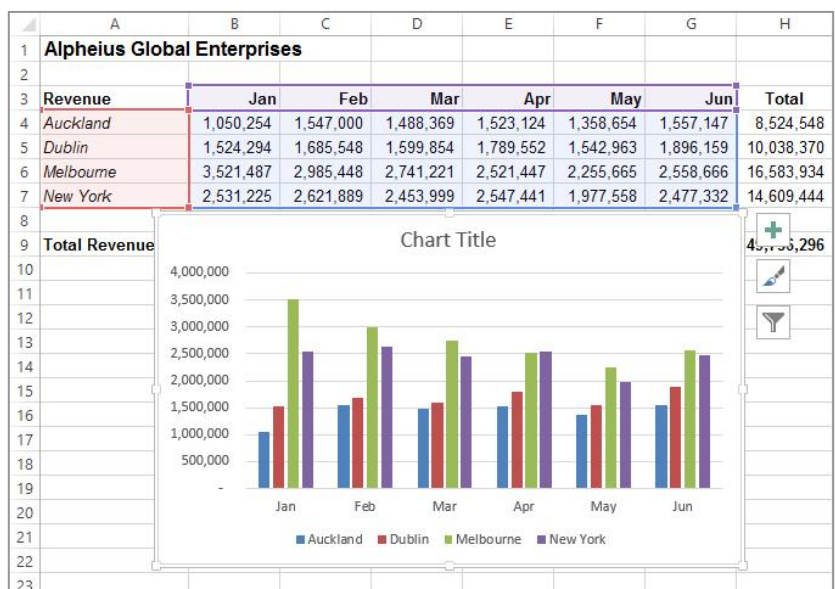
The chart will be embedded in the worksheet. The chart will be active (selected) and you'll see additional tabs on the ribbon for working with the chart...

Point to the chart, then click to select it and drag the chart so that it is underneath the data, as shown

Click in cell **A1** to deselect the chart



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For Your Reference...

To **create a chart** from **scratch**:

1. Select the range to chart
2. Click on the **INSERT** tab, then click on the appropriate **Insert** command in the **Charts** group
3. Click on the desired chart type

Handy to Know...

- When a chart gallery appears after you've used the **Insert chart** command, you can point over each image in the gallery to see a Live Preview of the chart in the worksheet. This will help you to select the right chart for your needs.

WORKING WITH AN EMBEDDED CHART

By default, new charts are placed in the active worksheet, which is usually the one that contains the data. Charts are placed over the top of the worksheet, **embedded as objects**. When you

want to work with a chart you must select it – this can be done by clicking on the chart. The chart itself is made up of many objects and these too can be selected by clicking on them.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file E1317 Charting_2.xlsx...

Point to the border of the chart and click once to select the chart as an object

The border of the chart will thicken to indicate that the chart is selected, the range of data used for the chart will be coloured, the ribbon will show chart-specific tabs and commands, and additional tools will appear to the right of the chart...

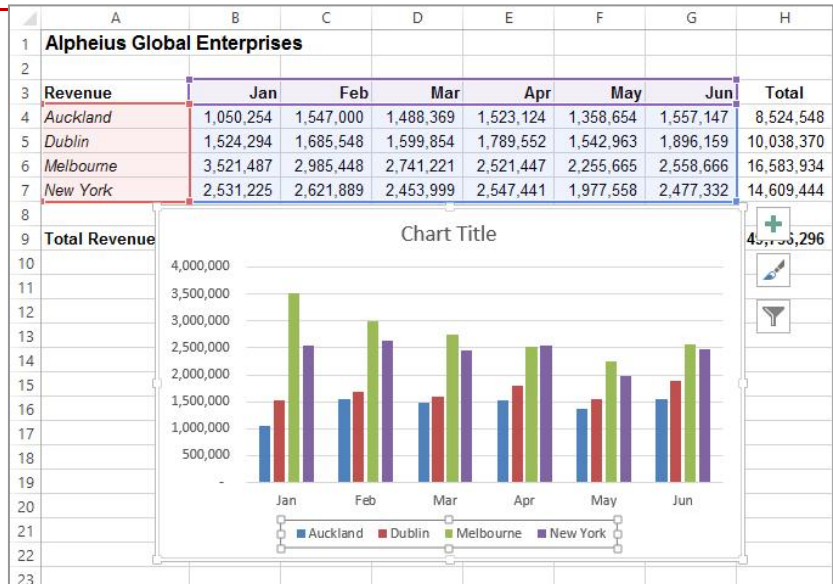
Click on the chart **legend** to make it the active object in the chart

Click on the **vertical axis** to make it the active object

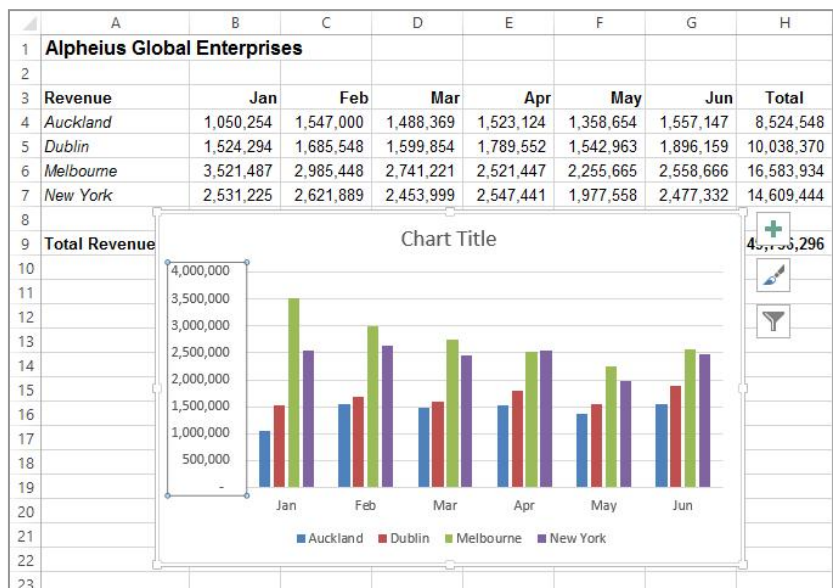
Click on the **horizontal axis** to make it the active object

Click on the border of the chart to make the overall chart the active object again – notice that the range of data has been coloured again

Click in cell **A1** to deselect the chart



2



3

For Your Reference...

To **select a chart** and its **objects**:

1. Click on the border of the chart to select an embedded chart
2. Click on the various objects of a chart to select them

Handy to Know...

- Once an object is selected, be it a chart, a legend on the chart, or the like, you can right-click on the object to see a shortcut menu specific to the selected object.

RESIZING A CHART

There are two main ways to resize a chart if you are not satisfied with its current size. A chart that has been selected can be resized by dragging one of the sizing handles around its border.

These handles appear with dots in them. You can also resize a chart using commands in the **Size** group on the **CHART TOOLS: FORMAT** tab that appears when the chart is selected.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file E1317 Charting_3.xlsx...

Click on the chart to select it

Point to the sizing handle on the left border of the chart until the mouse pointer changes to a double arrow

Hold down the left mouse button and drag left until the chart appears as shown

You can also resize a chart from the ribbon...

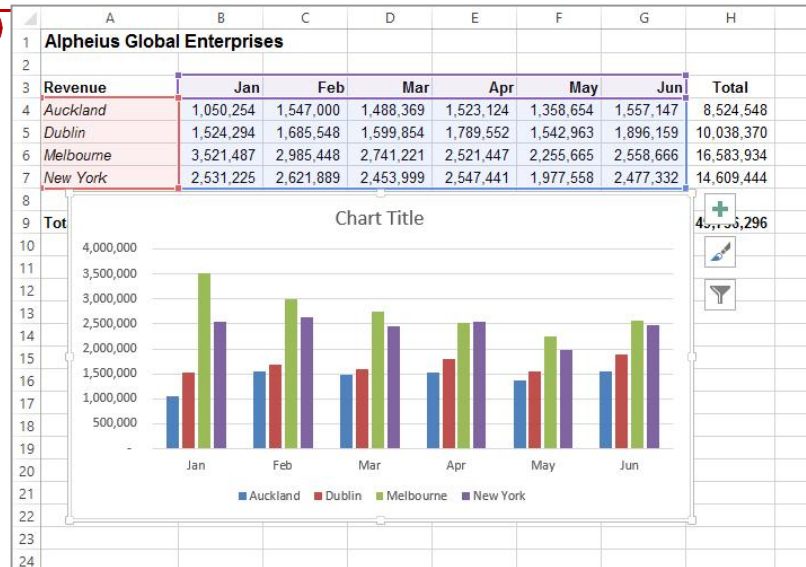
Click on the **CHART TOOLS: FORMAT** tab

Click on the up spinner arrow for **Shape Height** in the **Size** group until it shows **8.5cm**

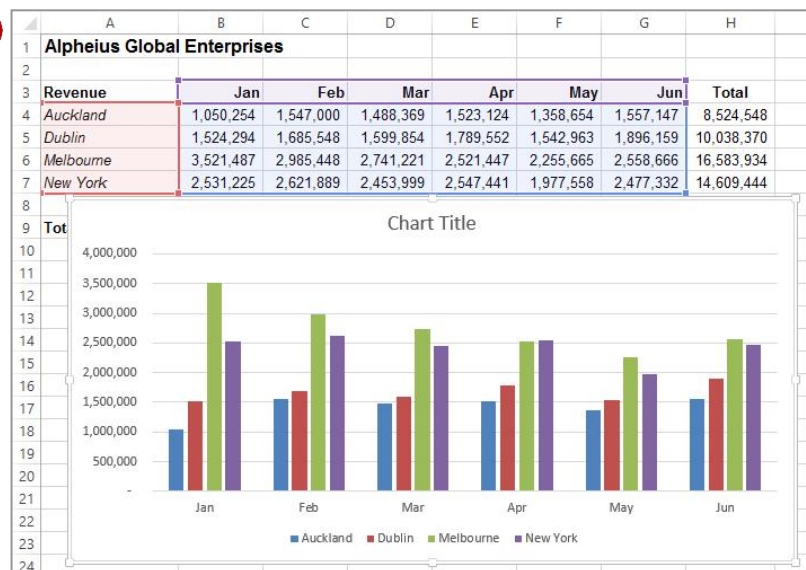
Click on the up spinner arrow for **Shape Width** in the **Size** group until it shows **17 cm**

Click in cell **A1** to deselect the chart

3



4



For Your Reference...

To **resize** a **chart**:

1. Select the chart, then click on and drag a sizing handle on the border of the chart, or Click on the **CHART TOOLS: FORMAT** tab, then click on up/down spinner arrows for **Shape Height** and **Shape Width** in the **Size** group

Handy to Know...

- If you wish to change the size of a chart quickly and easily, clicking on and dragging the resize handles is the best option whereas if you want to resize a chart to a specific size it is best to resize the chart using the tools in the **Size** group on the **CHART TOOLS: FORMAT** tab.

REPOSITIONING A CHART

It's unlikely that a chart embedded in the worksheet by Excel will be exactly where you would like it to be. You can easily relocate a chart to a more appropriate position by clicking

on and dragging the border of the chart to the desired location. The chart obviously must be selected before it can be dragged to a new position.

Try This Yourself:

Same File

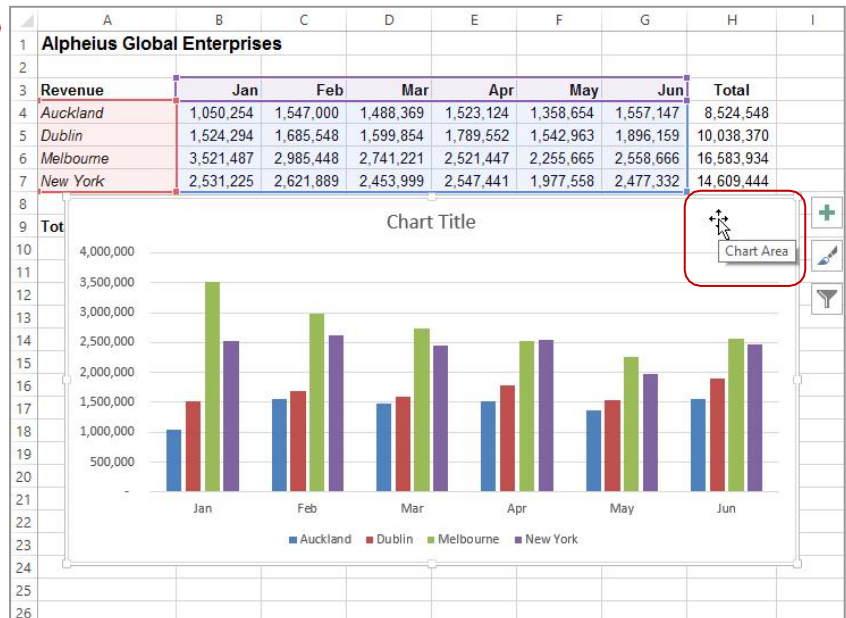
Continue using the previous file with this exercise, or open the file E1317 Charting_4.xlsx...

Click on the chart to select it

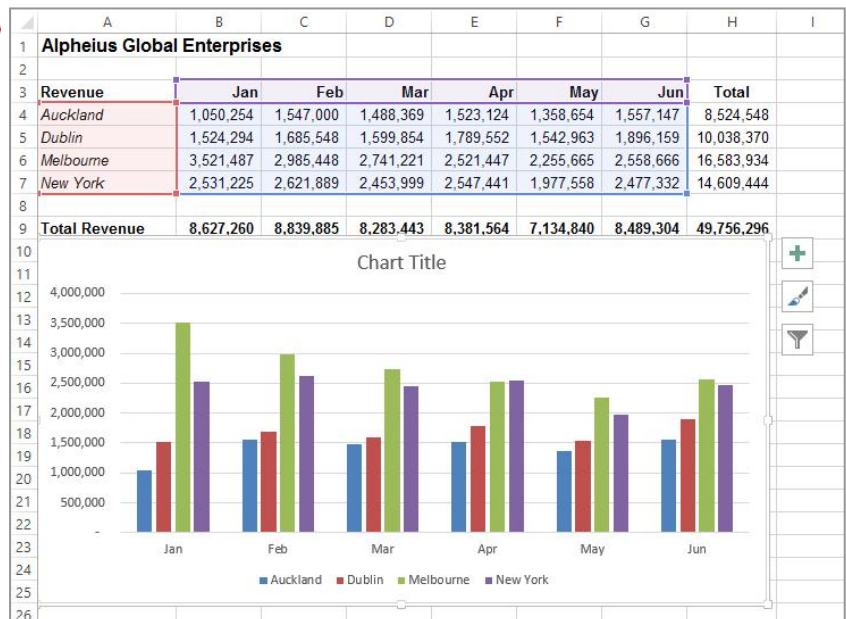
Point to the border of the chart until the mouse pointer changes to a four-headed arrow

Hold down the left mouse button and drag the chart below the data so that the **Total Revenue** row in the worksheet is visible
Click in cell **A1** to deselect the chart

2



3



For Your Reference...

To **move** a **chart**:

1. Click on the chart to select it
2. Move the mouse pointer to the border of the chart until the mouse pointer changes to a four-headed arrow
3. Drag the chart to a new location

Handy to Know...

- You can use the standard cut and paste commands to move a chart. Select the chart, click on the **HOME** tab, then click on **Cut** in the **Clipboard** group to copy it to the clipboard. Click in a new location and, on the **HOME** tab, click on **Paste** in the **Clipboard** group to paste the chart.

PRINTING AN EMBEDDED CHART

When you print a worksheet, Excel will print whatever is in or **embedded** in that worksheet(including charts). This makes it easy and convenient to print both the chart and its

underlying data. All you need to do is to position the chart in the appropriate location then access the print commands in the usual way.

Try This Yourself:

Open File

Before starting this exercise you **MUST** open the file *E1317 Charting_5.xlsx...*

Click on the **FILE** tab, then click on **Print** to see a preview of the data and the chart

Not all of the chart or data may be visible so we'll change the orientation to landscape...


Click on **Portrait Orientation** in **Settings** then select **Landscape Orientation**

Click on **[Print]** to print the chart

If you don't have a printer connected or you don't wish to print, click on the Back arrow to display the workbook again


1

Print




Print

Copies: 1




Printer

HP Universal Printing PCL 6
Toner Low




Settings

Printer Properties




Print Active Sheets

Only print the active sheets




Pages:

to




Print One Sided

Only print on one side of th...



Collated

1,2,3 1,2,3 1,2,3



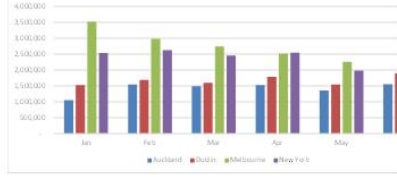
Portrait Orientation

A4
21 cm x 29.7 cm

Alpheus Global Enterprises


Revenue	Jan	Feb	Mar	Apr	May	Jun	Total
Auckland	1,080,254	1,547,000	1,488,389	1,523,124	1,388,854	1,587,147	
Dublin	1,524,294	1,686,648	1,599,854	1,789,552	1,542,963	1,896,159	
Melbourne	3,521,487	2,956,648	2,741,221	2,921,447	2,256,655	2,856,895	
New York	2,531,225	2,621,839	2,453,999	2,547,441	1,977,558	2,477,332	
Total Revenue	8,627,260	8,808,886	8,283,445	8,381,664	7,104,840	8,468,004	

Chart Title




2

Print




Print

Copies: 1




Printer

HP Universal Printing PCL 6
Toner Low




Settings

Printer Properties




Print Active Sheets

Only print the active sheets




Pages:

to




Print One Sided

Only print on one side of th...



Collated

1,2,3 1,2,3 1,2,3



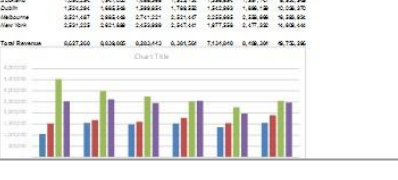
Landscape Orientation

A4
21 cm x 29.7 cm

Alpheus Global Enterprises

Revenue	Jan	Feb	Mar	Apr	May	Jun	Total
Auckland	1,080,254	1,547,000	1,488,389	1,523,124	1,388,854	1,587,147	6,594,568
Dublin	1,524,294	1,686,648	1,599,854	1,789,552	1,542,963	1,896,159	8,939,470
Melbourne	3,521,487	2,956,648	2,741,221	2,921,447	2,256,655	2,856,895	16,254,558
New York	2,531,225	2,621,839	2,453,999	2,547,441	1,977,558	2,477,332	12,608,394
Total Revenue	8,627,260	8,808,886	8,283,445	8,381,664	7,104,840	8,468,004	46,732,336

Chart Title



For Your Reference...

To **print** an **embedded chart**:

1. Click on the **FILE** tab, then click on **Print**
2. Click on **[Print]**

Handy to Know...

- If you only want to print the chart and not the data, click on the chart to select it, click on the **FILE** tab, then click on **Print**. You will notice that only the chart will appear in the preview.

CREATING A CHART SHEET

Charts can either be stored in a worksheet or in a separate sheet of their own known as a **chart sheet**. Chart sheets separate the chart from the underlying data and are useful especially if you

are interested in printing the chart on its own page. Charts can be shifted back and forth between a worksheet and a chart sheet.

Try This Yourself:

Same
File

Continue using the previous file with this exercise, or open the file *E1317 Charting_6.xlsx...*

Click on the chart to select it and display the **CHART TOOLS:DESIGN** and **CHART TOOLS:FORMAT** tabs

Click on the **CHART TOOLS: DESIGN** tab, then click on **Move Chart** in the **Location** group to display the **Move Chart** dialog box

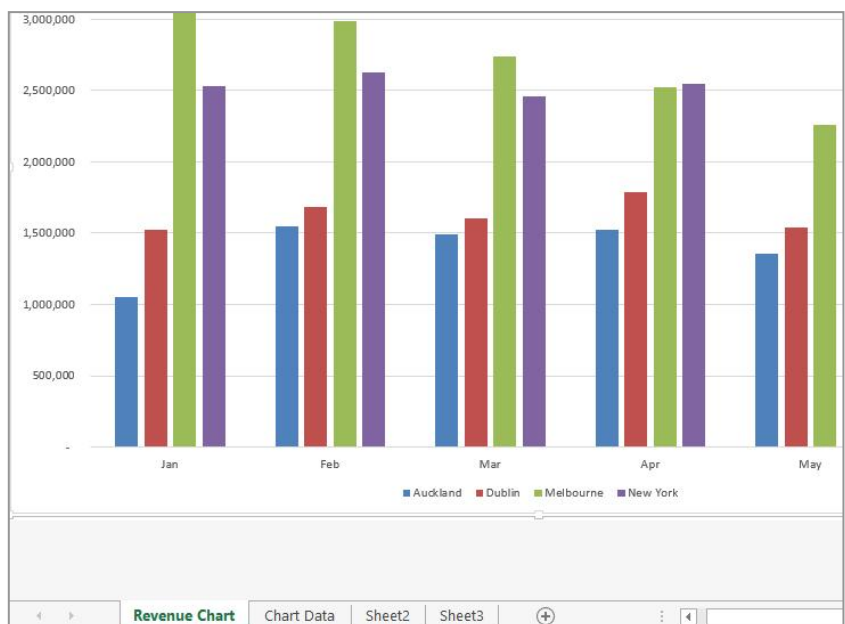
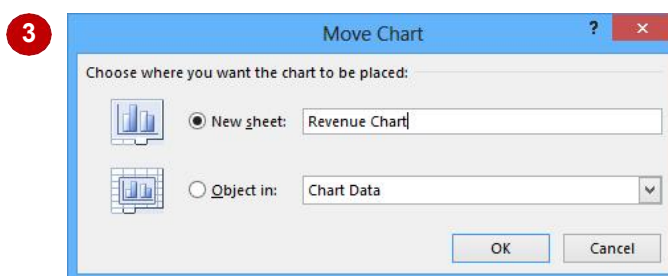
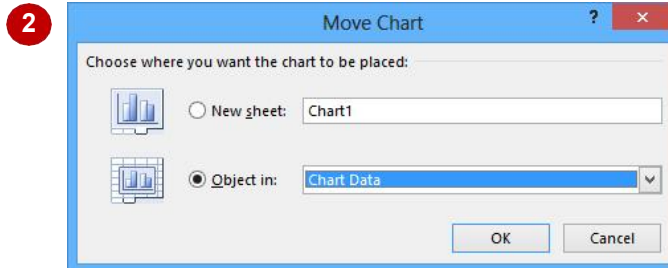
Click on **New Sheet**, then type **Revenue Chart**

This will become the sheet name for the chart...

Click on **[OK]** to move the embedded chart to its own sheet

Click on the **Chart Data** worksheet tab to see the data again

Notice that the chart is no longer embedded on this worksheet



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For Your Reference...

To **create** a **chart sheet**:

1. Click on the **CHART TOOLS: DESIGN** tab, then click on **Move Chart** in the **Location** group
2. Click on **New Sheet**, type a name for the sheet and click on **[OK]**

Handy to Know...

- Keeping charts on their own sheets makes them easier to work with as they do not obstruct the data.

CHANGING THE CHART TYPE

When you create a chart, you may not always achieve the result that you desire. Fortunately, the process for changing a chart type is quite simple. You just need to have an understanding

of what each chart type is designed for and to select the format that best suits your purpose. Just be aware that some chart types are designed for specialised applications.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file E1317 Charting_7.xlsx...

Click on the **Revenue Chart** worksheet tab to see the chart, then click anywhere on the chart to select it and display the chart commands on the ribbon

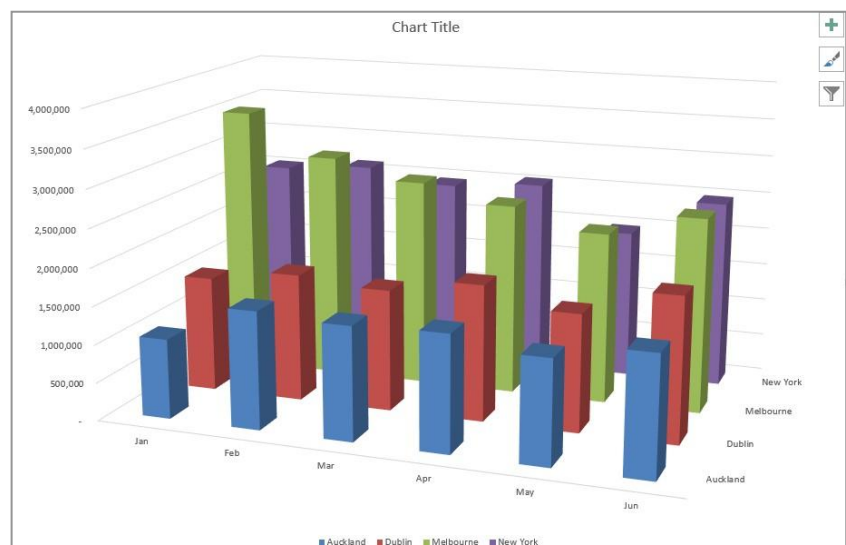
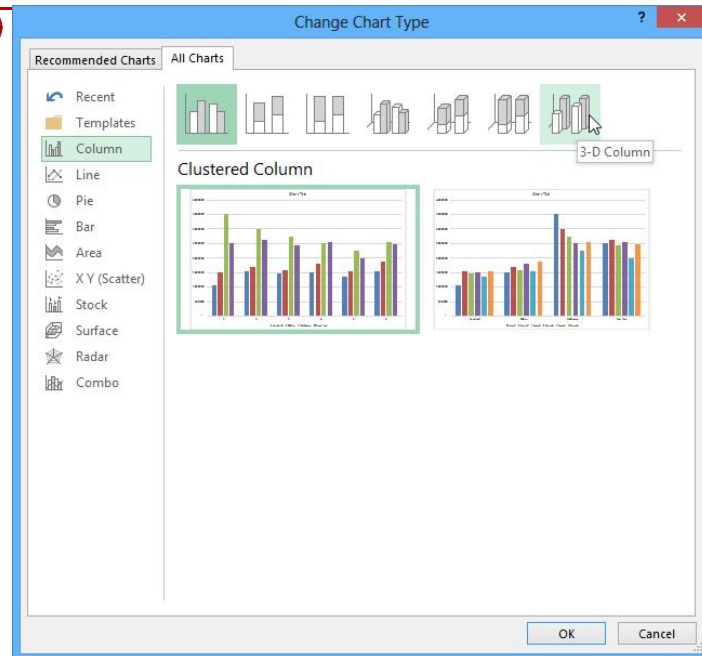
Click on the **CHART TOOLS: DESIGN** tab, then click on **Change Chart Type** in the **Type** group to display the **Change Chart Type** dialog box

Click on **3-D Column**, as shown

Click on **[OK]** to apply the change to the chart

Click on the **Chart Data** worksheet tab to return to the worksheet

3



4

For Your Reference...

To **change** the **chart type**:

1. Ensure the chart or chart sheet is selected
2. Click on the **CHART TOOLS: DESIGN** tab, then click on **Change Chart Type** in the **Type** group
3. Click on the desired chart and click on **[OK]**

Handy to Know...

- You can use **Change Chart Type** in the **Type** group on the **CHART TOOLS: DESIGN** tab for either embedded charts or charts that have their own worksheet tabs.

CHANGING THE CHART LAYOUT

Excel has a gallery of **chart layouts** that can be applied to an existing and selected chart that is either in its own worksheet or embedded into the data worksheet. **Chart layouts** are the way

elements of the chart are placed within the chart. Different layout options can therefore change the appearance of your chart and its readability.

Try This Yourself:

Same
File

Continue using the previous file with this exercise, or open the file *E1317 Charting_8.xlsx...*

Click on the **Revenue Chart** worksheet tab to see the chart, then click anywhere on the chart to select it and see the **CHART TOOLS: DESIGN** and **CHART TOOLS: FORMAT** tabs

Click on the **CHART TOOLS: DESIGN** tab, then click on **Quick Layout** in the **Chart Layouts** group to display a gallery of layout options

Click on **Layout 3** to apply this chart layout to the chart

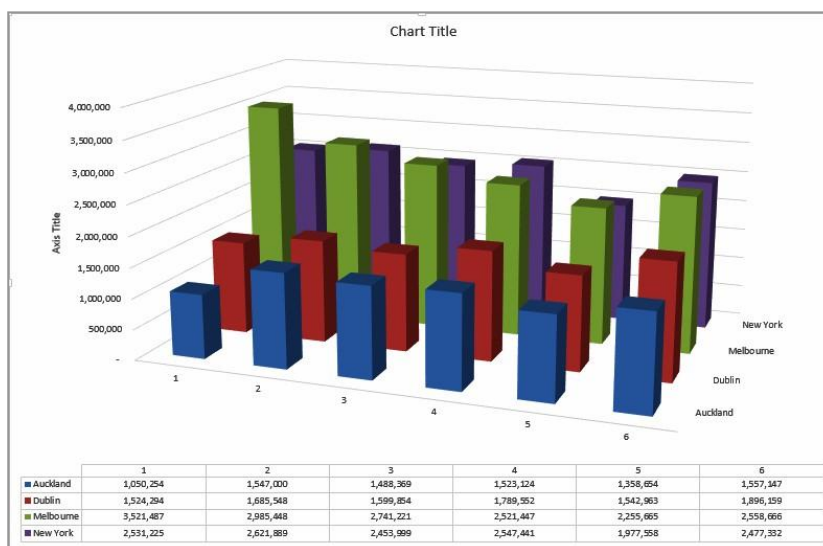
Repeat steps 2 and 3 to select other **chart layouts** and see how they appear when applied to the chart

Click on **Quick Layout** in the **Chart Layouts** group and click on **Layout 5**

Click on the **Chart Data** worksheet tab to display this worksheet



2



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For Your Reference...

To **change** the **chart layout**:

1. Ensure the chart or chart sheet is selected
2. Click on the **CHART TOOLS: DESIGN** tab, then click on **Quick Layout** in the **Chart Layouts** group
3. Select the desired layout

Handy to Know...

- **Chart layouts** are predefined themes created by Microsoft. Even if you choose one of these layouts you can still make your own modifications to the way the elements and objects are positioned and how they appear.

CHANGING THE CHART STYLE

The style of a chart refers to its colour scheme and overall appearance and can impact the clarity of the content of the chart. Choosing a predefined chart style can save valuable time

and effort. Excel also makes it easy to change chart styles if you decide the style you have chosen is not appropriate.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file E1317 Charting_9.xlsx...

Click on the **Revenue Chart** worksheet tab to see the chart, then click anywhere on the chart to select it

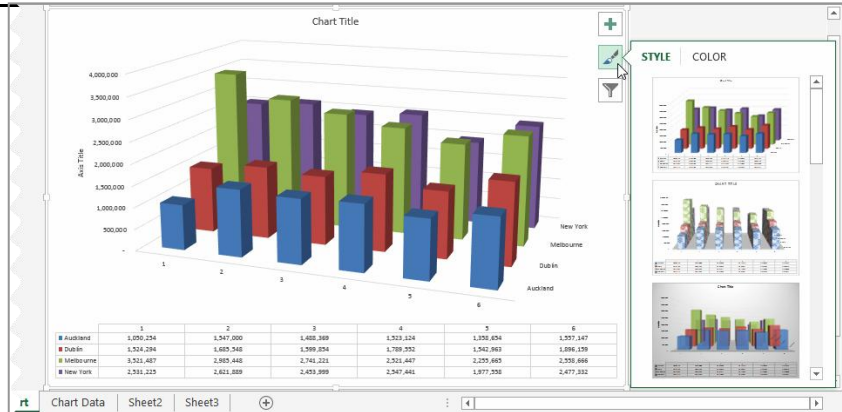
Click on the **Chart Styles** tool to the right of the chart to see a gallery of style options, as shown

Scroll through the gallery and point to each style to see how your chart will look in Live Preview

Scroll to and click on **Style 9**

Click on the **Chart Styles** tool to the right of the chart to close the gallery

Click on the **Chart Data** worksheet tab



2



4

For Your Reference...

To **change** the **chart style**:

1. Ensure the chart or chart sheet is selected
2. Click on the **Chart Styles** tool to the right of the chart
3. Click on the desired style

Handy to Know...

- Instead of using the **Chart Styles** tool to the right of the chart, you can also choose chart styles from the **CHART TOOLS: DESIGN** tab on the ribbon when a chart is selected.

PRINTING A CHART SHEET

You can print an embedded chart simply by printing the worksheet as if it is a standard worksheet. You can also print a chart sheet in exactly the same way. To print a chart sheet, the

simply ensure that the chart sheet is active, then click on the **FILE** tab, click on **Print**, apply the printsettings as desired and click on **[Print]**.

Try This Yourself:

Same
File

Continue using the previous file with this exercise, or open the file E1317 Charting_10.xlsx...

Click on the **Revenue Chart** worksheet tab

Click on the **Chart Title** textbox, select the text, then type **Revenue Chart** to change the title

Repeat step 2 to change the **Axis Title** to **Euros**

Click on the **FILE** tab, then click on **Print** to see the print options and a preview of the chart

No further adjustment is required here so we can go ahead and print it...

If you wish to print the chart, click on **[Print]**

If you don't have a printer connected or wish to save paper, click on the **Back** arrow to return to the worksheet...

Click on the **Chart Data** worksheet tab



2



4

For Your Reference...

To **print a chart sheet**:

1. Click on the chart sheet tab
2. Click on the **FILE** tab, then click on **Print**
3. Click on **[Print]**

Handy to Know...

- When you preview a chart prior to printing, it may not appear as clearly as you would like. This is due to the screen resolution, not the chart itself. The printed version of the chart will appear clearer than the preview.

EMBEDDING A CHART INTO A WORKSHEET

Charts can either be presented in their own sheets or they can be embedded into a worksheet that contains data. In fact, you can move a chart back and forth between its own

sheet and a worksheet as often as you wish without impacting at all on the chart. Sometimes it is easier to work with a chart in its own sheet, but it may be necessary to print the chart with its data.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file E1317 Charting_11.xlsx...

Click on the **Revenue Chart** worksheet tab

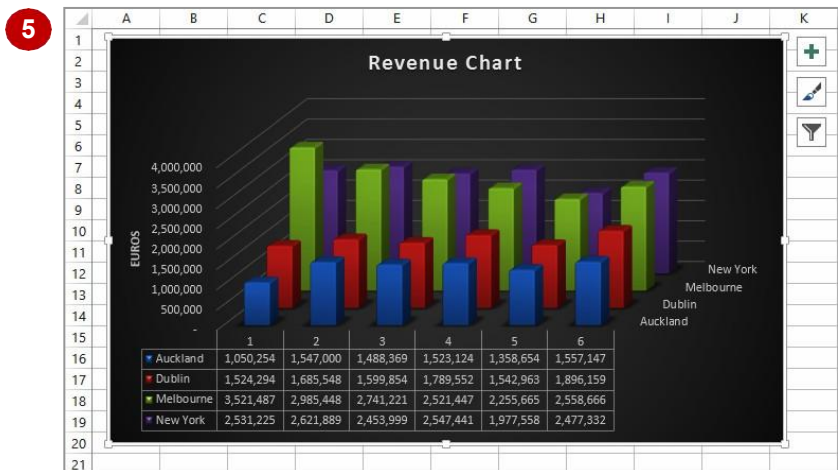
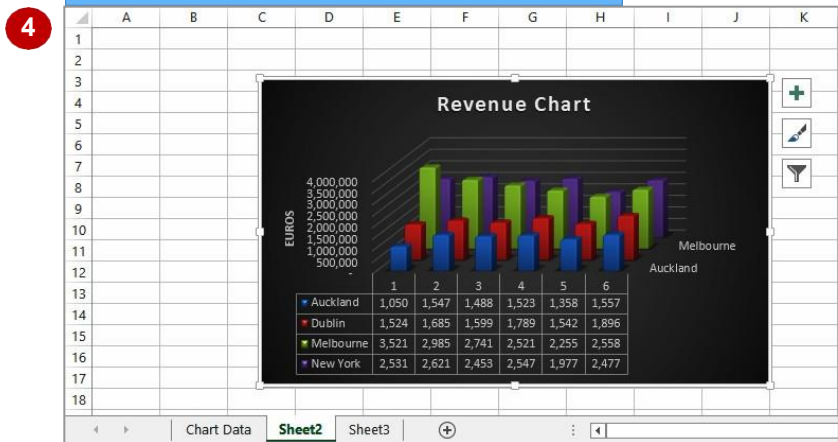
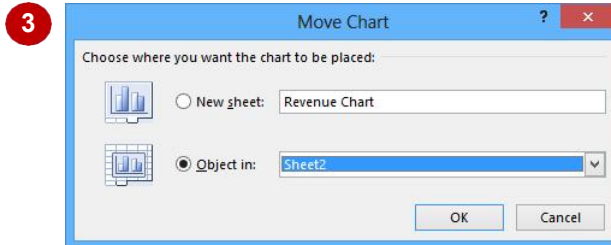
Click on the **CHART TOOLS: DESIGN** tab, then click on the **Move Chart** tool in the **Location** group to display the **Move Chart** dialog box

Click on **Object in**, then click on the drop arrow and click on **Sheet 2**

Click on **[OK]** to move the chart to the worksheet

Reposition the chart by dragging it to the top left of the sheet, then drag the resizing handles to resize it as shown

Click on the **Chart Data** worksheet tab



For Your Reference...

To **embed** a **chart** in a **worksheet**:

1. Click on the **CHART TOOLS: DESIGN** tab, then click on **Move Chart** in the **Location** group
2. Click on the drop arrow, select the sheet to embed it into, then click on **[OK]**

Handy to Know...

- Embedding is normally only done when it is necessary to print the worksheet and the data together.

DELETING A CHART

If you no longer require a chart you can easily delete it. With embedded charts you must first select the chart in the worksheet and then press the **Del** key to delete the chart. With charts in

chart sheets you can delete the sheet by right clicking on the chart sheet tab and choosing the deletion option.

Try This Yourself:

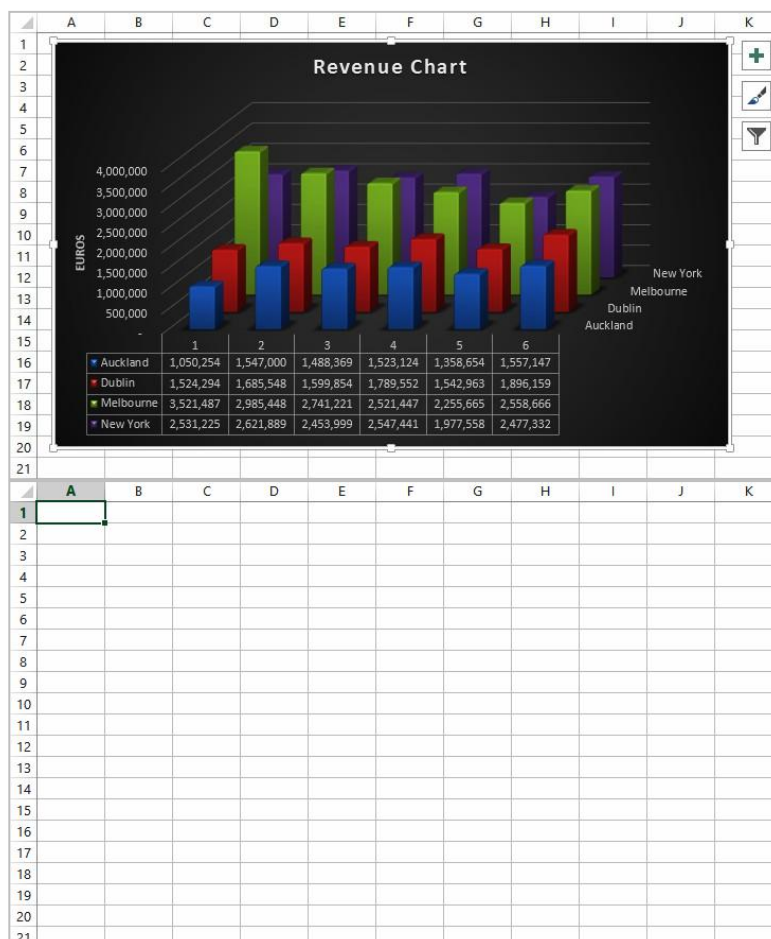
Same File

Continue using the previous file with this exercise, or open the file E1317 Charting_12.xlsx...

Click on **Sheet 2** to see the chart in the worksheet, then click on the chart to select it

Press **Del** to delete the chart

1



2

For Your Reference...

To **delete** a **chart**:

1. Click on the worksheet to see the chart, then click on the chart to select it
2. Press **Del**

Handy to Know...

- Because it is so easy to delete a chart object it is also easy to delete it by accident! Remember, you can use the **Undo** feature in Excel to restore accidental deletions.

