

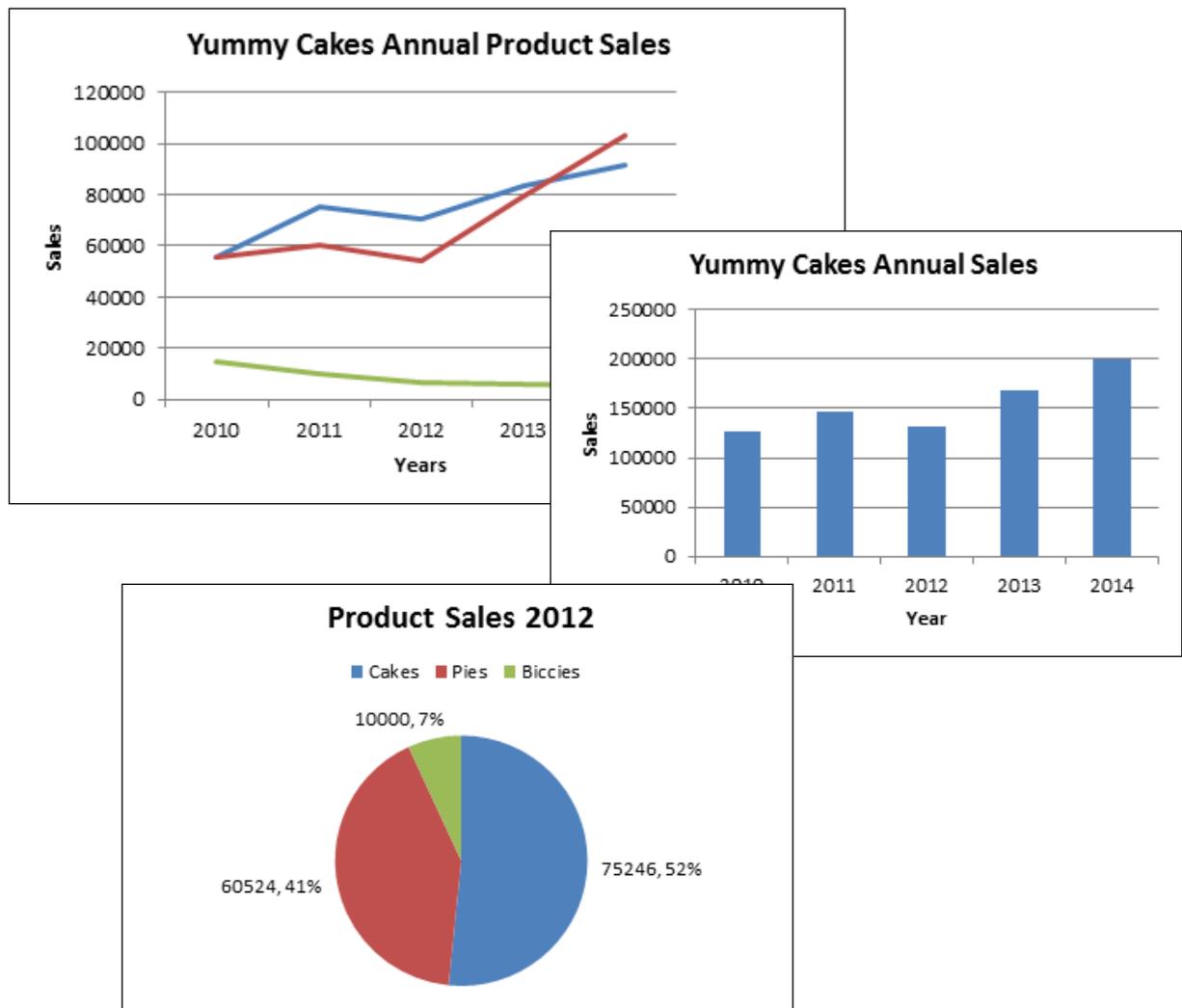
Creating Charts

Creating **Charts** can help you to present and analyse your data more effectively.

Objectives

In this section you will:

- ◆ Create a Column Chart
- ◆ Create a Pie Chart
- ◆ Apply Titles and Headings
- ◆ Apply Legends and Data Labels
- ◆ Move and Resize a Chart
- ◆ Delete a Chart
- ◆ Print a Chart
- ◆ Change the Chart Type



Why use a Chart?

A **Chart** is a picture of data. Using an appropriate style of **Chart** can improve the value of data by indicating trends and comparisons. Most businesses want to see a **Chart** of sales that shows sales are going up!

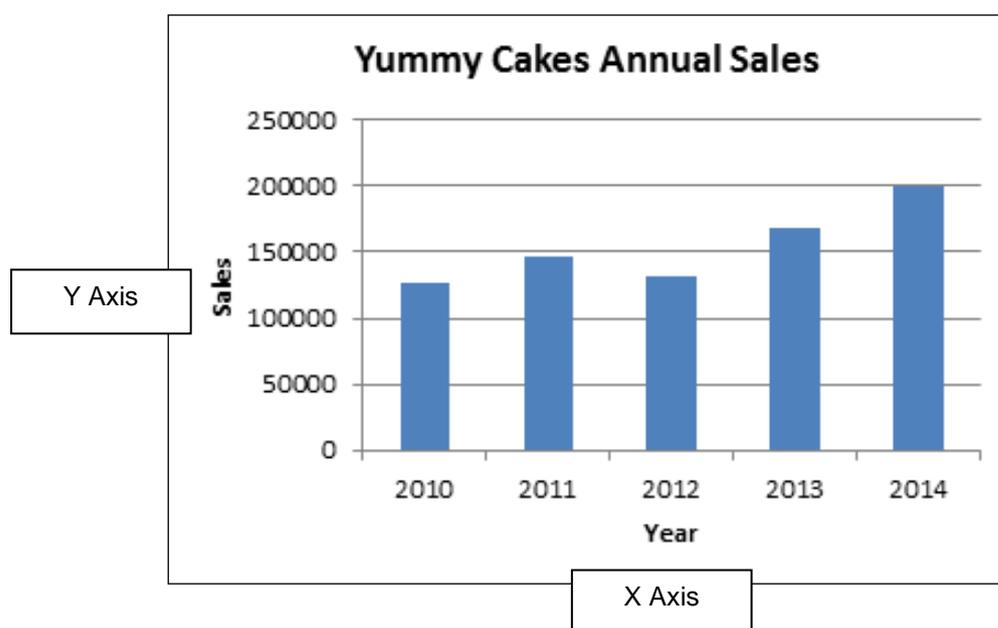
Data is essential to a **Chart**. The simplest **Chart** is a basic column **Chart**, which indicates the measurements of several items.

For example: The total sales for a store of the past five years is tabulated.

Year	2010	2011	2012	2013	2014
Sales	125689	145268	132456	168759	198754

The values in this table can be plotted so that the Sales for each year is clearly displayed. The upward trend in sales is much clearer in a **Chart**.

A **Chart** is created using an **X-axis** and a **Y-axis**. The **X-axis** is the horizontal axis; in this **Chart** the **Years** are the categories on the **X-axis**. It is standard to use the time value if available. In this example it is years, but it could be months, weeks, days, minutes etc. The **Y-axis** is used for the measurement of **Sales**.



1. From the **Chart** above:

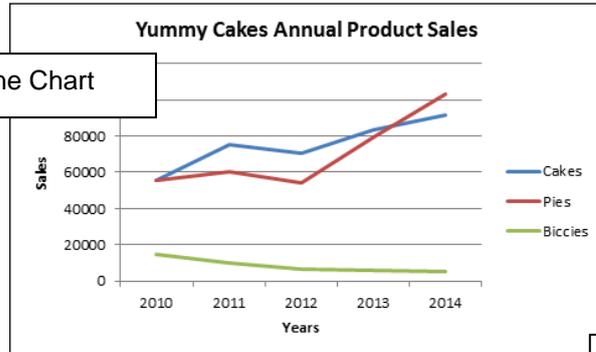
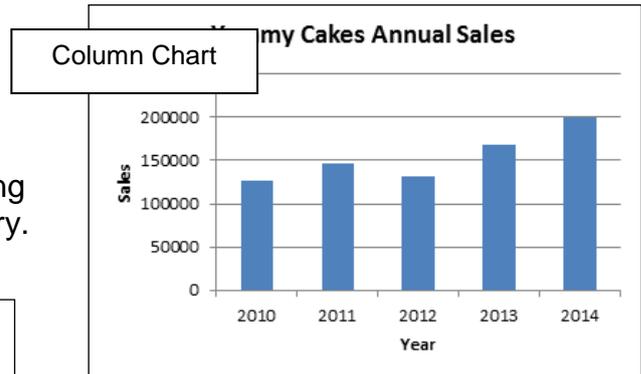
- Which year has the highest sales?
- Which year has the lowest sales?
- Which year has sales just below \$150,000?

Chart Types

There are various **Chart** types which can be used to create **Charts**. The various types give a different view of the data. Below are some of the commonly used types.

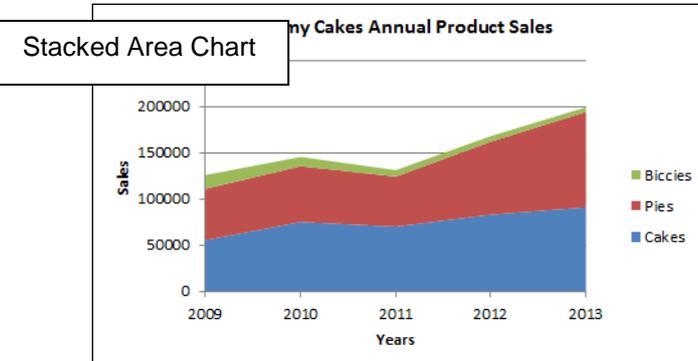
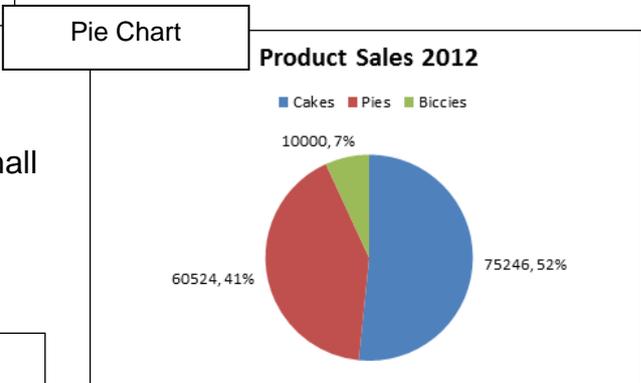
1. Open the file **Chart Types** from the folder **Excel Spreadsheets 2013**
2. Click on each worksheet to get an example of some of the **Chart** types available. The **Charts** displayed are all based on the same set of data.

The **Column Chart** is useful for displaying the value of an item or items in a category.



The **Line Chart** is useful for displaying the relationship between a few items, and is used to indicate trends in values.

The **Pie Chart** is useful to compare a small number of values relative to the whole.



The **Stacked Area Chart** stacks values on top of one another. One series is entered, and then the next series is added to that, and so on. The top boundary is equal to the total of each of the categories.

3. Close the **Chart types** file

Creating a Chart

The **INSERT** tab contains several **Chart** formats which enables us to create fantastic looking **Charts** quickly and easily. We will use the data from **Yummy cakes** to create some **Charts**. The file contains a summary of sales for five years. It also contains data of sales of each product type for those five years.

1. Open the file **Yummy Cakes Sales Charts** in folder **Excel Spreadsheets 2013**
2. Check that the **Column Chart** worksheet is displayed

The worksheet should contain the data as shown here. When creating a **Chart** the data and its headings should be highlighted. The heading here is **Sales**.

3. Select from **A3** to **B8**

The next step is to choose the **Chart Type**. You will create a simple column **Chart**.

4. Click on the **INSERT** tab to display the **Chart** selection.
5. Click on the **Recommended Charts** button
6. Click on the **Column** option and **OK**

The screenshot shows the Excel interface with the 'Insert' tab selected. The 'Recommended Charts' task pane is open, showing a preview of a clustered column chart. The data source is the 'Sales' column in the 'Yummy Cakes Annual Sales' worksheet, which contains sales data for the years 2010 to 2014. A callout box points to the 'Column' option in the task pane.

Year	Sales
2010	125000
2011	145000
2012	132000
2013	168000
2014	198000

The **Chart** will appear with a clear border. Notice also that the **DESIGN** tab is displayed automatically. The **Chart Tools** tab group with the **DESIGN** and **FORMAT** tabs activated. These additional tabs allow you to format and make changes to the selected **Chart**.

Switch Row and Column Data

Excel automatically puts column data on the **Y axis** and row data on the **X axis**. So for the Sales table each row represents a year, so years are placed along the x-axis.

7. Click on the **Switch Row/Column** button to swap the data around
8. Click on the **Switch Row/Column** button again to swap it back so the time data (years) appears on the X axis.

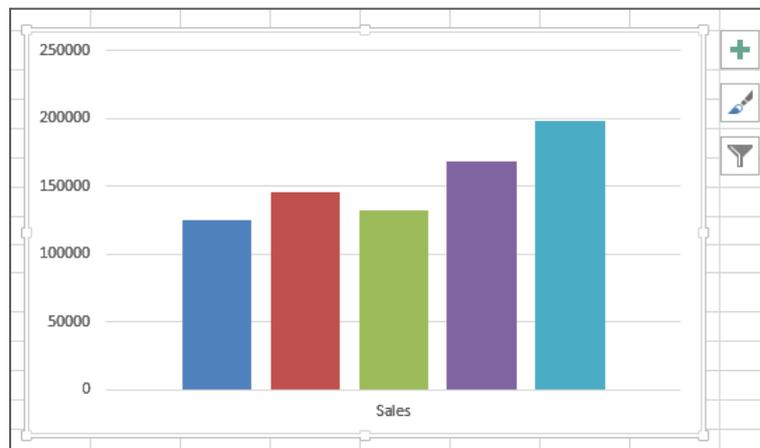
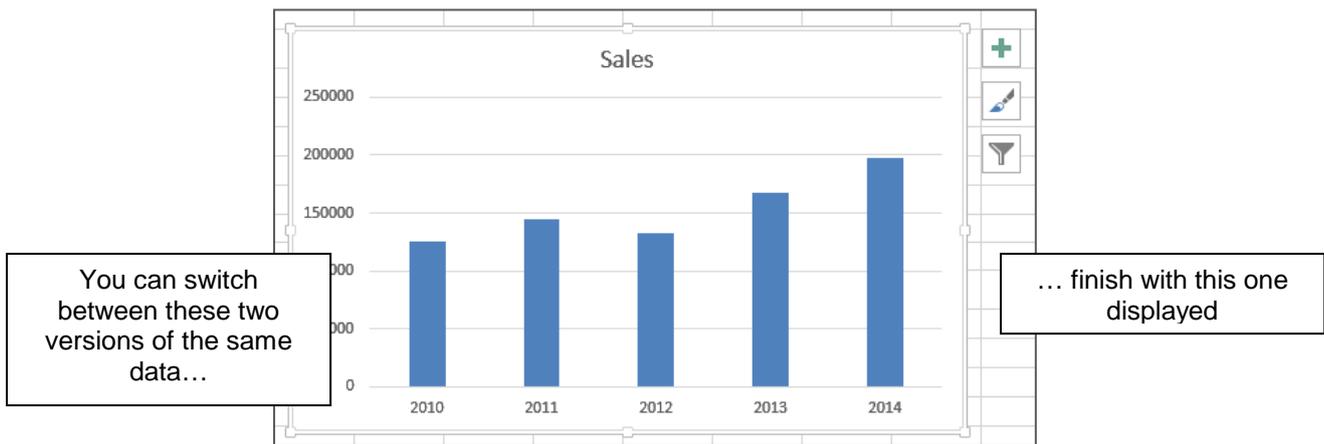


Chart Layout

The **Chart Tools: Design** tab consists of several buttons that allow us to apply various formatting and labels to the Chart.

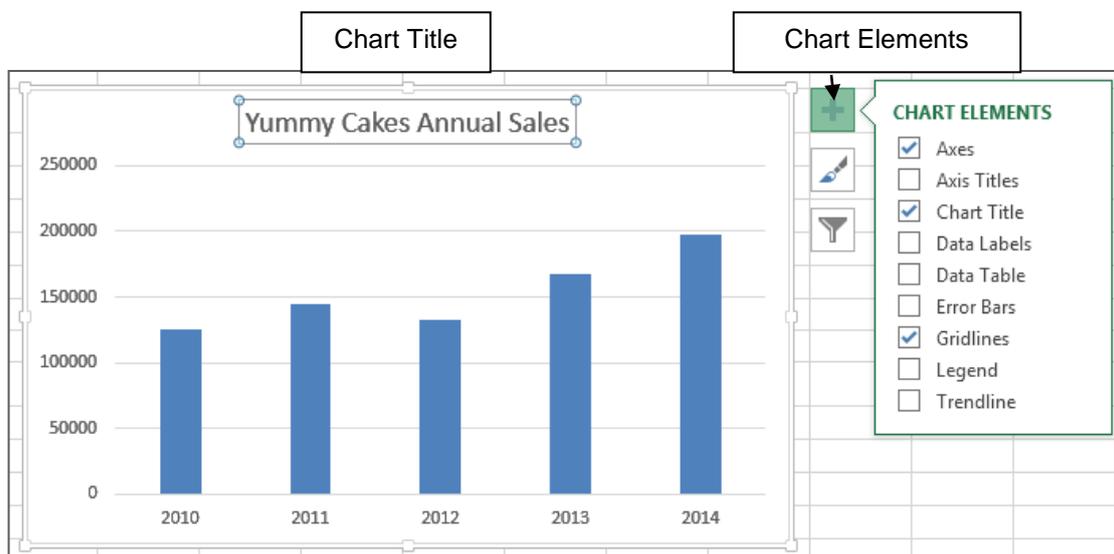


There are also buttons shown to the right of the chart object that are also used to modify the layout.

Chart Title

The **Chart Title** button is used to enter a title for the Chart. It is important to put titles on a Chart so the reader can see what the chart is about.

1. Click on the **Chart Title** textbox so the handles are displayed
2. Type **Yummy Cakes Annual Sales**
3. Press **[Enter]** to set the text– the text will be automatically entered into the box



4. Click off the chart on a blank part of the worksheet
5. Click back on the chart and on the **Chart Elements** button next to chart

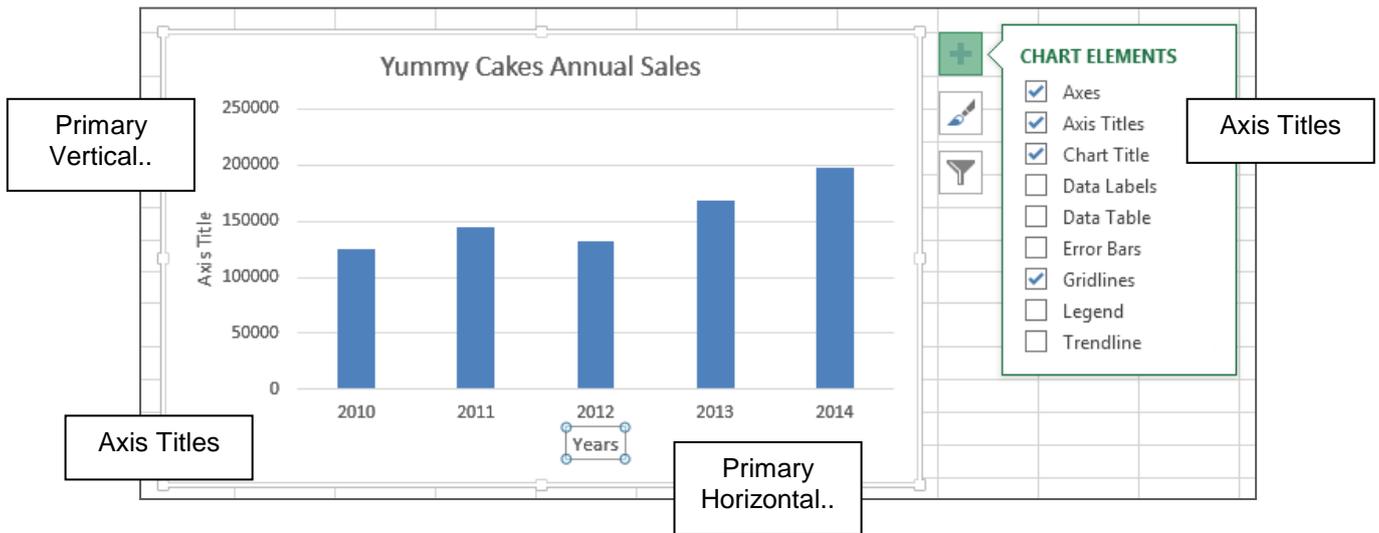
The various elements in the **Chart Layout** are listed – they can be added or removed here.

Axis Titles

Axis Titles are important so the reader is clear on the values being charted.

6. Click on the **Chart** border so the chart object is selected
7. Click on the **Chart Elements** button to display the list
8. Click on **Axis Titles**

A text box for each of the Y axis and the X axis are added.



9. Click on the horizontal **Axis Title** – the X axis – so it is selected
10. Type **Years** then press [Enter]
11. Click on the vertical **Axis Title** – the Y axis – so it is selected
12. Type **Sales** then press [Enter]

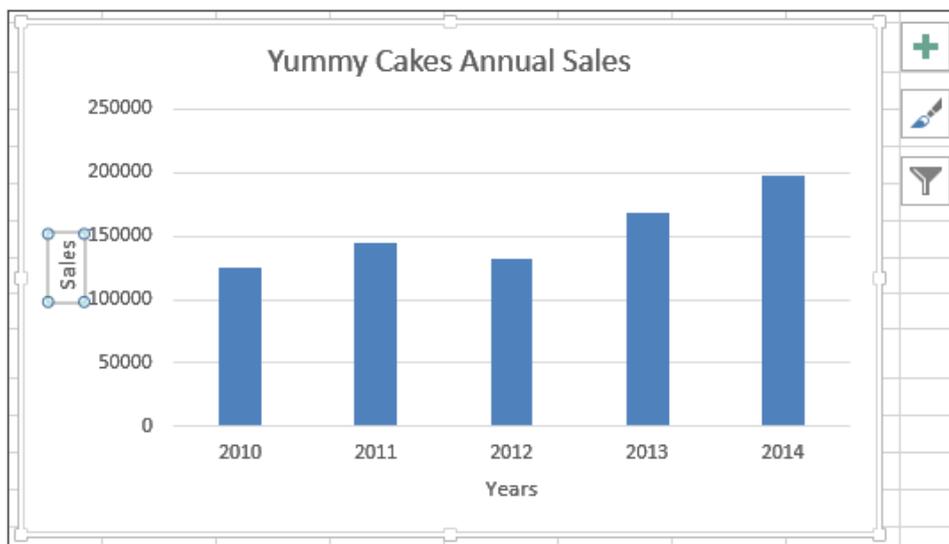
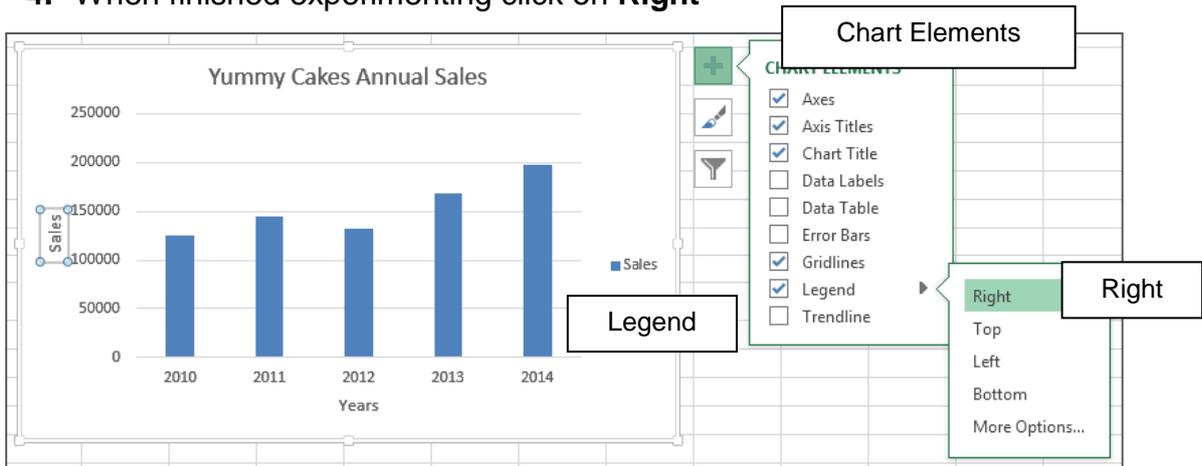


Chart Legend

The Chart Legend is added by default. You can turn it on and off and change its location.

1. With the chart selected click on the **Chart Elements** button
2. Hover over the **Legend** option and click on the arrow to display the submenu
3. Click on each of the options and view the effect
4. When finished experimenting click on **Right**

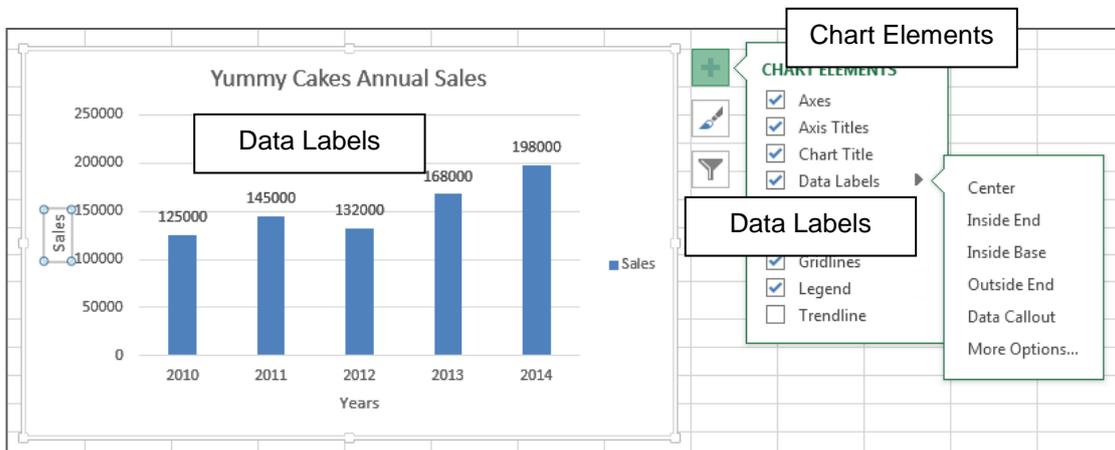


Data Labels

1. With the chart selected click on the **Chart Elements** button
2. Hover over the **Data Labels** option and click on the arrow that appears to display the submenu

Data values, percentages or labels can be added to a chart to improve the information given out. This is particularly useful when using a Pie Chart.

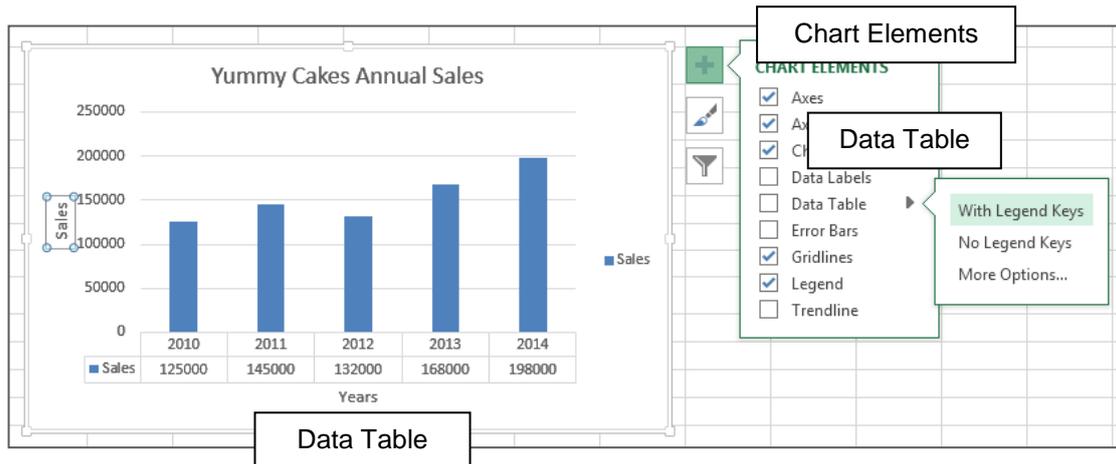
3. Click on each of the options and view the effect
4. When finished viewing the effect of each option, clear the tick so they are not displayed



The Data Table

The **Data Table** is another way of stating the data values on the chart.

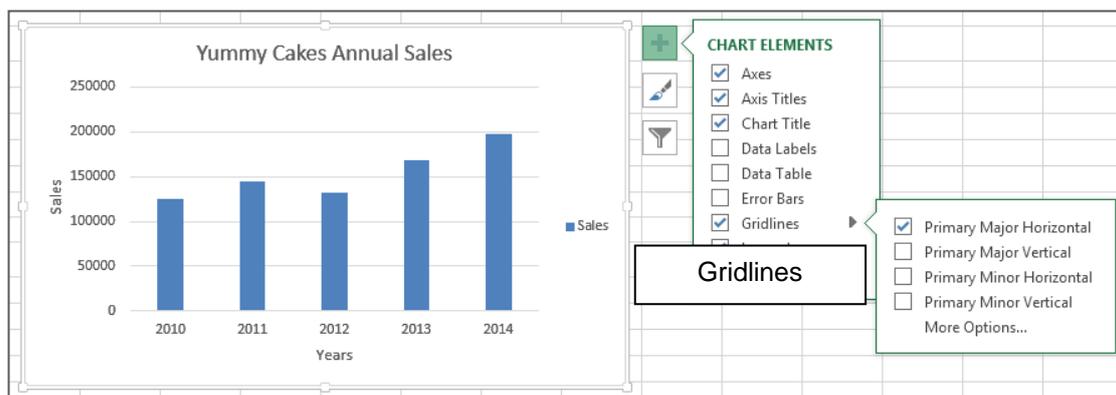
1. Click on the **Chart Elements** button
2. Click on the **Data Table** button
3. Click on **With Legend Keys** option to view the effect
4. When finished viewing the effect of each option, clear the tick so they are not displayed



Gridlines

The **Gridlines** button allows you to make selections about which gridlines are shown. The major gridlines for the Y-axis are automatically shown as the default setting.

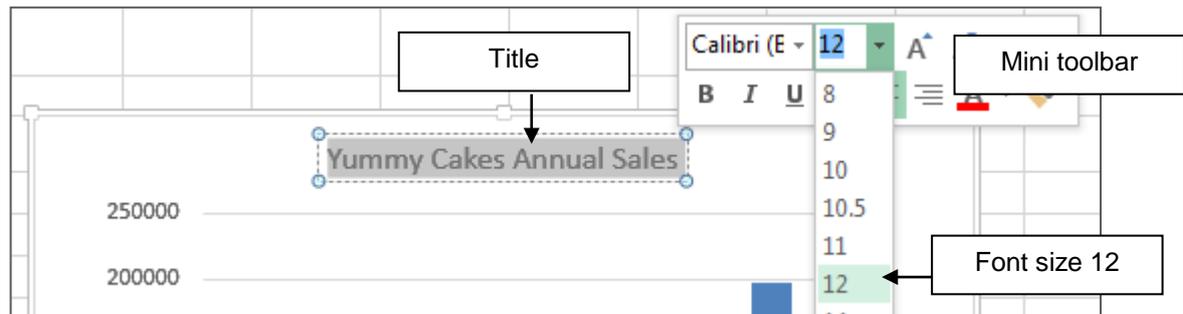
1. Click on the **Chart Elements** button
2. Click on the **Gridlines** button
3. Click on **Primary Minor Horizontal** and click on an option to view the effect
4. Repeat for each of the other options
5. When finished viewing the effects, make the selections as shown to the right



Change Title Text Size

If you want to resize the **Chart** to be smaller you will probably have to resize the **Title** text to be smaller.

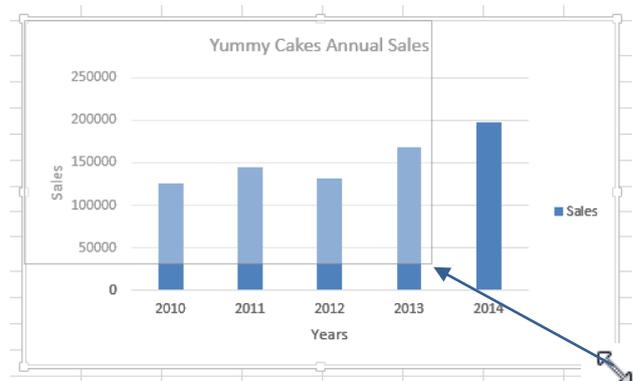
1. Highlight the text in the Title box **Title**
2. Click on the **Font size** button on the Mini toolbar and click on **12**



Resizing a Chart

As the **Chart** is an object it can be resized like any object.

1. Click on the Chart border to select it
2. Move the mouse over the lower right corner – it should change to a double headed arrow 
3. Click, hold and drag towards the centre of the chart – a transparent box indicates the new size of the chart
4. Release the mouse when the chart is the required size



Moving a Chart

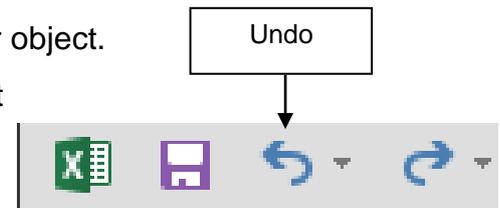
A **Chart** is an object and as such can be moved, copied, resized and deleted as required. To relocate the chart, simply:

1. Move the mouse over the chart area until the mouse changes to the Move symbol: 
2. Click hold and drag the chart
3. Release the mouse when you are happy with the location

Deleting a Chart

To delete a chart is the same process as any other object.

4. Click on the chart so the frame appears about it
5. Press the **[Delete]** key on the keyboard
6. Click on the **Undo** button so the chart is displayed again for the next section



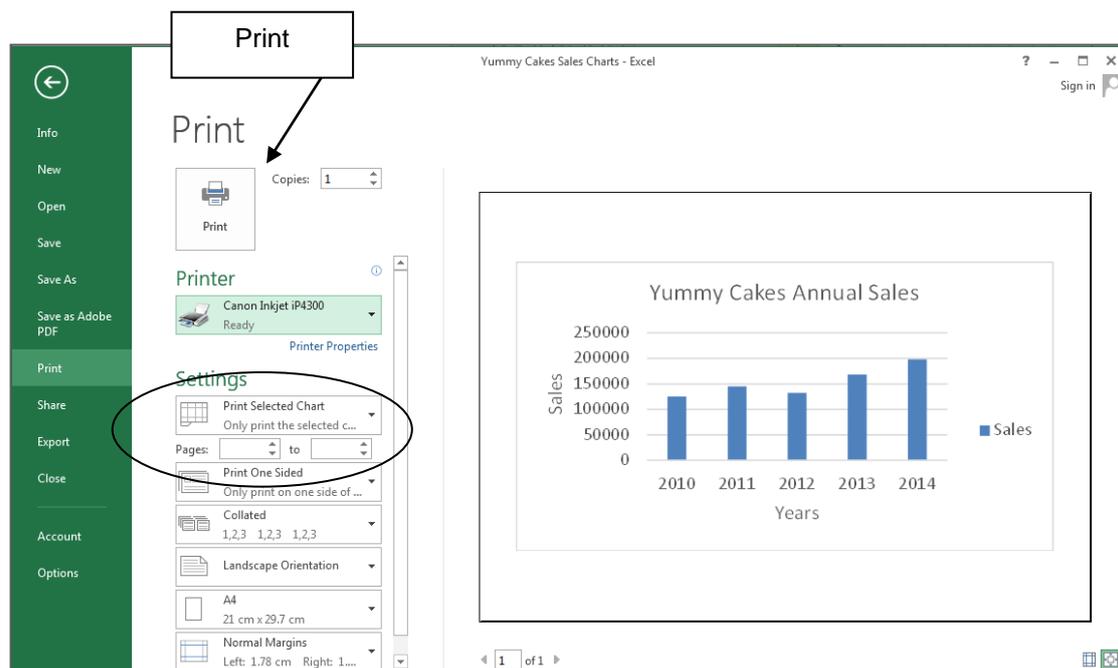
Printing a Chart

A chart can be printed as part of the worksheet, or it can be printed on its own, resized to take up a whole page.

7. Click on the **Chart** to select it
8. Click on the tab **FILE** ➤ **Print**

The **Print** screen appears. **Print Selected Chart** will be selected in the **Settings**, and a preview of the chart displayed on the right.

9. Click on the **Print** button



Practice Exercise 9.1 Create a 3-D Column Chart

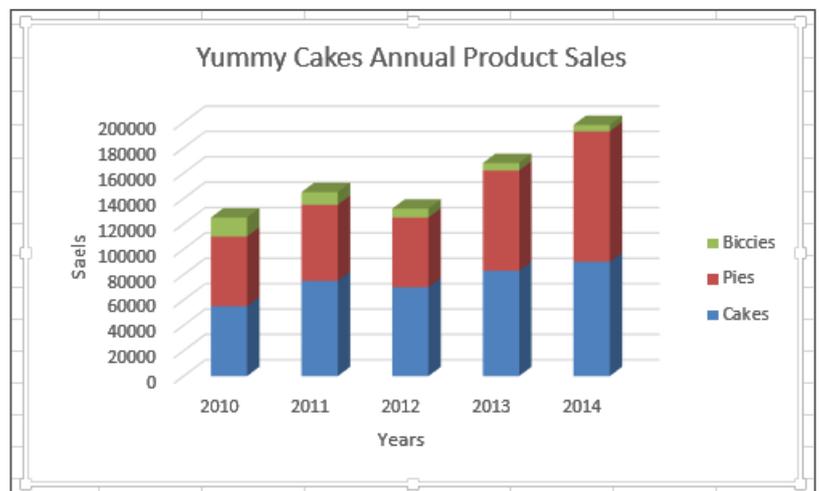
In this exercise you will create a **Column Chart** of the Annual Sales for the 3 types of products for Yummy Cakes. A stacked column **Chart** divides the columns into sections for each product. In our example the total sales are split into three product types shown in the second table. The columns are still the same height but coloured based on each product sales for that year.

1. Check that the file **Yummy Cakes Sales Chart** is open and the **Column Chart** worksheet is displayed
2. Select the cells **A11:D16** (The Total figures are not selected as this would interfere with a useful **Chart**)
3. Click on the tab **INSERT > Column > 3-D Stacked Column**

The screenshot shows the Excel interface with the 'Column' menu open, highlighting the '3-D Stacked Column' option. A tooltip for this chart type is visible, stating: 'Use this chart type to: • Compare parts of a whole. • Show how parts of a whole change over time.' The data table from the previous step is also visible in the background.

		Cakes	Pies	Biccies	Total
11					
12	2010	55000	55000	15000	125000
13	2011	75000	60000	10000	145000
14	2012	70000	55000	7000	132000
15	2013	83000	79000	6000	168000
16	2014	90000	103000	5000	198000

4. Click on the **Chart Title** and type **Yummy Cakes Annual Product Sales** and press **[Enter]**
5. Click on the **Chart Elements** button
6. Click on the **Axis Titles** to add those shown in the **Chart**;
Years for the X-axis and **Sales** for the Y-axis
7. Click on the Legend option and set it to be at the **Right**
8. Click on **Save**

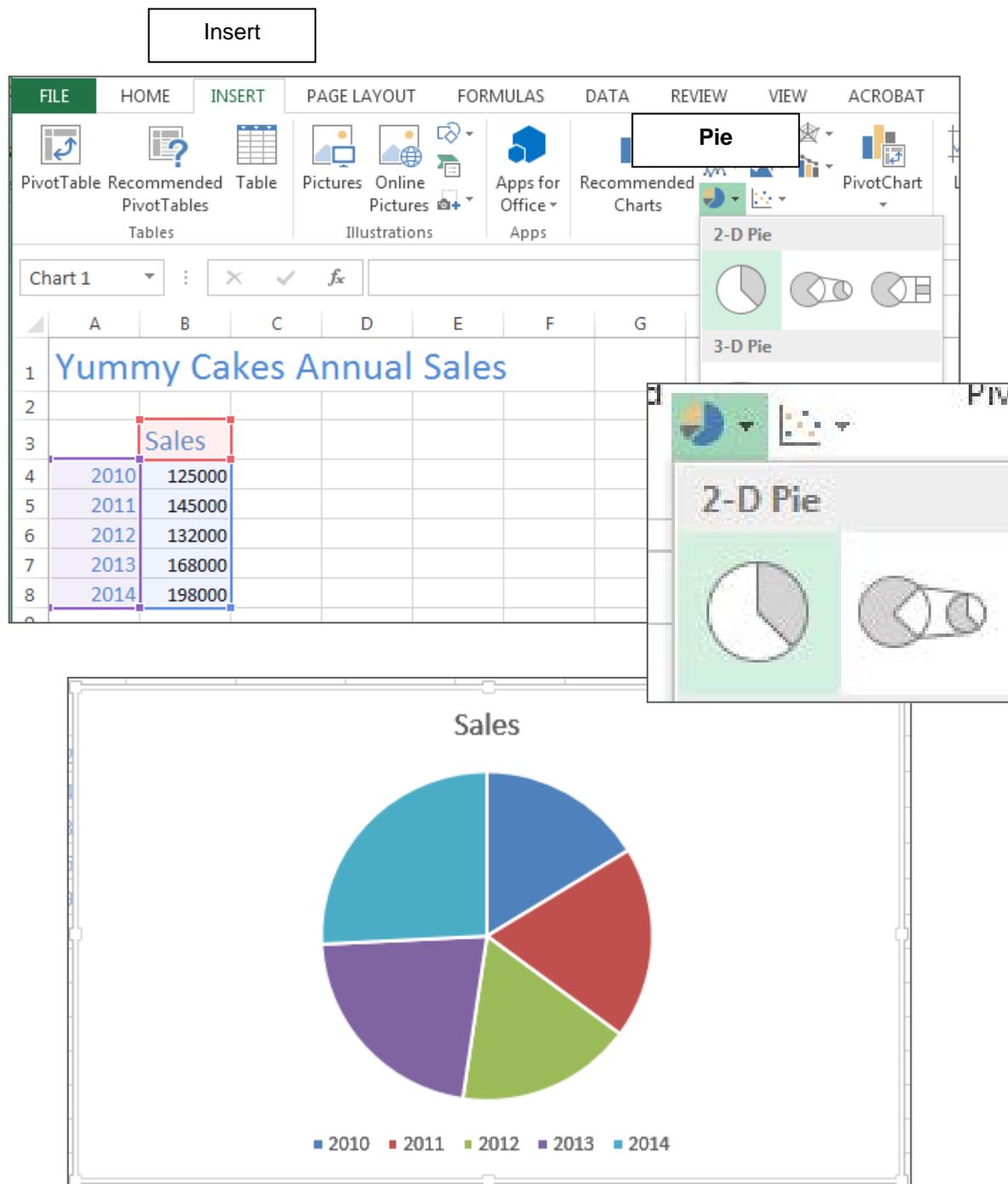


Create a Pie Chart

A **Pie Chart** is most useful when it is comparing only a few values to a whole. So in our example it could be useful to compare sales for each year compared to the total sales for five years.

1. Click on the **Pie Chart** worksheet of the **Yummy Cakes Sales Charts** file
2. Select the cells **A3:B8**
3. Click on the **INSERT** tab then click on **Pie** ➤ **2-D Pie** to create a basic **Pie Chart**

Insert



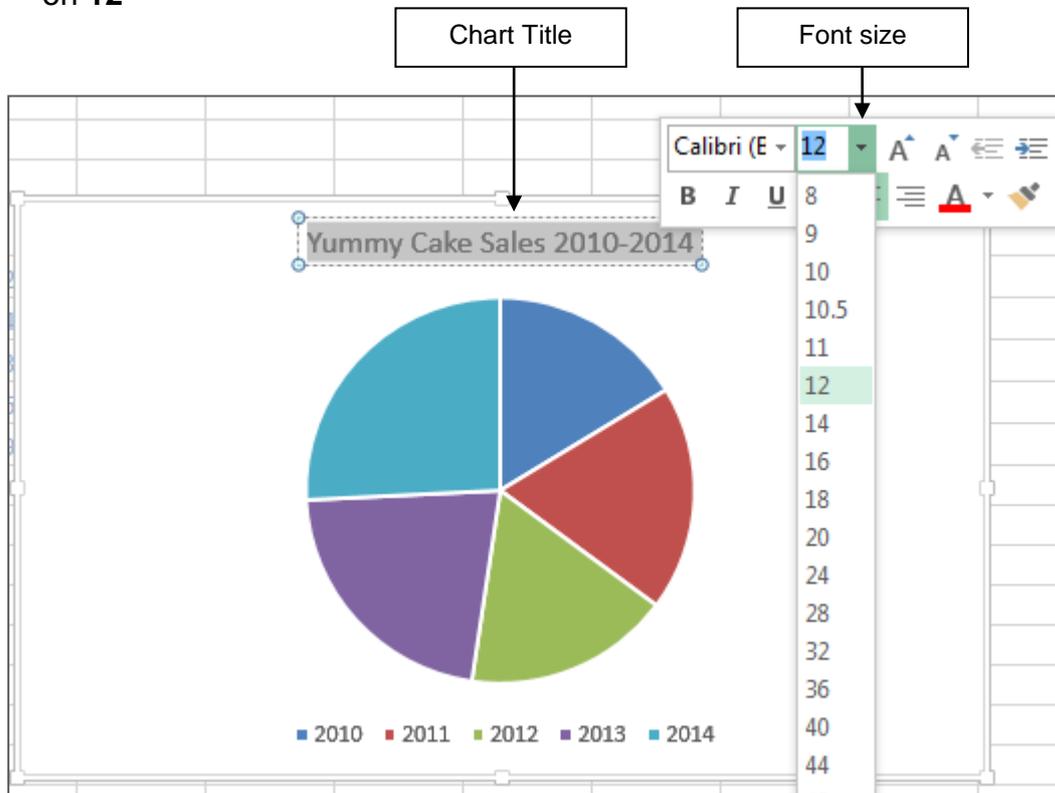
	A	B	C	D	E	F	G
1	Yummy Cakes Annual Sales						
2							
3		Sales					
4	2010	125000					
5	2011	145000					
6	2012	132000					
7	2013	168000					
8	2014	198000					

Sales

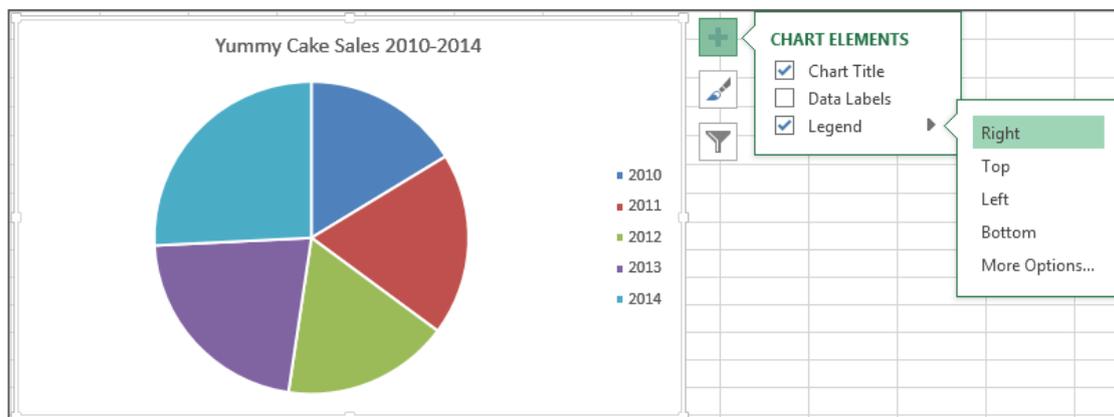
■ 2010 ■ 2011 ■ 2012 ■ 2013 ■ 2014

Notice the **Design** and **Format** tabs have appeared for the chart.

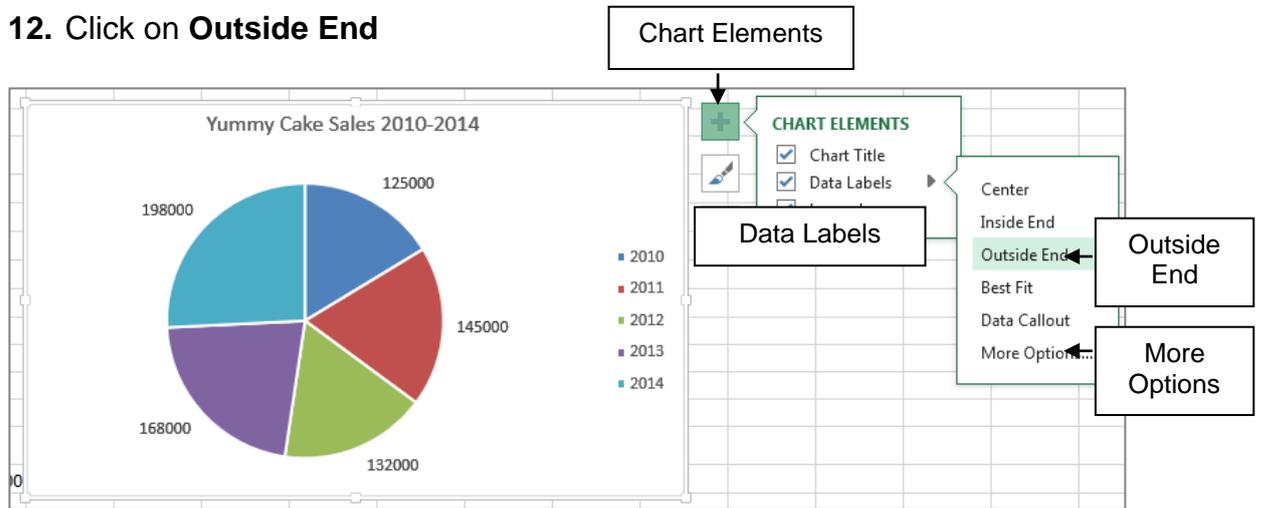
4. Click on the **Title** on the chart to select it
5. Type **Yummy Cake Sales 2010-2014** then press **[Enter]**
6. Highlight the **Title** text and click on the **Font size** droplist button and click on **12**



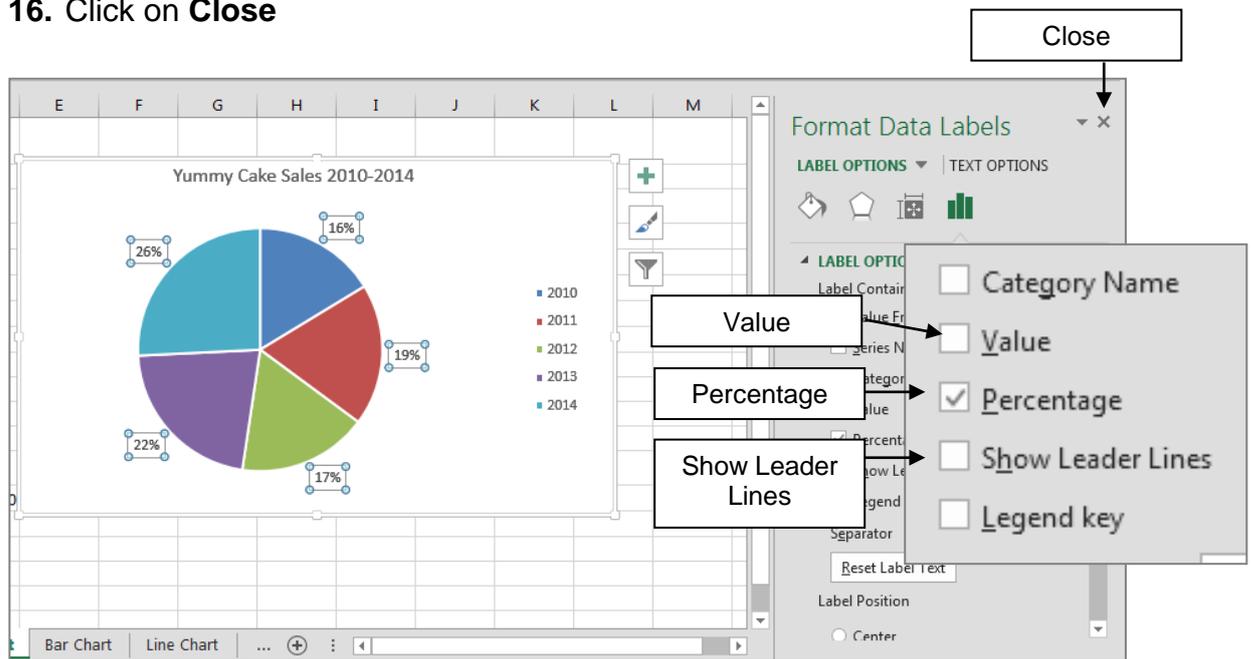
7. With the chart selected click on the **Chart Elements** button
8. Hover over the **Legend** option and click on the arrow to display the submenu
9. Click on **Right**



- 10. Click on the **Chart Elements** button
- 11. Click on **Data Label** and the triangle that appears
- 12. Click on **Outside End**



- 13. Click on **More Options**
- 14. Click on **Percentage**
- 15. Click on **Value** and **Show Leader Lines** to clear them
- 16. Click on **Close**



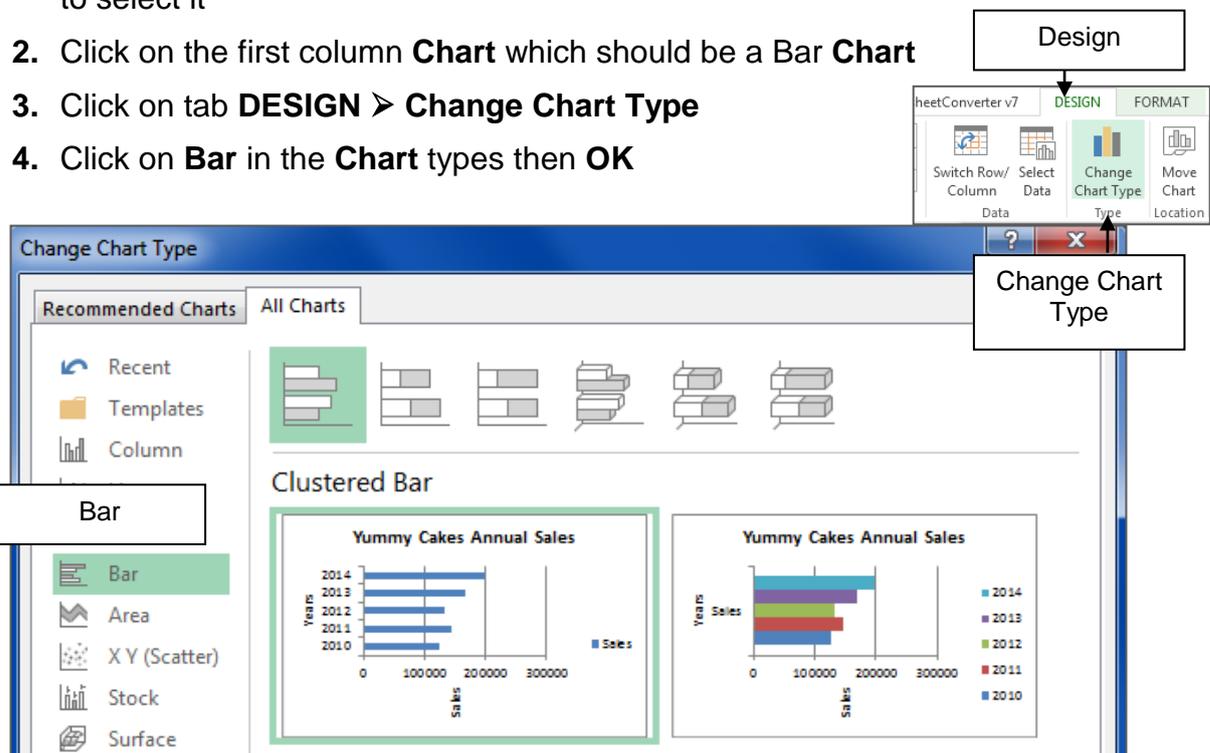
The **Pie Chart** now clearly conveys the percentage of sales for each year relative to the total sales for the five years.

- 17. **Save** the file

Changing the Type of Chart

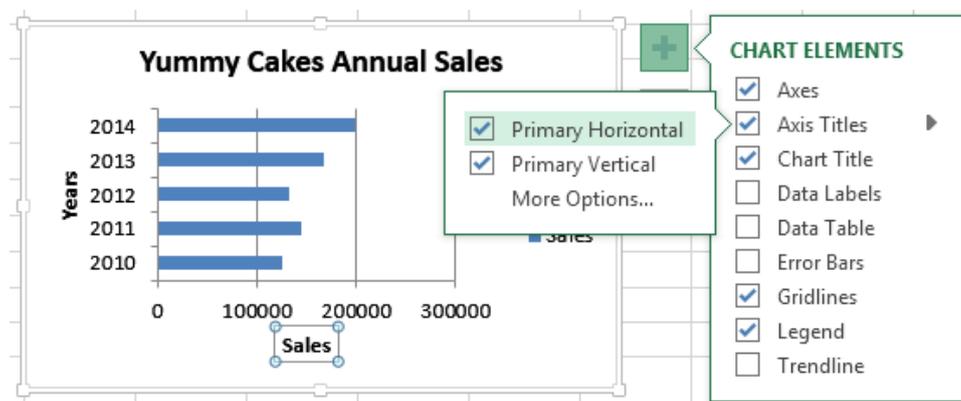
A **Chart** type can be altered after a **Chart** has been created. For example the wrong **Chart** types have been created on the **Bar Chart** worksheet.

1. Click on the **Bar Chart** worksheet of the **Yummy Cakes Sales Charts** file to select it
2. Click on the first column **Chart** which should be a **Bar Chart**
3. Click on tab **DESIGN** > **Change Chart Type**
4. Click on **Bar** in the **Chart** types then **OK**

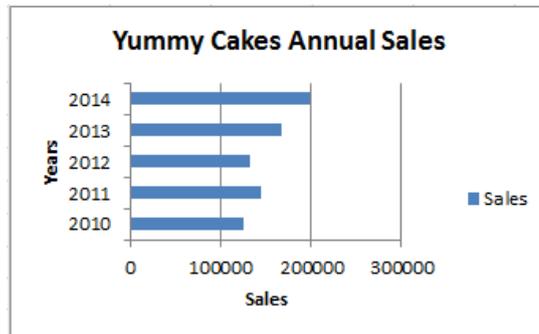


The **Chart** that appears will depend slightly on selections made for the original **Chart**. You will usually have to make some modifications when changing **Chart** types. For example this **Chart** has an X-axis title rotated.

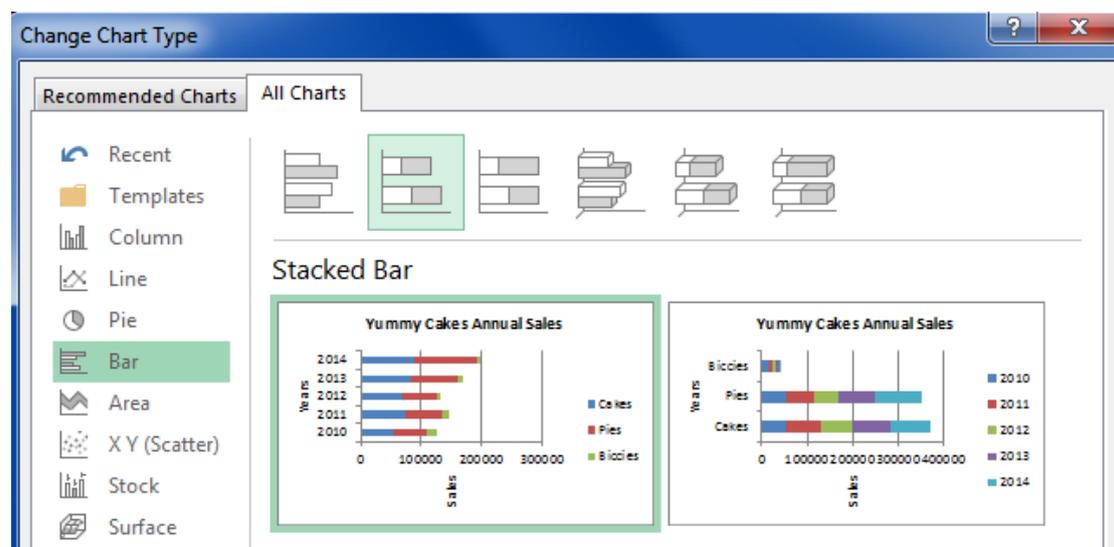
1. Delete the **X-axis** title (**X** is horizontal)
2. Click on the **Chart Elements** button
3. Click on the **Axis Titles** > **Primary Horizontal Axis** Types **Sales** and press **[Enter]**



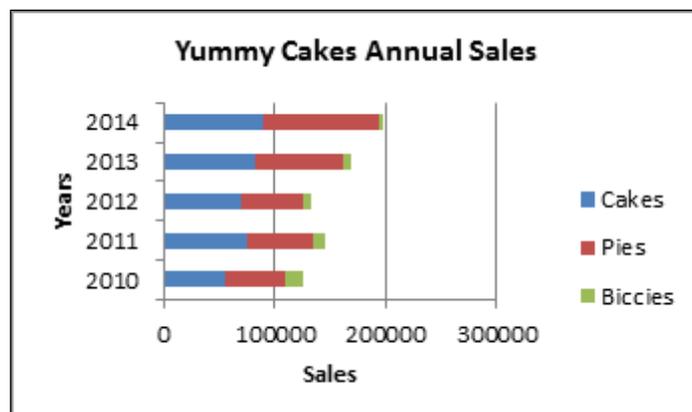
The Bar **Chart** that displays the trend in sales is displayed.



4. Click on the second chart which is a **Line Chart**
5. Click on the **Design** tab and click on **Change Chart Type**
6. Click on **Bar** in the list then click on the second option: **Stacked Bar**
7. Click on **OK**



8. Delete the **X-axis** title (X is horizontal)
9. Click on the **Chart Elements** button
10. Click on the **Axis Titles** ➤ **Primary Horizontal**
11. Type **Sales** and press **[Enter]**
12. Save your work and close the file



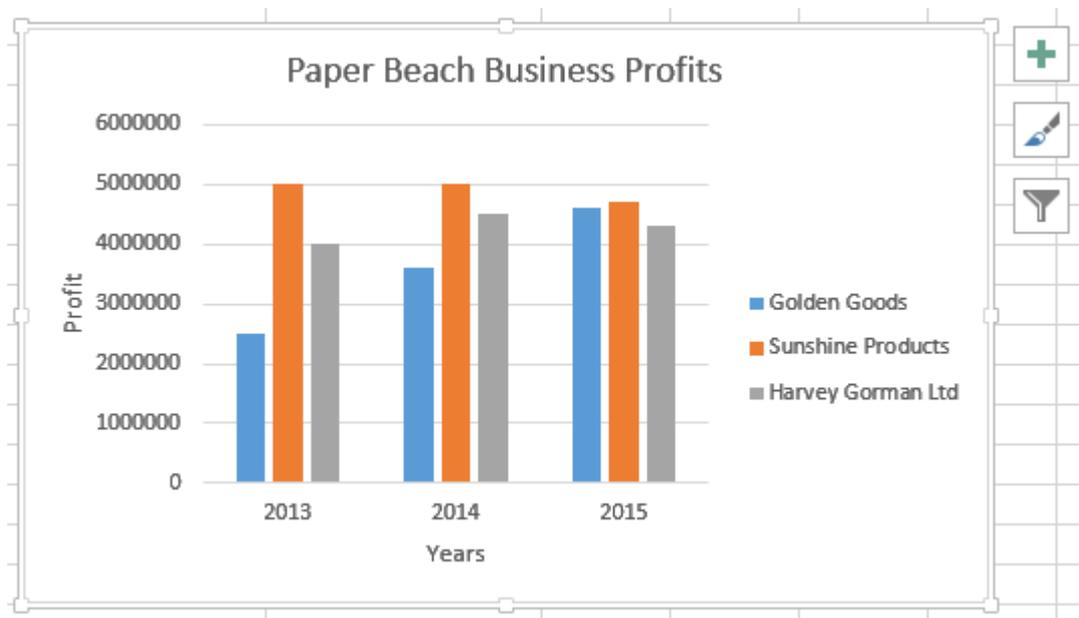
Practice Exercise 9.2 Column Chart

The table below shows the last three years profit figures for the three largest Paper Beach businesses.

1. Start a new file and save it as **Paper Beach**
2. Display this data in a **Column Chart** (the chart below is the Clustered Column style) to show the figures relationship to each other.

	2013	2014	2015
Golden Goods	2,500,900	3,600,800	4,600,900
Sunshine Products	5,000,900	5,000,100	4,700,100
Harvey Gorman Ltd	4,000,700	4,500,600	4,300,900

3. Add the Chart title, Axis Titles and Legend to the right



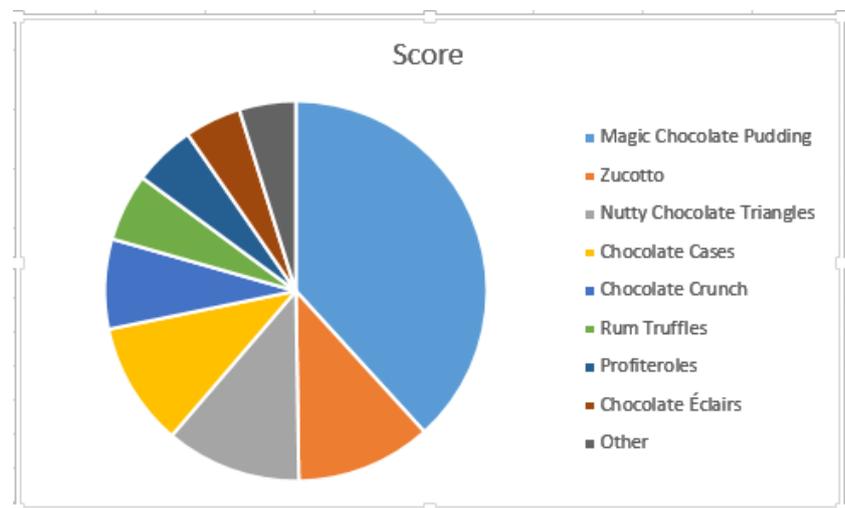
4. Save and **Close** the file

Practice Exercise 9.3 Pie Chart

MacroMoon Publications recently published Coco Gourmand's latest cooking book *Death by Chocolate* and as a special treat for all of the staff at MacroMoon Publications Kerry Paper, the CEO, organised for Coco to come to the office and demonstrate the cooking of some of her famous chocolate recipes. After the demonstration and tasting, Coco asked all the staff in attendance to vote for their favourite chocolate delicacy. The results of the survey are set out below.

Dish	Score
Magic Chocolate Pudding	80
Zucotto	24
Nutty Chocolate Triangles	24
Chocolate Cases	22
Chocolate Crunch	16
Rum Truffles	12
Profiteroles	11
Chocolate Éclairs	10
Other	10

1. Start a new file and save it as **Coco Survey Chart**
2. Enter the survey data provided and present it in the form of a **Pie Chart**
3. How could the **Pie Chart** shown here be improved so it conveys more information?
4. Make two improvements to the **Chart** then **save and close**

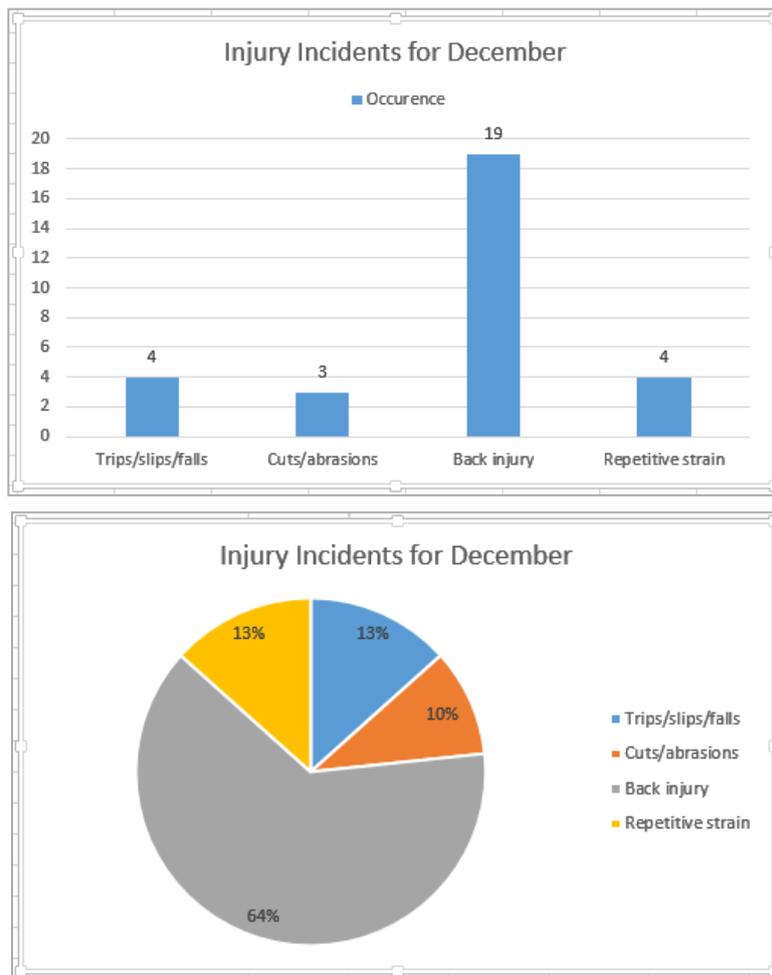


Practice Exercise 9.4 Pie Chart and Column Chart

They are a clumsy lot at MacroMoon Publications. The injury occurrences for the month of December are listed below:

- ◆ Trips/slips/falls 4
- ◆ Cuts/abrasions 3
- ◆ Back injury 19
- ◆ Repetitive strain 4

1. Start a new file and save it as **Injuries**
2. Enter the statistical data provided
3. Create a **Column Chart** and a **Pie Chart** using this data
4. Your **Charts** should look like those illustrated below:



5. Save and **Close** the file