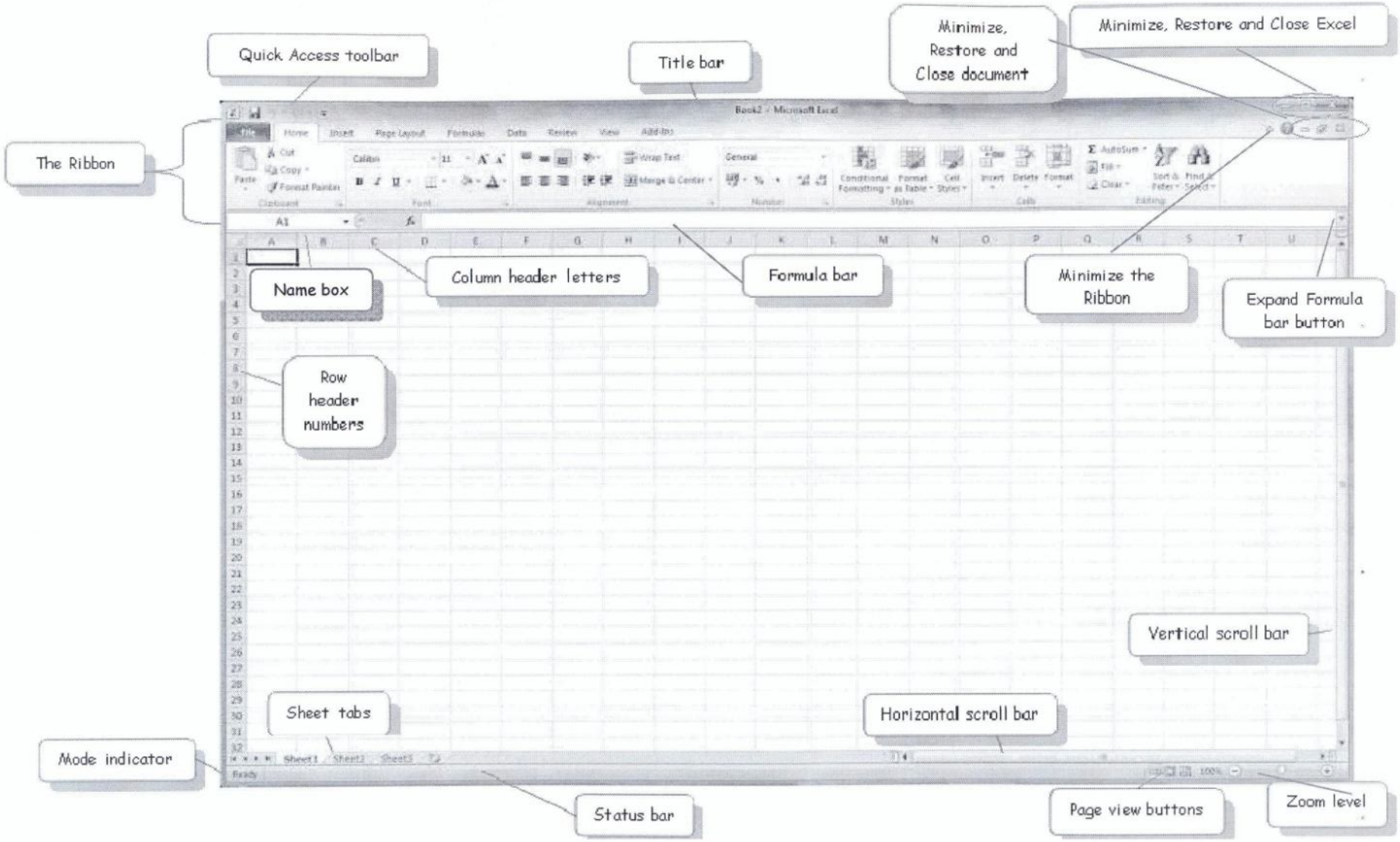
Module 4

Spreadsheets Using Excel 2010


Quick Access toolbar
Title bar
Minimize, Restore and Close document
Minimize, Restore and Close Excel
The Ribbon
Name box
Column header letters
Formula bar
Minimize the Ribbon
Expand Formula bar button
Row header numbers
Vertical scroll bar
Sheet tabs
Horizontal scroll bar
Mode indicator
Status bar
Page view buttons
Zoom level

Screen Layout

This section gives an overview of the Excel screen elements, shown on the previous page. Detailed explanations about these elements will be given, where relevant, throughout the Examples within this Module.

Title Bar

Identifies the application and name of the current worksheet.

Quick Access Toolbar

Provides buttons for the most frequently used commands.

The Ribbon

Access to all Excel commands.

The Ribbon includes the [File] tab, which enables you to create, open, save and send files; as well as protecting, previewing and printing them. It is also the place to set options for Excel. The features contained within the [File] tab are known as Backstage view.

The Quick Access toolbar and Ribbon are the components of the Office Fluent user interface. This will be described in Exercise 2.

Formula Bar

Displays the entry in the currently selected cell. Can be used to insert or edit cell entries.

- The [Insert Function] button opens the Insert Function dialog box
  - To access all the Excel functions and to give help in using them
- When you are editing a cell, a cross and tick will be displayed to the left of the formula bar
  - The cross can be used to cancel the entry or edit
  - The tick can be used to confirm the entry or edit

To the right of the Formula bar, the [Expand Formula Bar] button will increase the depth of the Formula bar, if you have a long entry in a cell.

Name box

Displays the active cell or range reference and accesses named ranges.

Work Area

The entire worksheet and all its elements, including cells, gridlines, row and column headings, scroll bars, and sheet tabs.

Each worksheet contains 16,384 columns and 1,048,576 rows. By default, a workbook contains 3 sheets. The number of sheets that can be inserted into a workbook is determined by available memory.

Selected Range

If a single cell is selected, it is outlined in black.
If a range is selected, the range is outlined in black and all cells within that range are highlighted, with the exception of the cell that is currently displayed in the formula bar, which is not highlighted.

Pointer

As you move the pointer, it will change its appearance according to which part of the screen it is over and what is currently selected.

Insertion Point

When editing, a flashing | beam shows where the next character will appear.

Sheet Tab

Tabs at the bottom of the workbook window display the names of sheets. Click a sheet tab to view that sheet and make it active. To scroll through sheet tabs, use scrolling buttons to left of tabs.

Status Bar

Bar across the bottom of the Excel window displaying information about a selected command or an operation in progress.

On the left side is the **Mode** Indicator, which indicates your current status:

- **READY** Excel is waiting for your next entry or command
- **ENTER** Press [ENTER] before issuing next command
- **EDIT** You are editing an entry in a cell

When a range of cells is selected, by default the status bar displays the 'average', 'count' and 'sum' of data in the selected cells.

The information to be displayed on the Status bar can be amended by right-clicking over the Status bar, to display a menu of available items.

Page view buttons

Change the way the page is viewed. Options are [Normal], [Page Layout] and [Page Break Preview].

Zoom level

To adjust page magnification on screen.

Scroll Bars

Shaded bars to the right and bottom of a window. To view different parts of the spreadsheet:

- Click the scroll bar arrows at top and bottom of a scroll bar
  - To move one row or column in any direction
- Click either side of the scroll box
  - To move one screen in any direction
- Drag the scroll box
  - To move to other parts of the workbook

Other terms and explanations

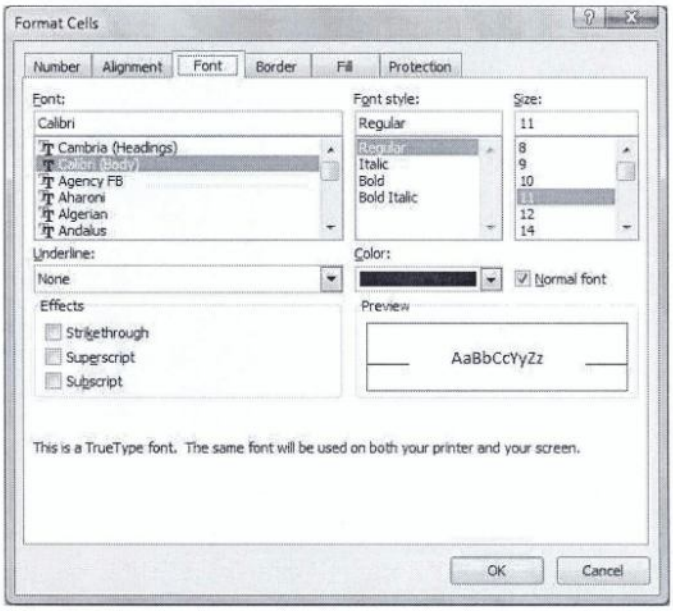
Dialog Box

A window where options can be selected, that relate to a required command.

A typical example is the Font dialog box.

Ribbon [Home] [Font] – clicking the dialog box launcher at the bottom right of the Font group will open the [Font] dialog box. This gives options to choose how and where you want your text formatted.

Other dialog boxes give you similar, task related options.



Move around in a worksheet

A worksheet consists of columns named with a letter and rows identified by a number. The first cell in the top row, left column is therefore A1. Cell A1 is called the **HOME** cell. The Name box on the formula bar displays where the cell pointer is.

The scroll bars can be used to view different parts of a worksheet, without changing the currently selected range or cell.

If you prefer to use the keyboard to move around the worksheet, the following keyboard combinations are available in Excel:

Action	Result
Click a cell	To enter or edit data in that cell
Arrow keys	Move one cell in any direction
[Tab]	Move one cell to the right in a worksheet
[Ctrl] + Arrow key	Move to the end of the current data region in any direction
[Shift] + Arrow key	Extend selected range by one cell in any direction
[Home]	Move to the beginning of the row
[Ctrl] + [Home]	Move to cell A1
[Ctrl] + [Shift] + [Home]	Extend selected range to cell A1
[Ctrl] + [End]	Move to the last used cell on the worksheet (bottom right corner)
[Ctrl] + [Shift] + [End]	Extend selected range to the last used cell on the worksheet
[Ctrl] + A	Select current range. Press again to select entire worksheet
[Enter]	Complete data entry and, by default, select cell below
[F5]	Open Go To dialog box to enter cell reference required
[Page Up]/[Page Down]	Move one screen up or down
[Alt] + [Page Up]/ [Page Down]	Move one screen to the left/right in a worksheet
[Ctrl] + [Page Up]/ [Page Down]	Move to the previous/next sheet in a workbook

Enter data using shortcut keys

The following keyboard shortcuts are available when entering and editing data in cells:

Action	Result
[ENTER]	Complete a cell entry and, by default, move down a cell
[CTRL]+[ENTER]	Fill the selected cell range with the current entry
[SHIFT]+[ENTER]	Complete a cell entry and move up in the selection
[ESC]	Cancel a cell entry
[F4] or [CTRL]+[Y]	Repeat the last action
[ALT]+[ENTER]	Start a new line in the same cell
[BACKSPACE]	Delete the character to the left of the insertion point, or delete the selection
[DELETE]	Delete the character to the right of the insertion point, or delete the selection
[CTRL]+[DELETE]	Delete text to the end of the line
[F2]	Edit a cell entry
[CTRL]+[D]	Fill down
[CTRL]+[R]	Fill to the right
[CTRL] + [X]	Cut the selected range
[CTRL] + [C]	Copy the selected range
[CTRL] + [V]	Paste the last clipboard entry

Work in cells or the Formula bar using shortcut keys

In addition to accessing Excel commands through the Ribbon and Quick Access toolbar, the following keyboard commands are available:

Action	Result
= (equal sign)	Start a formula
[ESC]	Cancel an entry in the cell or formula bar
[F2]	Edit the active cell
[BACKSPACE]	Edit the active cell, clear it, or delete the preceding character in the active cell as you edit the cell contents
[Ctrl] + 1	Display the Format Cells dialog box
[F9]	Calculate all sheets in all open workbooks
[SHIFT]+[F9]	Calculate the active worksheet
[ALT]+[=] (equal sign)	Insert the AutoSum formula
[CTRL]+[;] (semicolon)	Enter the date
[CTRL]+[SHIFT]+[:] (colon)	Enter the time
[CTRL]+[SHIFT]+["] (quotation mark)	Copy the value from the cell above the active cell into the cell or the formula bar
[CTRL]+['] (apostrophe)	Alternate between displaying cell values and displaying cell formulae
[CTRL]+['] (apostrophe)	Copy a formula from the cell above the active cell into the cell or the formula bar

Example 1 - Enhancing productivity

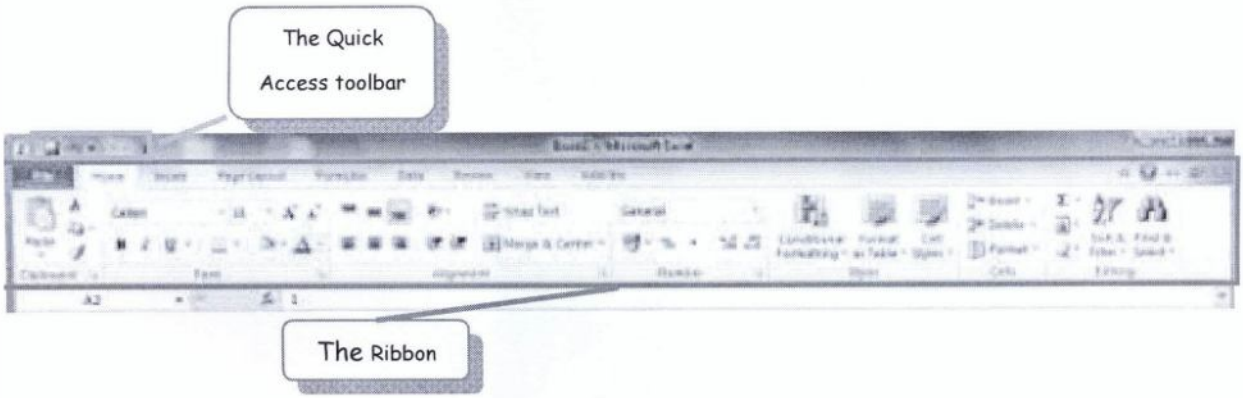
Exercise 1 Open a spreadsheet application

- From the Task Bar at the bottom of the screen, click the [Start] button
- Select [All Programs] [Microsoft Office] [Microsoft Office Excel]
    - Microsoft Excel will open, with a new, blank workbook on screen

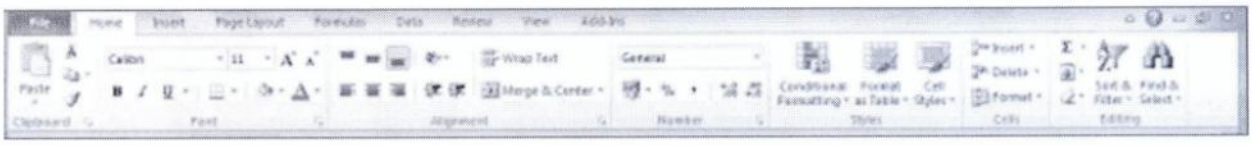
Exercise 2 The Ribbon and Quick Access toolbar

The Ribbon and the Quick Access toolbar are located at the top of the Excel window. They make up the "Office Fluent user interface" – the place to find all the tasks and functionality needed to use Excel effectively and efficiently.

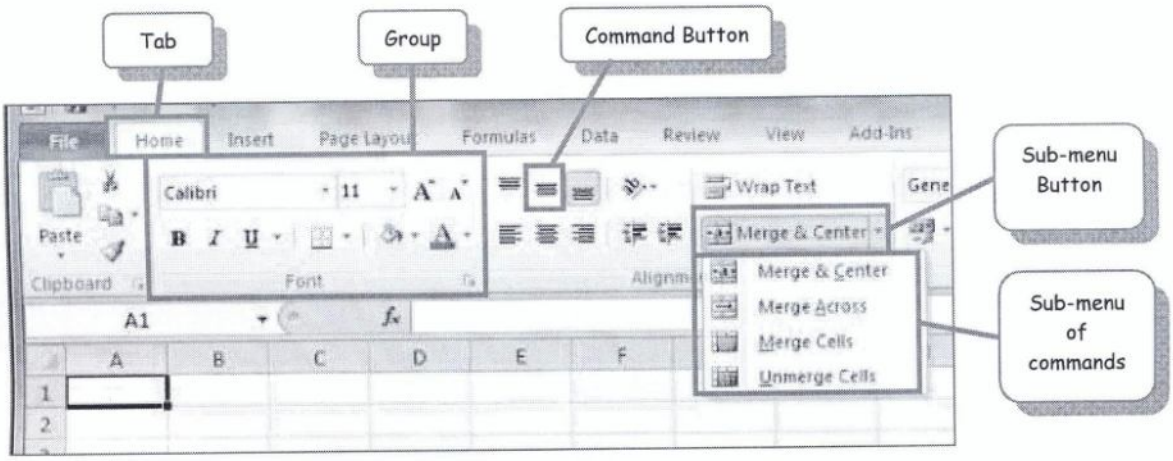
The interface, and other Excel options, can be customized, as will be shown in this Exercise. However, this courseware will assume that default settings are in place throughout Excel.



The Ribbon



The Ribbon gives access to all the Excel commands. It consists of tabs, which contain groups of buttons to carry out Excel commands.



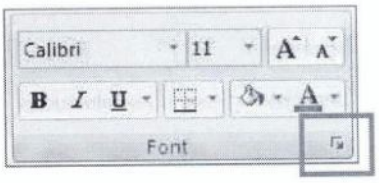
Each **tab** contains commands based around one type of Excel task.

Each **group** within a tab contains a set of sub-tasks related to the tab.

The **buttons** in each set of sub-tasks either carry out a specific command, or display a sub-menu of commands. A button is clicked once to activate it.

Dialog box launchers

Some groups have a dialog box launcher at the bottom right of the group. The dialog box associated with this group will be opened when the launcher is clicked. For example, clicking the [Font] group dialog box launcher will open the [Font] tab of the Format Cells dialog box.



Context specific tabs

There are additional tabs that only appear when relevant for the task you are carrying out. These are known as **contextual tabs**.

Contextual tabs contain the tools necessary to work with a selected object, such as a table, a picture or a drawing. When one of these objects is selected, the name of the contextual tools will appear in a different colour above the tabs, and the relevant contextual tabs will appear to the right of the standard tabs.

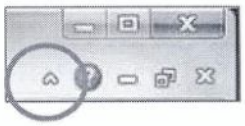
The contextual tools and tab for pictures

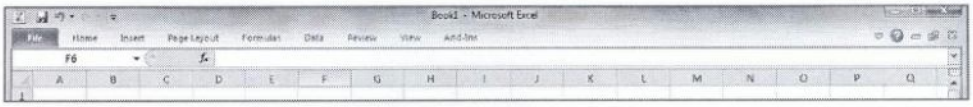
Restore, minimize the Ribbon

It is not possible to remove or hide the Ribbon, but it can be minimized, so that only the Ribbon tabs appear on screen.

To minimize the Ribbon

- At the right of the Ribbon, click the [Minimize the Ribbon] button
  - To hide the Ribbon groups and sub-tasks
  - To view only the Ribbon tabs



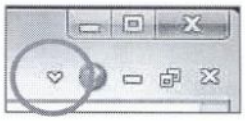


While the Ribbon is minimized:

- Click a tab heading
  - To view the groups and sub-tasks for that heading
- Click the heading again
  - To hide the groups and sub-tasks for that heading

To restore the Ribbon

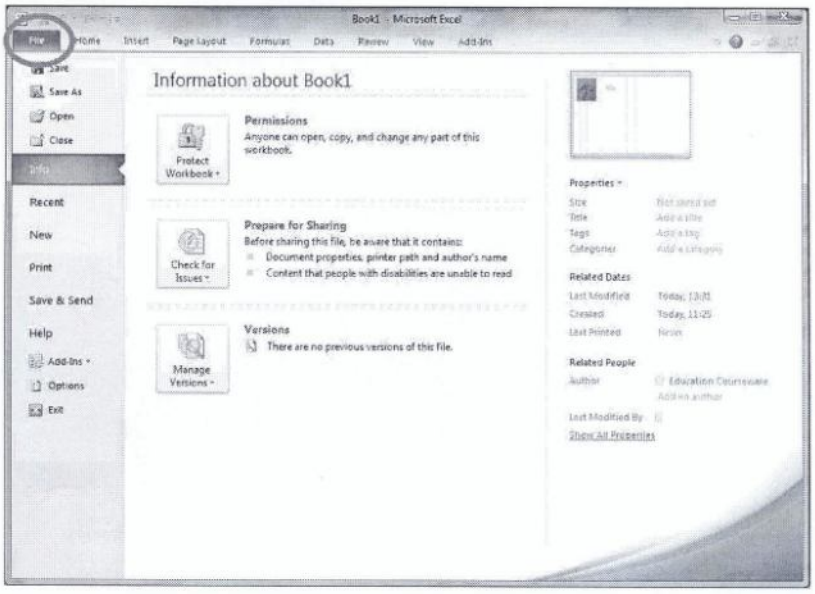
- At the right of the Ribbon, click the [Expand the Ribbon] button
  - To view the Ribbon tabs, groups and sub-tasks



Keyboard shortcut:
- [Ctrl] + [F1]
- To minimize or restore the Ribbon

The File tab

The [File] tab is known as 'Backstage view' in Office 2010, and is the place for all workbook management tasks. It contains commands for opening, saving and closing your workbooks. It also contains tabs to manage all the actions that need to be carried out for workbooks, such as printing, sharing and protecting them.

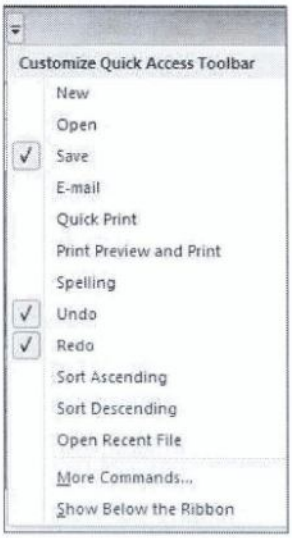


The Quick Access toolbar

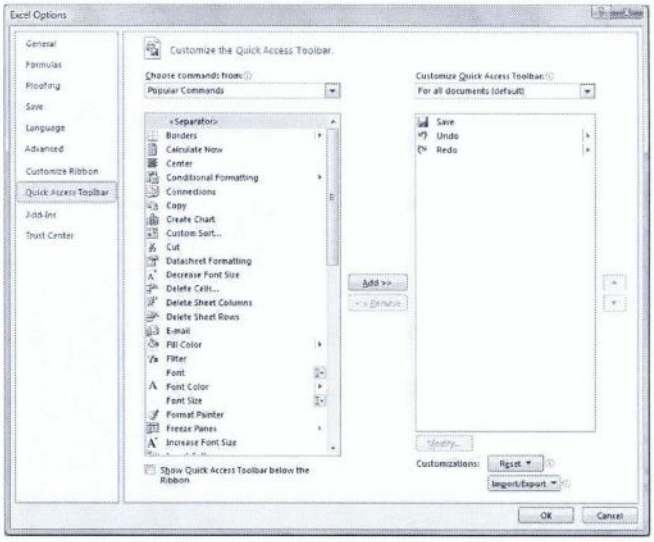
The Quick Access toolbar is intended to display the commands you use most frequently. By default, it displays the [Save], [Undo] and [Redo] buttons. You can customize the toolbar by adding to it commands that you use regularly. These commands will then be permanently on display, regardless of which Ribbon tab you have selected.

Customize the Quick Access toolbar

- Click the drop down arrow to the right of the Quick Access toolbar
  - To view a list of the most common buttons that you may wish to add
  - The buttons that are currently displayed on the Quick Access toolbar will have a tick to their left
- Click on a button that is not currently displayed
  - To put a tick to the left of this button
  - To display it in the Quick Access toolbar
- Click on a button that is currently displayed
  - To remove the tick from the left of this button
  - To remove it from the Quick Access toolbar



If you wish to add further commands that are not shown in this list, the [More Commands…] button will open the Excel Options dialog box at the Customize the Quick Access Toolbar screen. From here, you can select any Excel commands to add to the Quick Access toolbar.



The Quick Access toolbar drop down button also has the option to [Show Below the Ribbon], in order to display the Quick Access toolbar below the Ribbon.

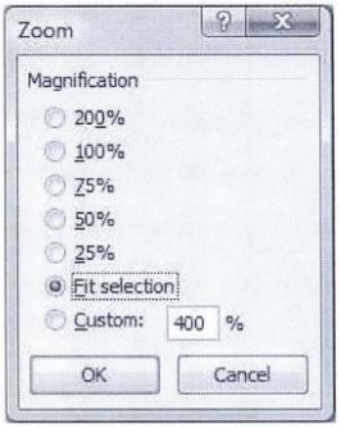
Exercise 3 Use magnification/zoom tools

The zoom level for a worksheet determines the size that the cells of that worksheet are displayed on screen. This enables you either to see more of a spreadsheet on screen at one time; or to see greater detail in specific cells. The larger the zoom percentage selected, the larger the cells are displayed on screen. The zoom level for each sheet in a workbook can be amended independently.

The [Zoom] slider bar is located at the right of the status bar.

- Click the [-] sign at the left of the [Zoom] slider
  - To zoom out and reduce the size of the worksheet cells
- Click the [+] sign at the right of the [Zoom] slider
  - To zoom in and increase the size of the worksheet cells
- Click and drag the [Zoom] marker to the left or right
  - To amend the zoom level of the worksheet cells

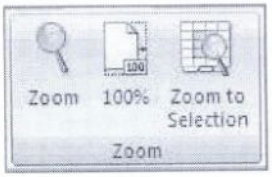
- Click the [Zoom level] percentage at the left of the [Zoom] slider bar
  - To open the Zoom dialog box
- In the Zoom dialog box, select a specific magnification percentage for your worksheet and click [OK]



You may like to know:

Alternatively, Ribbon [View] [Zoom] contains the following buttons:

- *[Zoom]*
  - *To open the Zoom dialog box*
- *[100%]*
  - *To zoom the worksheet to 100% normal size*
- *[Zoom to Selection]*
  - *To make the currently selected range fill the entire window exactly.*

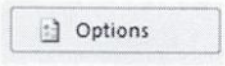


Exercise 4 Set basic options/preferences in the application

It is possible to change some of the default options that are used each time you work with the spreadsheet. However, if the options and preferences have already been set by your school or organisation, you should adhere to them.

These preferences are stored on screens in the Excel Options dialog box:

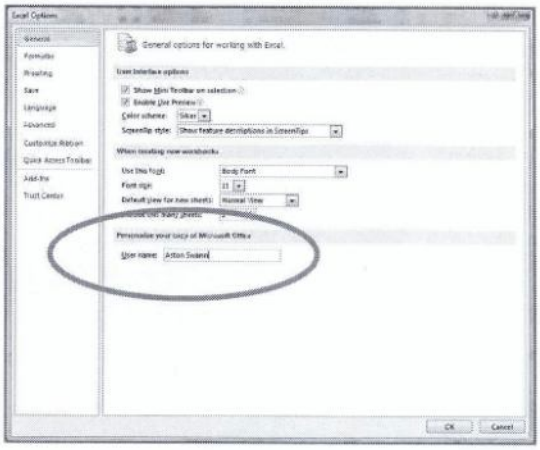
- Ribbon [File] click the [Options] button
  - To open the Excel Options dialog box



User name:

This is the name used when inserting user fields into documents.

- In the left pane, select [General]
  - To view the most frequently used options in Excel
- In the [User name] field of the 'Personalise your copy of Microsoft Office' section, type in the name you wish to be entered any time you insert the [User name:] field into a document



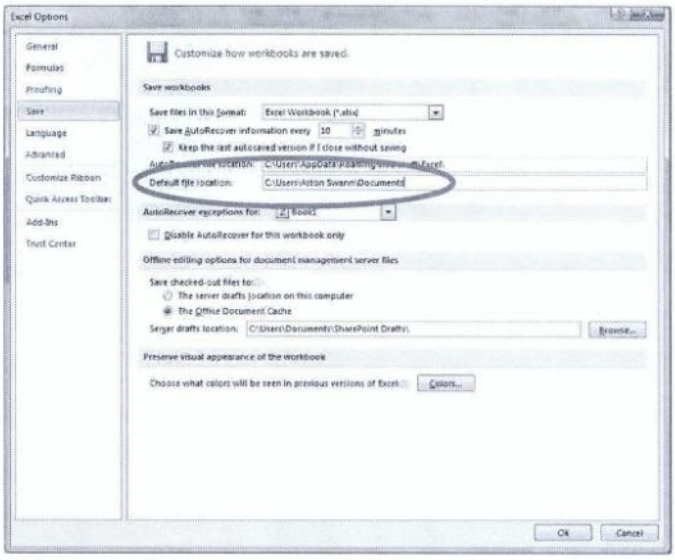
Note that this will personalise your user name for all your Microsoft Office applications.

Default folder to open, save spreadsheets:

The default file location is the drive and folder you would normally use to save workbooks to, and from where you will open existing workbooks.

- In the left pane of the Excel Options dialog box, select [Save]
  - To view the fields where you can customise how workbooks are saved
- In the [Default file location] of the 'Save workbooks' section, type the file path of the folder you wish to view each time you select to [Open] or [Save] a file.

- Click [OK]
  - To close the Excel Options dialog box



Exercise 5 Use available Help functions

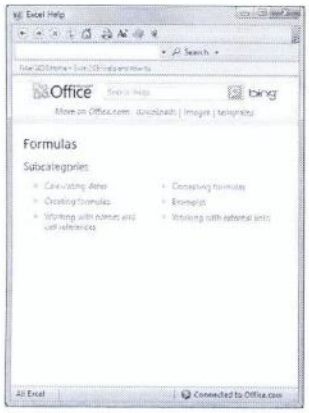
- Click the [Microsoft Office Excel Help] button at the right of the Ribbon 
  - To view the Excel Help dialog box
  - If your computer is online, you will view Office Online help, in addition to the help contained with the Excel program.

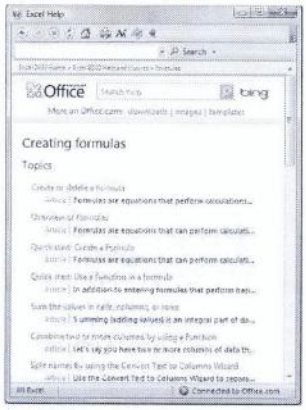
Keyboard shortcut:
- [F1]

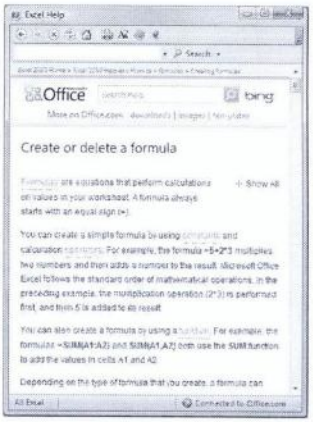
View a help topic

The Help dialog box opens with a selection of topics.

- Click one of the topics
  - To view sub-menus of help available concerning the topic you have selected
- Click a sub-menu
  - To view sub-categories of help concerning the sub-menu you have selected
- Select further sub-categories, as relevant
  - Until you view the help text for the topic you have selected







Some of the words in the help text may be in a different colour.

- Click these words
  - To view an explanation of the words
- Click the words again
  - To hide their explanation
- Click [+ Show All] at the top of a help topic
  - To view all the explanations in this topic
- Once you have shown all the explanations for a topic, click [- Hide All]
  - To hide the explanations

The Help toolbar buttons

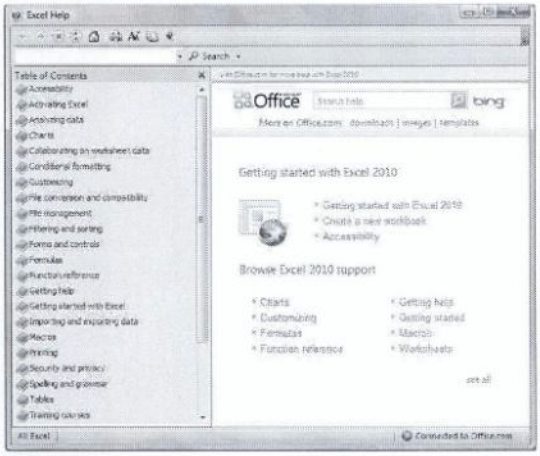
The following buttons are displayed across the top of the Help dialog box:

- [Back]
  - Go back to the previous screen
- [Forward]
  - Return to the screen you were viewing before you clicked [Back]
- [Stop]
  - Stop a help page uploading to the Help dialog box
- [Refresh]
  - Refresh an online help page with the latest information available
- [Home]
  - Return to the initial Help screen
- [Print]
  - Open the Print dialog box, in order to print all or part of the current Help topic
- [Change Font Size]
  - Make the font size in the Help dialog box larger or smaller
- [Show Table of Contents]
  - View the Help Table of Contents to the left of the Help dialog box
  - When the Table of Contents is showing, the icon will change to an open book. Click this, to hide the Table of Contents
- [Keep on Top]
  - Toggle between keeping the Help dialog box on top of your Excel worksheet whilst you are working and not keeping it on top

Table of Contents

The Table of Contents contains headings for the complete Help manual.

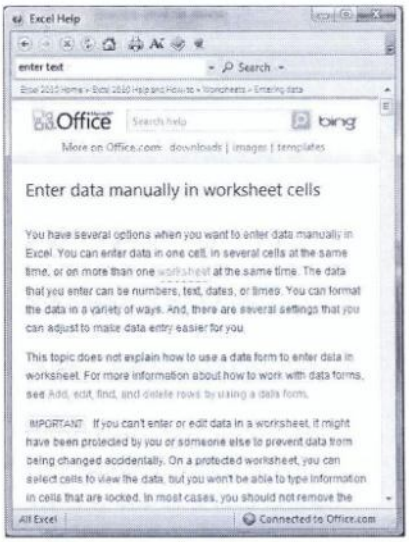
- If the Table of Contents is not showing, click the [Show Table of Contents] button at the top of the Help dialog box 
  - To view the Table of Contents to the left of the Help dialog box
- Select one of the headings with a book icon to its left
  - To view the help topics available for that heading
- Select a help topic with a question mark to its left
  - To view the help text for that topic



Search

The Search field is below the toolbar buttons.

- Type the name of the help topic you wish to view and press [Enter]
  - To view a list of the help topics that match the text you entered into the Search field
- Select the most appropriate entry from the list
  - To view the help text for that topic
- Click the [Back] button on the toolbar
  - To return to the list of help topics
  - To be able to select a different topic from the list



Context-sensitive help

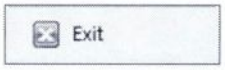
The [Help] button appears at the top right of dialog boxes.

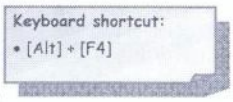
- Click the [Help] button in a dialog box
  - To view help on topics specifically relating to the dialog box

Exercise 6 Close a spreadsheet application

When you have finished working with Excel, it is good practice to close the program, so that it does not restrict your computer's performance.

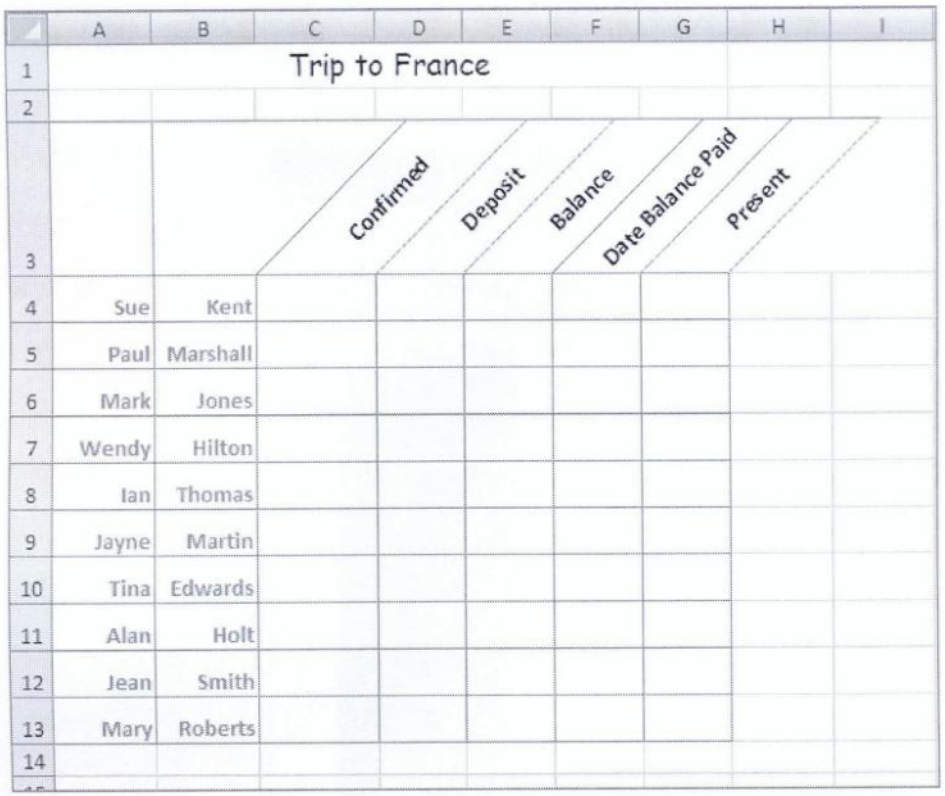
- Ribbon [File] click the [Exit] button
  - To close down Excel as well as this workbook





Alternatively, clicking the [Close] button at the top right of the screen will close any Excel workbook open in the current window and, if this is the only Excel workbook open, it will also close down Excel.

Example 2 - Trip to France



	A	B	C	D	E	F	G	H	I
1	Trip to France								
2									
3			Confirmed	Deposit	Balance	Date Balance Paid	Present		
4	Sue	Kent							
5	Paul	Marshall							
6	Mark	Jones							
7	Wendy	Hilton							
8	Ian	Thomas							
9	Jayne	Martin							
10	Tina	Edwards							
11	Alan	Holt							
12	Jean	Smith							
13	Mary	Roberts							
14									

This Example will create and save a workbook, containing the outline of the details needed to record attendance on a trip abroad. The workbook will also be saved as a template. A template is a document containing details you want to repeat in future workbooks, such as text, layout and formatting.

The next Example will show you how to use a copy of this workbook to record attendance on a particular trip.

Exercise 1 *Open Microsoft Excel*

- From the Task Bar at the bottom of the screen, click the [Start] button
- Select [All Programs] [Microsoft Office] [Microsoft Office Excel]
  - Microsoft Excel will open, with a new, blank workbook on screen

Exercise 2 Work with cells

This exercise will insert text in cells, select cells and ranges, and apply formatting to the cell contents.

Understand that a cell should contain only one element of data

Each cell in this spreadsheet contains only one element of data. For example, Column A contains the students' first names and Column B, the students' last names. It is important when creating spreadsheets to follow the practice of only putting one data element in each cell, in order that each element can be used individually in formulae and calculations.

Recognise good practice in creating lists

When creating lists of information in a spreadsheet, there are several points of good practice to remember, in order that the list functions available within Excel can operate correctly:

- Avoid blank rows and columns in the main body of the list
- The cells bordering the list should be left blank
- If a Total row is to be added at the bottom of the list, insert a blank row before the Total row

Enter text in a cell

- Click cell A1
  - To select that cell
- Type "**Trip to France**" and press [Enter]
  - To complete the entry in cell A1
  - The cursor should move to cell A2
  - The text will be aligned to the left of the cell

    By default, text is aligned to the left of a cell; dates and numbers are aligned to the right. Numbers and dates can be typed into cells in the same way as entering text. This will be shown in the next Example, when the template is used to record attendance on a particular trip.

Select a cell, range of adjacent cells

You just selected an individual cell by clicking it. It is possible to select a range of cells, to carry out an action that affects all the currently selected cells.

- Move the pointer over cell A1
- Click and drag the pointer across to cell F1
  - To select cells A1-F1

You will need to know:

Select a range of non-adjacent cells

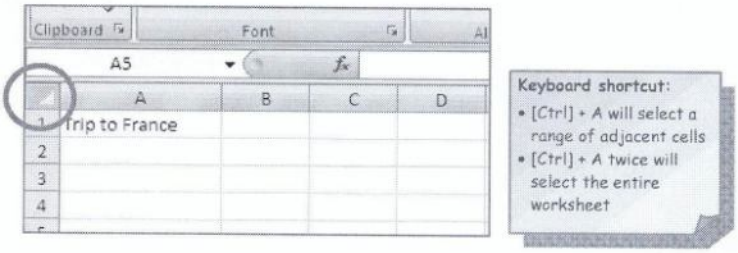
This will select the range A5-F5 ***in addition to*** *the range A1-F1*

- *Ensure that the range A1-F1 is still selected*
- *Move the pointer over cell A5*
- *Hold down the [Ctrl] key*
- *Whilst the [Ctrl] key is held down, click and drag the pointer across to cell F5*
  - *To select this range* ***in addition to*** *the range A1-F1*

This procedure can be used to select as many non-adjacent cells and ranges as necessary.

Select an entire worksheet

To select the entire worksheet, click on the rectangle to the left of column A and above Row 1. Any changes you make while the entire worksheet is selected will affect all cells in that worksheet.



Exercise 3 Formatting

Merge cells and centre a title in a merged cell

- Ensure that only the range A1-F1 is selected
- Ribbon [Home] [Alignment] - click the [Merge and Center] button 
  - To centre the heading across columns A – F; the selected range, which contains the columns to be used in the register

Right Click:
- [Format Cells...]
- [Alignment] tab
- Text Control - click [Merge Cells]
- Text Alignment - select [Center] in the Horizontal field

Change cell content appearance

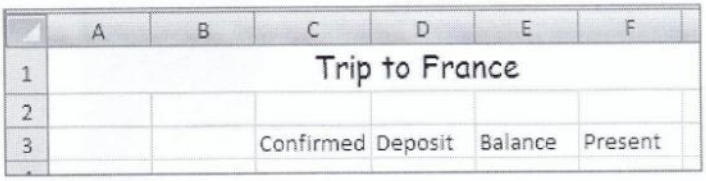
- Ribbon [Home] [Font] – click the drop down arrow to the right of the [Font] button
- Scroll through the list of available fonts and select [Comic Sans MS] 
  - To change the [Font] for the heading
- Ribbon [Home] [Font] - click the drop down arrow to the right of the [Font Size] button 
- Select [14] from the list of available font sizes
  - To change the [Font Size] for the heading

You may like to know:

Ribbon [Home] [Font] - the [Grow Font] and [Shrink Font] buttons will  *increase or decrease the current font size of the selected range by one point up to point size 12, and subsequently 2 points, each time you click them.*

You will now enter the column headings in Row 3. Don't worry if the text doesn't fit properly in the cells as you type – this will be addressed later in this Example.

- In cell C3 type the heading "**Confirmed**"
- Press the Right arrow on the keyboard
  - To move to cell D3
- Type the heading "**Deposit**"
- Continue in this way to cell G3, entering the following headings



	A	B	C	D	E	F
1			Trip to France			
2						
3			Confirmed	Deposit	Balance	Present

- Move the pointer over cell C3
- Click and drag the pointer across to cell F3
  - To select cells C3-F3

Apply formatting to cell contents

- Ribbon [Home] [Font] - click the [Bold] button 
  - To format the selected headings to be bold
- Ribbon [Home] [Alignment] - click the [Center] button 
  - To format the headings to be centred

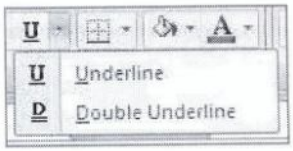
You will need to know:

Italics

- *Ribbon [Home] [Font] - click the [Italic] button* 
  - *Formats entries to be italicised*

Underline

- *Ribbon [Home] [Font] - click the drop down arrow to the right of the [Underline] button*



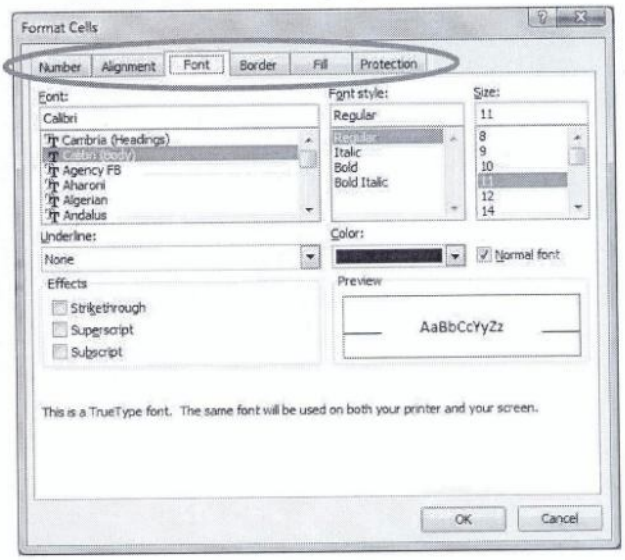
  - *Formats entries to be underlined or double underlined*

To obtain the full range of cell formatting available:

- *Ribbon [Home] [Font] - click the Dialog Box Launcher*

  - *Opens the Format Cells dialog box*

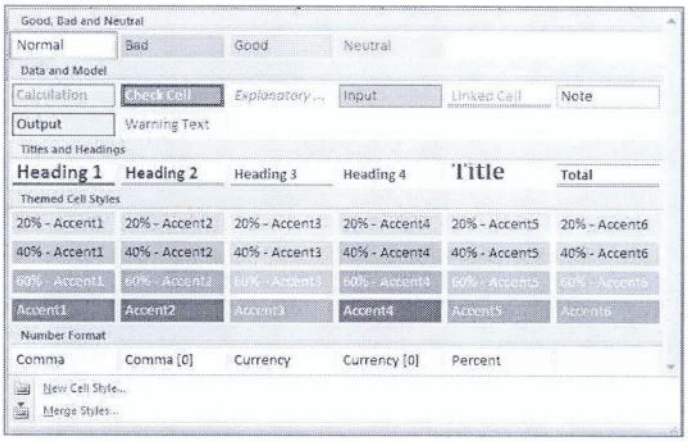
The tabs will give access to the various formatting options



Keyboard shortcut:
- [Ctrl] + [1]
- To view Format Cells dialog box

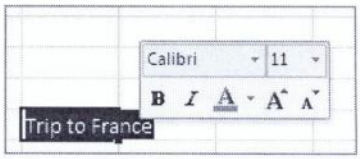
You may like to know:

Ribbon [Home] [Styles] - the [Cell Styles] button gives access to a large selection of pre-defined styles for your selected range. These contain all the cell formatting options.



You may like to know:

When you highlight all or part of a cell entry, a mini toolbar is displayed next to the highlighted data. This displays the most commonly used font formatting, and is a quick way of formatting your highlighted entry. The mini toolbar is very faint until you move the pointer over it, when it becomes more prominent.



Exercise 4 Rows and Columns

This Exercise will insert a column between the 'Balance' and 'Present' columns, in which the date that the balance is paid can be entered. The column widths will then be modified, to fit the headings.

Select a column

- Move the pointer over the column header
  - To change the pointer to an arrow
- Click over the header for column F
  - To highlight and select the whole of column F

You will need to know

Select a range of adjacent columns

- *Click and hold the pointer over the header for column C and drag it across to column G*
  - *To highlight columns C to G*

To select non-adjacent columns

- *Click over the header of the first column you wish to highlight*
- *Hold down the [Ctrl] key on the keyboard and click over the header for the next column you wish to highlight*
- *Keep the [Ctrl] key held down, and click on the header(s) for any other columns you wish to add to the selection*

To select a row, adjacent and non-adjacent rows

Rows are selected using the row numbers in the left margin.

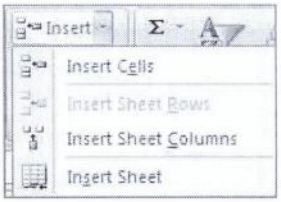
- *Follow the same procedures as above for columns, selecting the relevant row number(s) in the left margin*

To deselect rows or columns

- *Click away from your currently select rows or columns to deselect them*

Insert a column

- Ensure column F is selected
- Ribbon [Home] [Cells] – click the drop down arrow to the right of the [Insert] button
  - To view the Insert options
- Click [Insert Sheet Columns]
  - To insert a new column F
  - To move the contents of column F to column G

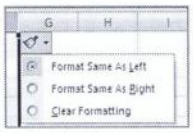


Right Click:
- [Insert]

After selecting the column(s) to insert

You may like to know:

A small brush will be showing to the right of the inserted column. Move the pointer over the brush and click the drop down arrow to its right, to view the column formatting options. By default, the inserted column will have the same formatting as the column to its left.



- Select cell F3 and type "**Date Balance Paid**", then press Enter

You will need to know:

Insert multiple columns

- *Select the column(s) where you need to insert new column(s)*
- *Ribbon [Home] [Cells] - click the drop down arrow to the right of the [Insert] button and select [Insert Sheet Columns]*
    - *To insert column(s) to the left of the highlighted column(s)*
    - *To move the contents of the highlighted columns to the right*

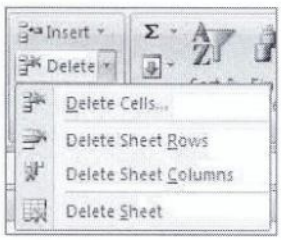
Insert rows

- *Select the row(s) where you wish to insert new row(s)*
- *Ribbon [Home] [Cells] - click the drop down arrow to the right of the [Insert] button and select [Insert Sheet Rows]*
    - *To insert new row(s) above the highlighted row(s)*

Delete rows and columns

Rows and columns can be deleted in a similar manner.

- *Select the rows or columns you wish to delete*
- *Ribbon [Home] [Cells] - click the drop down arrow to the right of the [Delete] button and select [Delete Sheet Rows] or [Delete Sheet Columns] as required*
    - *The selected rows or columns and their contents will be deleted.*
      Be aware that this will delete the entire rows or columns - which could contain entries in rows or columns you cannot see on screen at present.



Right Click:
- [Delete...]
- Options to delete [Cells], [Rows] or [columns] are available

- Ensure that you do not delete any of the rows or columns you are using!

Apply text wrapping to contents within a cell, cell range

If a cell contains more text than can fit in the cell, as is the case with cell F3, text wrapping will 'wrap' the text onto multiple lines in the cell, rather than it being 'cut off' or overflowing onto the next cell.

We will apply text wrapping to all the cells containing the headings (cells C3-G3). Don't worry if the text wrapping splits words onto multiple lines at this point, we will address this next.

- Select the range C3-G3
- Ribbon [Home] [Alignment] – click the [Wrap Text] button 
  - To wrap the text in the selected range
  - To increase the depth of the row(s) in the current range as necessary for the number of lines of text required in the cell containing the most text

Right Click:
- [Format Cells...]
- Select [Alignment] tab
- Tick [Wrap text]

You will need to know:

Text wrapping in a single cell

If a single cell was selected, text wrapping would be applied to just this cell. However, this action would modify the depth of the entire row containing this cell.

Modify column widths, row heights

There are several ways to amend the widths of columns and the depth of rows. We will now amend the widths of columns C-G to fit the headings better into the cells, and will increase the depth of the rows into which we will shortly enter the students' names.

- Select columns C to G and experiment with the following methods
  - To get the best fit for each of the columns C-G

Modify column width manually

- With the pointer as a double-ended arrow on the line to the right of one of the highlighted letters, click and drag the pointer slightly to the right
  - To increase the width of the selected columns
  - To view a box showing the changing width of the selected columns

To specify an exact value for a column width

- Right click over the column header
  - A quick menu will open next to the pointer
- From the quick menu, select [Column Width ...]
- In the Column Width dialog box, enter the value required for the column width
  (The measurement value shown will be the default for your computer – inches, centimetres or millimetres)

Optimal column width

- With the pointer as a double-ended arrow on the line to the right of one of the highlighted letters, double-click
  - To make each highlighted column exactly wide enough to fit its entry

Modify row height manually

- Move the pointer over the row numbers and highlight rows 4 – 13
- With the pointer as a double-ended arrow on the line beneath one of the highlighted numbers, click and drag the pointer down slightly
  - To increase the height of the selected rows
  - To view a box showing the changing height of the selected rows

To specify an exact height for a row

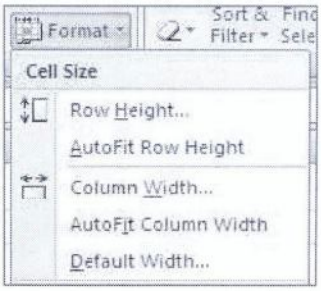
- Right click over the row header
  - A quick menu will open next to the pointer
- From the quick menu, select [Row Height ...]
- In the Row Height dialog box, enter the value required for the row height

Optimal row height

- With the pointer as a double-ended arrow on the line below a row header, double-click
  - To make the currently selected row(s) deep enough to fit their entries

You may like to know:

Ribbon [Home] [Cells] - the [Format] button will also give access to Row Height and Column Width options, including specific and optimal width and height.



Enter students' names

- Starting in cell A4 type the name "Sue"
- Press [Enter] on the keyboard
  - To move to cell A5
- Type "Paul"
- Continue to enter the students' first names and last names in columns A and B, as shown below:

4	Sue	Kent
5	Paul	Marshall
6	Mark	Jones
7	Wendy	Hilton
8	Ian	Thomas
9	Jayne	Martin
10	Tina	Edwards
11	Alan	Holt
12	Jean	Smith
13	Mary	Roberts
14		

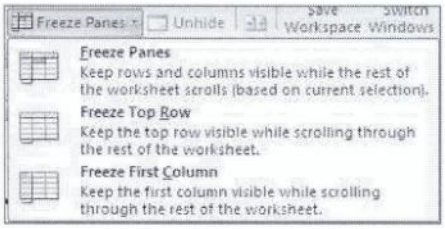
You will need to know:

Freeze, unfreeze row and column titles

When you have a worksheet that contains more rows or columns than can fit on screen at one time, it is possible to keep visible the rows and columns that contain the headings as you scroll through the worksheet.

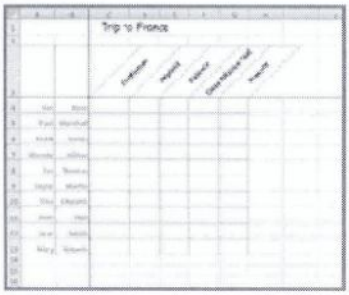
To freeze only the top row or first column of the worksheet:

- *Ribbon [View] [Window] – click the [Freeze Panes] button*
  - *To view the freeze panes options*
- *Select [Freeze Top Row]*
  - *To keep the top row of the worksheet visible whilst scrolling*
- *Select [Freeze First Column]*
  - *To keep the first column of the worksheet visible whilst scrolling*



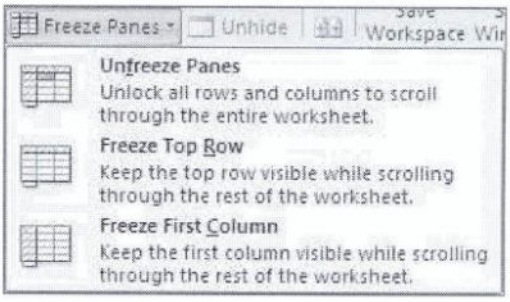
To freeze specific rows and columns:

- *Select the cell in the row below the rows you wish to freeze, and the column to the right of the columns you wish to freeze*
  (For example, to freeze rows 1-3 and columns A-B, select cell C4)
- *Ribbon [View] [Window] – click the [Freeze Panes] button*
  - *To view the freeze panes options*
- *Select [Freeze Panes]*
  - *To view solid lines indicating where the panes are frozen*
  - *To keep the rows above and the columns to the left of your current cell visible while scrolling*



To unfreeze panes:

- *Ribbon [View] [Window] - click the [Freeze Panes] button*
  - *To view the freeze panes options*
  - *To see that [Unfreeze Panes] is an option, now that you have frozen panes*
- *Select [Unfreeze Panes]*
  - *To unfreeze the frozen panes*



Exercise 5 Align cell contents

By default, text entered into cells is horizontally aligned to the left, whilst numbers are horizontally aligned to the right. Both text and numbers will be vertically aligned at the bottom of the cell. The alignment of cell contents can be amended both horizontally and vertically. In addition, the cell contents can be 'turned round' by amending their orientation.

Align cell contents horizontally

- Highlight cells A4-B13
- Ribbon [Home] [Alignment] – click the [Align Text Right] button

  - To format the students' names to be right aligned

Click the [Align Text Left] and [Center] buttons in Ribbon [Home] [Alignment], to select an alternative horizontal alignment for your currently selected range.

Align cell contents vertically

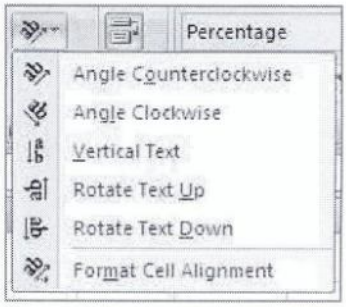
- Highlight cells C3-G3
- Ribbon [Home] [Alignment] – click the [Top Align], [Middle Align] or [Bottom Align] button

  - To select a vertical alignment for cells C3-G3

Adjust cell content orientation

- Ensure cells C3-G3 are still highlighted
- Ribbon [Home] [Alignment] – click the drop down arrow to the right of the [Orientation] button

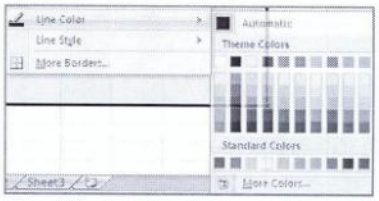
  - To view the orientation options available
- Experiment with the different options
- When you have looked at all the options, select [Angle Counterclockwise]
  - To amend the orientation of the selected range



Right Click:
- [Format cells...]
- [Alignment] tab
- [Text alignment] and [Orientation] options available

Exercise 6 Add border effects to a cell, cell range

This will add lines around parts of the table, and amend the colour of those lines.

- Move the pointer over cell A3
- Click and drag the pointer across and down to cell G13
  - To highlight the range A3-G13
- Ribbon [Home] [Font] – click the drop down arrow to the right of the [Borders] button 
  - To view the preset border options available
- Click the [All Borders] button 
  - To insert a single line around every cell
- Ribbon [Home] [Font] – click the drop down arrow to the right of the [Borders] button
- Click the [Line Color] button 
  - To view the line colours available
- Select a colour for the borders you have just inserted around your selected cells
- *If your pointer has become a 'pencil', click [Esc] on the keyboard*
  - *To return the pointer to a cross*

Right Click:
- [Format Cells...]
- Select [Borders] tab
- Range of Border [Line] and [Color] effects available

You will need to know:

Add border effects to a single cell

The same procedures would be used to apply borders to a single cell.

Apply different colours to cell content, cell background

This will amend the colour of the font used in some cells and the colour of the background of some cells.

- Select the range A4-A13

Cell content

- Ribbon [Home] [Font] - click the drop down arrow to the right of the [Font Color] button 
  - To view the available font colours
- Select a colour from those available
  - To change the colour of the cell contents in the selected range

Right Click:
- [Format cells...]
- Select [Font] tab
- Click drop down arrow to right of [Color] field
- To view font colours available

Cell background

- Ribbon [Home] [Font] click the drop down arrow to the right of the [Fill Color] button 
  - To view the available fill colours
- Click on one of the lighter colours available
  - To change the colour of the cell background in the selected range

Right Click:
- [[Format cells...]
- Select [Fill] tab
- To view [Background] colours available

You may like to know:

Both the [Font Color] and the [Fill Color] buttons show the most recently selected colour. Clicking one of these buttons, rather than the drop down arrow, will select the colour that is shown for the Font or Fill of the currently selected range, rather than showing the palette of available colours.

Copy the formatting from a cell, cell range

It would have been possible to format the students' last names at the same time as their first names, by selecting the range A4-B13 before applying the formatting. However, we will now learn how to copy the cell formatting from one cell or range to another, by copying the formatting from the students' first names to the range containing their last names.

- Select cell A4
- Ribbon [Home] [Clipboard] – click the [Format Painter] button 
  - To copy the formatting that is contained in cell A4 to the clipboard
  - To attach a paint brush to the pointer
- Click and drag the pointer from cell B4 to cell B13
  - To copy the formatting from cell A4 to the range B4-B13

You will need to know:

If you highlighted a cell range before clicking the [Format Painter] button, then selected a single cell, the formatting would be copied to a range of the same dimensions as the initial range; starting in your currently selected cell.

You may like to know:

- *Double-click the [Format Painter] button, to apply the same formatting to multiple cells or ranges in the workbook*
- *Once you have finished with the Format Painter, press the [Esc] key on the keyboard*
  - *To 'turn off' the Format Painter*

Exercise 7 Save the file

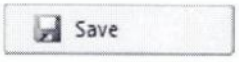
In this exercise, the file will first be saved as a workbook document, and will then be saved as a template. The template could be used to create new workbooks containing all the data and formatting that you have already entered into the current file – thus saving time if you wish to record details for future trips.

Save a spreadsheet to a location on a drive

It is very important to save your documents regularly while you are working. This ensures that, if there is a power cut or some other problem with your computer, you do not lose any changes you have made to the document.

Either

- Ribbon [File] click the [Save] button

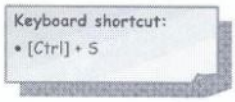


Or

- On the Quick Access Toolbar, click the [Save] button

  - To open the Save As dialog box

    The Save As dialog box opens because this is the first time the file has been saved and Excel needs to know the name for the file, and the location to which it is being saved. If [Save] is selected again once the file has been saved, the dialog box will not open, but the existing file will be updated with any changes you have made.



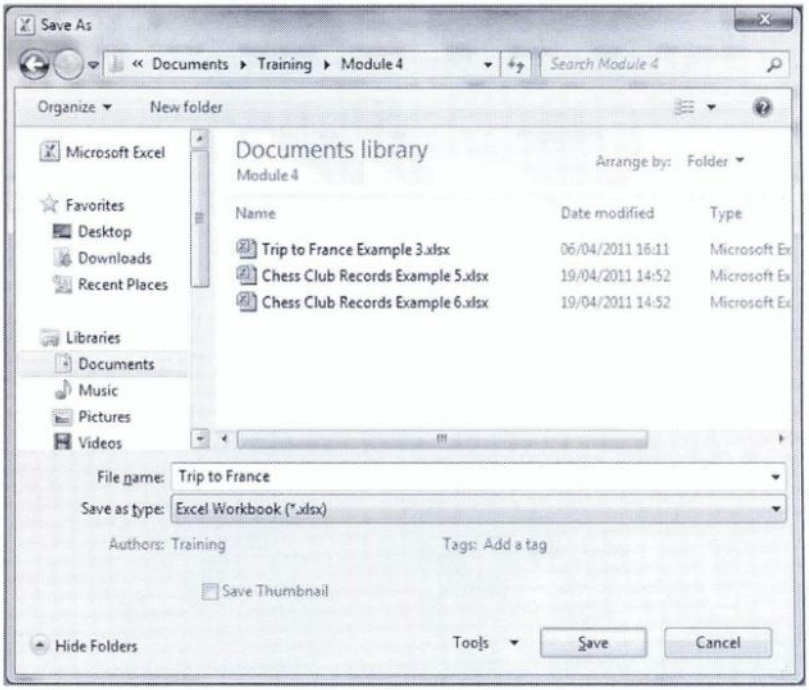
- Type an appropriate name in the [File name:] field
- Ensure that [Excel Workbook] is selected in the [Save as type:] field
  - So that the file will be saved as a workbook

Either

- Accept the file location displayed at the top of the Save As dialog box
  - To save the workbook in your default file location

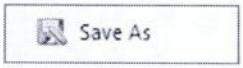
Or

- Navigate through the drives and folders in your filing system
  - To select a specific folder in which you wish to save the workbook
- Click [Save]
  - To save the workbook in the specified folder

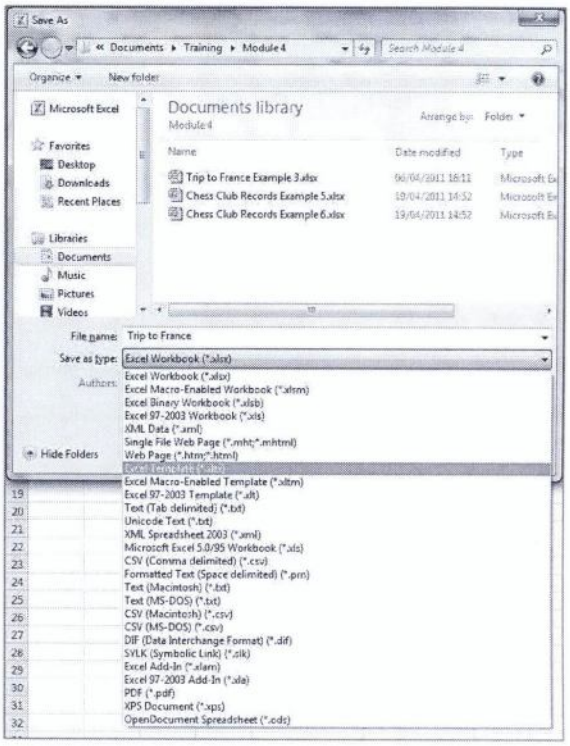


Save a spreadsheet as another file type

- Ribbon [File] click the [Save As] button



  - To open the Save As dialog box, in order to be able to choose an alternative file format
- Click the drop down button to the right of the [Save as type:] field and scroll through the list to find and select [Excel Template]
  - The [Templates] folder will then be selected in the [Save in:] field
- Click [Save]
  - To complete the operation



You will need to know:

It is possible to save Excel files in other formats, as shown on the [Save as type:] drop down list.

Typical examples are:

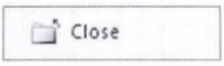
File Type	**File Extension**	**Use of File**
Text file	*.txt*	*Converts the spreadsheet to a text file*
Previous version of Excel	*.xls*	*A spreadsheet that can be read by older versions of Excel*
Web page	.htm	*A spreadsheet that will open in a web browser*
Comma Separated Value	*.csv*	*Converts the spreadsheet to a list*
OpenDocument spreadsheet	*.ods*	*OpenDocument spreadsheet files are supported by a wide variety of spreadsheet applications, including free software applications. It is also possible to save Excel files as other software specific file types, as shown in the [Save as type:] list.*

You may like to know:

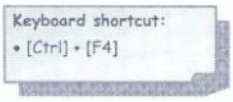
The file extensions might not be shown on your computer when you are in the Save As dialog box.

Exercise 8 Close a spreadsheet

- Ribbon [File] click the [Close] button



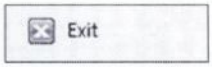
  - To close this spreadsheet
  - This will leave Excel open on screen, ready to work with another spreadsheet.



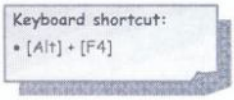
Exercise 9 Close Excel

If you have finished working with Excel, it is good practice to close the program, in order that it is not impacting your computer's performance unnecessarily.

- Ribbon [File] click the [Exit] button



  - To close Excel as well as this workbook.



Alternatively, clicking the [Close] button at the top right of the screen will close any Excel workbook open in the current window and, if this is the only Excel workbook open, it will also close down Excel.

Example 3 - Use a trip planner

This Example will use the Trip to France workbook created during Example 1. It will keep a record of students coming on the trip, along with how much money is owed and has been received for the trip.

	A	B	C	D	E	F	G	H	I
1	Trip to France								
2									
3			Confirmed	Deposit	Balance	Date Balance Paid	Present		
4	Sue	Kent	y	£50.00	£100.00	30/08/2008			
5	Paul	Marshall	y	£50.00					
6	Mark	Jones	y	£50.00	£100.00	29/08/2008			
7	Wendy	Hilton	y	£50.00	£100.00	30/08/2008			
8	Ian	Thomas	y	£50.00	£100.00	30/08/2008			
9	Jayne	Martin	y	£50.00					
10	Tina	Edwards	y	£50.00	£100.00	22/08/2008			
11	Alan	Holt	y	£50.00	£100.00	23/08/2008			
12	Jean	Smith	y	£50.00					
13	Mary	Roberts	y	£50.00					
14									
15		Total	10	£500.00	£600.00				
16				Total paid	£1,100.00				
17				Total due	£1,500.00				
18				Total owing	£400.00				
19				Percentage paid	73.3%				
20									
21	Cost per student		£150.00						

There is a copy of the Trip to France workbook with your exercise files. You can use this, or the workbook you created in Example 1.

Exercise 1 Open Microsoft Office Excel

- From the Task Bar at the bottom of the screen, click the [Start] button
- Select [All Programs] [Microsoft Office] [Microsoft Office Excel]
    - Microsoft Excel will open, with a new, blank workbook on screen

Exercise 2 Open a spreadsheet and save under another name

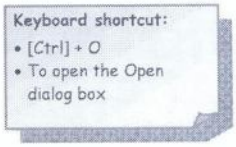
This Exercise will open the copy of the Trip to France workbook that is stored with your exercise files.

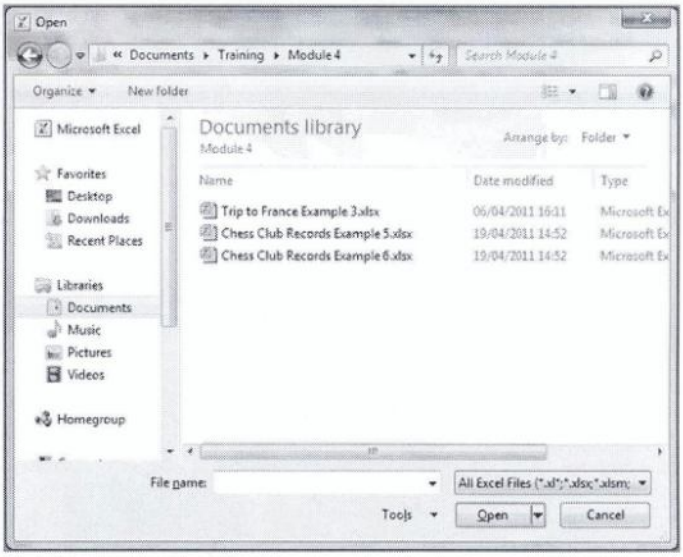
Once you have opened the document, you will save it with a new name, to a new location. This will ensure that the original document remains unchanged in your exercise file location.

Open a spreadsheet

- Ribbon [File] click the [Open] button

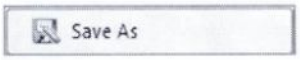
    - To open the Open dialog box
- Navigate through the drives and folders in your filing system and select your exercise file location
- From the list of folders in your exercise file location, select [Module 4]
- In the Module 4 folder, select the file named "Trip to France Example 3"
- Click the [Open] button
    - To open the workbook on screen




Open
« Documents ▸ Training ▸ Module 4
Search Module 4
Organize
New folder
Microsoft Excel
Favorites
Desktop
Downloads
Recent Places
Libraries
Documents
Music
Pictures
Videos
Homegroup
Documents library
Module 4
Arrange by: Folder
Name
Date modified
Type
Trip to France Example 3.xlsx
06/04/2011 16:11
Chess Club Records Example 5.xlsx
19/04/2011 14:52
Chess Club Records Example 6.xlsx
19/04/2011 14:52
File name:
All Excel Files (*.xl*;*.xlsx;*.xlsm;
Tools
Open
Cancel

Save the spreadsheet under another name

- Ribbon [File] click the [Save As] button



  - To open the Save As dialog box
- In the [File name:] field, type an appropriate name for your workbook
- Within your filing system, select an appropriate folder
- Click [Save]
  - To save the workbook with a new name in the selected folder

Keyboard shortcut:
- [Alt] + F
- Then press [A]
- To open the Save as dialog box

Once you have saved your file in this way, your updates will be saved in the new folder, under the new name, and the original exercise file will be unchanged.

As you are working on your spreadsheet, it is a good idea to save it at regular intervals. This ensures that if there is a power cut, or some other problem with your computer, you do not lose any changes you have made to the workbook.

- On the Quick Access Toolbar, click the [Save] button
  - To save the workbook in the same location with the same name

Keyboard shortcut:
- [Ctrl] + S
- To save the workbook

Exercise 3 Work with cells

The following exercises will use some of the formulas and functions contained within Excel to calculate details such as how many students are coming on the trip, how much money has been paid and how much is due.

First, we will enter data into cells C4-F13, to show which students are confirmed as coming on the trip, the deposits and balances that have been paid, and the date the balance was paid. We will format these cells, as appropriate, to display currency and dates effectively. After this, we will create formulas and functions that will use this data to calculate how many students are coming on the trip, how much money they have paid to date, and how much money is still due.

Use the Auto Fill tool

The Auto Fill tool enables a cell entry to be copied into adjacent cells by dragging the cursor across the cells in which the entry is to be copied. This feature can be used to copy text, formulas and functions. It will be covered in detail in another Example.

We will enter a 'y' into cell C4 to confirm that Sue Kent is coming on the trip, and then use Auto Fill to copy this 'y' to the other students' rows.

- In cell C4, type "**y**"
  - To signify that Sue Kent is coming on the trip
- Move the pointer to the bottom right of cell C4
  - To change the pointer to the Auto Fill cross
    This is a small black cross
- Click and drag the pointer down to cell C13
  - To copy the "**y**" into each of cells C5-C13
  - To signify that all the students are coming on the trip

- Highlight cells C4-C13
- Ribbon [Home] [Alignment] – click the [Center] button

  - To centre the entries in cells C4-C13

Exercise 4 Enter and format numbers and dates

This exercise will format the entries in columns D, E and F to display currency and dates as appropriate.

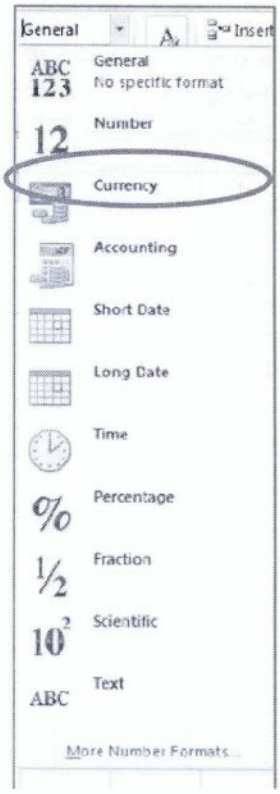
Enter a number in a cell

- In cell D4 type '**50**'
  - To begin entering the amount of deposit paid by Sue Kent
- Move the pointer to the bottom right of cell D4
  - To view the Auto Fill cross
- Click and drag the pointer down to cell D13
  - To copy the "**50**" into each of cells D5-D13

- Type the number '**100**' into cells E4, E6, E7, E8, E10 and E11
  - To enter the balance that has been paid by these students

Format cells to display a currency symbol

- Select cells D4-E13
- Ribbon [Home] [Number] - click the drop down arrow to the right of the [Number Format] button
  - To view the number format options available
- Select [Currency] from the drop down list
  - To select currency format for the selected cells
  - To insert a '£' sign and 2 decimal places in each of the selected cells that contains a number



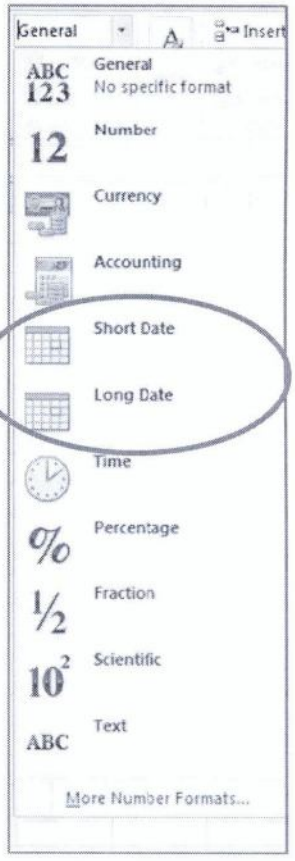
Enter a date in a cell

- In cell F4 enter today's date in the format "**30/08/2008**" and press [Enter]
  - To insert a date into this cell
  - To change the number format of the cell to [Date]
- Enter recent dates into cells F6, F7, F8, F10 and F11
  - To show the dates the other students have paid their balance

Format cells to display a date style

- Select cells F4-F13
- Ribbon [Home] [Number] – click the drop down arrow to the right of the [Number Format] field

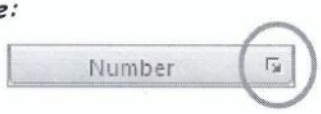
  - To view the 2 date types available ([Short Date] and [Long Date])
- Select [Short Date]
  - To apply this date style to the currently selected cells



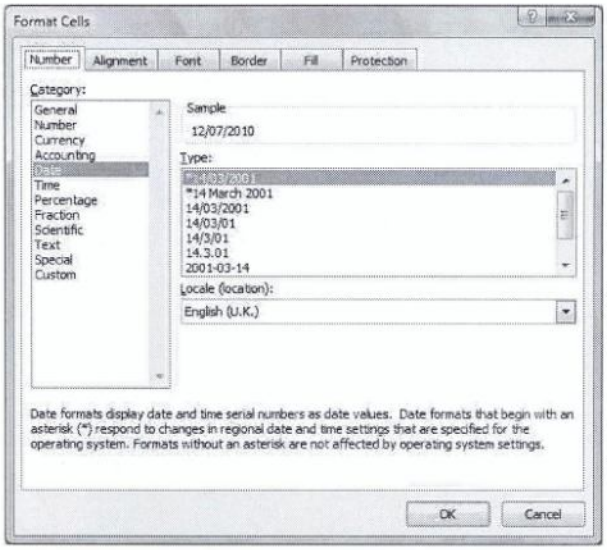
You may like to know:

To obtain the full range of date formatting available:

- *Ribbon [Home] [Number] - click the Dialog Box Launcher*



  - *Opens the Format Cells dialog box with the Number tab selected*
- *In the Category: section, select [Date]*
  - *To view the full list of date formats available*



Keyboard shortcut:
- [Ctrl] + [1]
- To view Format Cells dialog box

Exercise 5 Functions

Formulas perform calculations on values in cells in a spreadsheet. They always start with an equals sign (=). Formulas can be very simple (such as =3*2), or can become very complicated.

In order to make complicated formulas easier to create and use, you can use **functions** within Excel to create specific formulas. Functions are prewritten formulas that carry out specific calculations or operations on cells or ranges in the spreadsheet.

Using the student data in cells C4-E13, we will first enter a couple of functions to count numbers coming and to sum up amounts paid. After this, we will create some formulas to work out amounts still owed.

Use COUNT functions

Each function consists of the function name, followed by brackets containing 'arguments'. The arguments are the values that the function uses to perform the calculation or operation. These values can be text, numbers, cell references and names.

The first function we will use is the COUNT function. There are 3 COUNT functions that can be used to add up how many cells in a range contain data. These are 'COUNT', 'COUNTA' and 'COUNTBLANK'. This exercise will use the 'COUNTA' function. 'COUNT' and 'COUNTBLANK' will be described below.

The COUNTA function counts how many cells in a given range contain data. This data can be text or numbers. The COUNTA function that we will use will look like this:

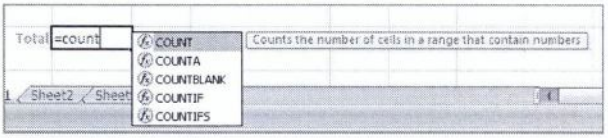
=COUNTA(C4:C13)

As written above, this function will count how many of the cells in the range C4-C13 contain an entry – therefore how many people are confirmed as coming on the trip.

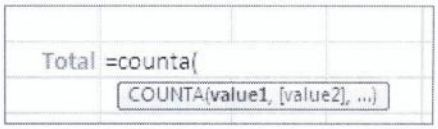
- In cell B15 type "**Total**" and press [Enter]

- In cell C15 type "**=COUNTA(C4:C13)**" and press [Enter]
  - To count how many entries in cells C4-C13 contain an entry
  - To display in cell C15 how many students are confirmed as coming on the trip

As you begin to type the function name into cell C15, a list of functions that begin with the letters you are typing will be displayed. It is possible to double click on the function you require in this list, rather than typing the remainder of its name.



As you continue creating the function, the make up of the function will be displayed below the cell.



- Ribbon [Home] [Alignment] – click the [Centre] button 
  - To centre the number in cell C15

You will need to know:

=COUNT function

The =COUNT function only counts cells in the selected range that contain numbers, rather than including those with text entries.

=COUNTBLANK function

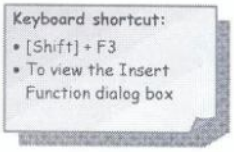
The =COUNTBLANK function only counts empty cells in the selected range. It could, therefore, be used in cells C4-C13 to count how many cells do not contain a 'y', indicating how many students have not yet confirmed for the trip.

The Insert Function dialog box

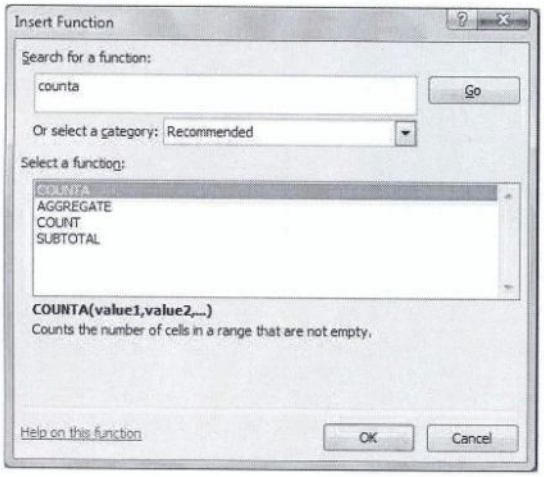
The Insert Function dialog box gives you access to all available functions. Once you have selected the function you wish to use, it displays a second dialog box which takes you step by step through the process of creating the function.

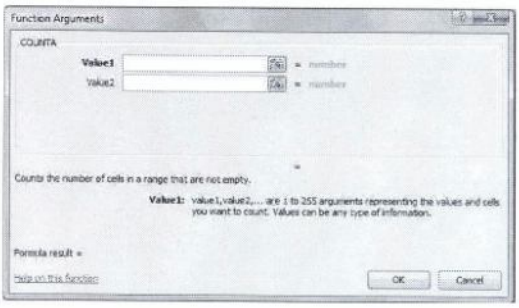
To view the dialog box for the COUNTA function:

- *Ribbon [Formulas][Function Library] - click the [Insert Function] button*
  - *To view the Insert Function dialog box*
- *In the Search for a function: field, type "**counta**" and click [Go]*
  - *To view functions similar to this in the Select a function: field*
- *In the Select a function: field, select [COUNTA] and click [OK]*
  - *To view the Function Arguments dialog box for the COUNTA function*
  - *To view guidance on how to create this function*



There is also a [Help on this function] link at the bottom left of the dialog box, which would open Microsoft Office Excel Help at the COUNTA help screen.





Use SUM function

As deposits and balances paid are entered into columns D and E, we would like the total paid to date to be shown in cells D15 and E15. This can be achieved with the SUM function.

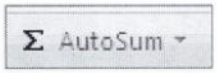
This function totals the values in the cells contained within its arguments. The SUM function that we will use in cell D15 will look like this:

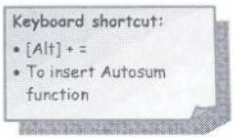
=SUM(D4:D13)

This will total the values displayed in cells D4-D13.

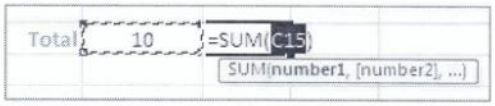
Because the SUM function is used so frequently, there is an [AutoSum] button in the Function Library, to automatically enter the function into the current cell, rather than typing it in manually. We will use this [AutoSum] button for this calculation.

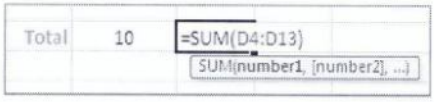
- Click in cell D15
- Ribbon [Formulas] [Function Library] - click the [AutoSum] button





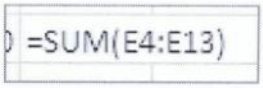
  - To begin inserting the Autosum function into cell D15
  - To view Excel's suggested cells to use in the sum (By default, Excel selects cells that are adjacent to the function and currently contain values)
- Move the pointer to cell D4
- Click and drag the pointer down to cell D13
  - To highlight these cells
  - To amend the calculation to use these cells
- Press [Enter] on the keyboard
  - To add up the total deposits paid to date
  - The format of cell C14 will automatically be changed to [Currency] because the cells used in the function already use this format





Total	10	£500.00

- Use the same procedure to insert the [AutoSum] function into cell E15
  - To display the total balances paid to date



Exercise 6 Arithmetic formulas

We will now create formulas to display the total paid to date, the total due, the total still owing and the percentage paid to date. These formulas will use the arithmetic operators – addition, subtraction, multiplication and division.

- In cell D16 type "**Total Paid**" and press [Enter]
- In cell D17 type "**Total Due**" and press [Enter]
- In cell D18 type "**Total Owing**" and press [Enter]
- In cell D19 type "**Percentage Paid**" and press [Enter]
- Select cells D16-D19
- Ribbon [Home] [Alignment] – click the [Align Text Right] button
  - To right align these 4 entries

- In cell A21 type "**Cost per student**" and press [Enter[
- In cell C21 type "**150**" and press [Enter]
- Select cell C21
- Ribbon [Home] [Number] – click the drop down arrow to the right of the [Number Format] button and select [Currency]

  - To format the cost per student figure as currency

Addition

Total paid

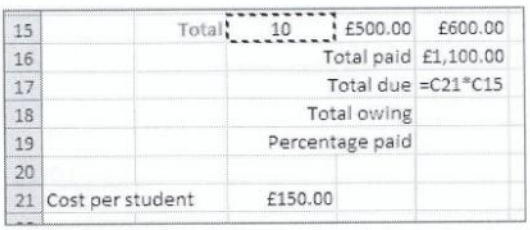
- In cell E16 type "**=D15+E15**" and press [Enter]
  - To add the total deposit paid to date (in cell D15) plus the total balance paid to date (in cell E15)
  - To work out how much has been paid in total to date

	£500.00	£600.00
Total paid	=D15+E15	

Multiplication

Total due

- In cell E17 type "**=C21*C15**" and press [Enter]
  - To multiply the cost per student shown in cell C21 (£150) by the number of students coming on the trip (as counted in cell C15)
  - To work out the total due for the trip

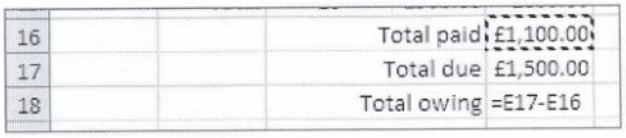


15		Total	10	£500.00	£600.00
16				Total paid	£1,100.00
17				Total due	=C21*C15
18				Total owing	
19				Percentage paid	
20					
21	Cost per student		£150.00		

Subtraction

Total owing

- In cell E18 type "**=E17-E16**" and press [Enter]
  - To subtract the amount paid to date (in cell E16) from the amount due (in cell E17)
  - To work out how much money is still owed for the trip

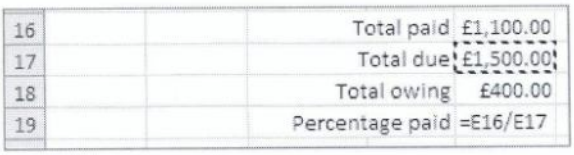


16			Total paid	£1,100.00
17			Total due	£1,500.00
18			Total owing	=E17-E16

Division

Percentage paid

- In cell E19 type "**=E16/E17**" and press [Enter]
  - To divide the amount paid (in cell E16) by the amount due (in cell E17)
  - To work out the percentage of due money that has been paid to date



16			Total paid	£1,100.00
17			Total due	£1,500.00
18			Total owing	£400.00
19			Percentage paid	=E16/E17

Exercise 7 Format numbers

Format cells to display numbers as percentages

- Select cell E19

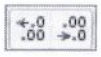
- Ribbon [Home] [Number] – click the [Percentage Style] button
  - To display the value in cell E19 as a percentage

Format cells to display a specific number of decimal places

- Ribbon [Home] [Number] – click the [Increase Decimal] button

  - To display one decimal place for the percentage figure

Each time you click the [Increase Decimal] or [Decrease Decimal] buttons, the number of decimal places displayed for the currently selected cells will be increased or decreased by one place.



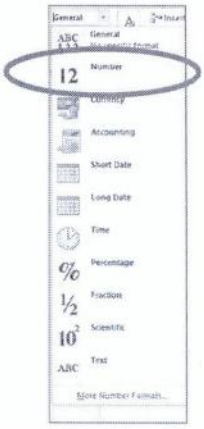
You will need to know:

Format cells to display numbers with, without a separator to indicate thousands

- *Ribbon [Home] [Number] - click the [Comma Style] button*

  - *To display the selected cell(s) with a thousands separator*

- *Ribbon [Home] [Number] - click the drop down arrow to the right of the [Number Format] field*
  - *To view the available number formats*
- *Select [Number] from the drop down list*
  - *To remove the thousands separator from the selected cells*
  - *To view the cells in default number format*



Recognise good practice in formula creation

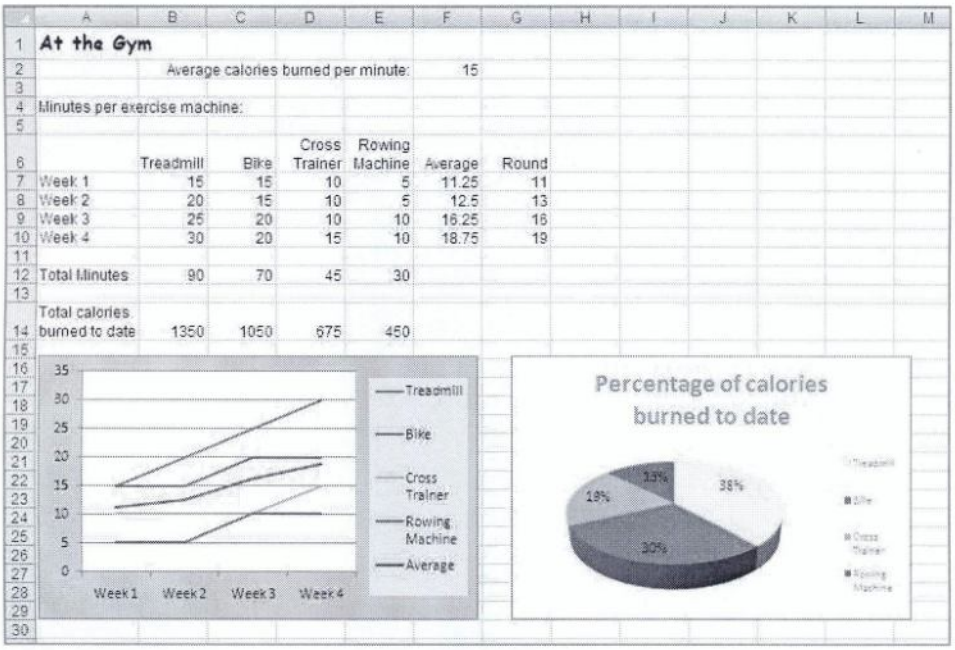
When you are creating formulas, you should always use cell references in the arguments, rather than typing numbers into the formulas. A good example of this is the multiplication formula above, which refers to the cost per student that has been entered in cell C21. If the cost per student changes, it can be edited in cell C21 and the formula in cell E17 will automatically use this amended value. This will apply to any other formulas that are created in the spreadsheet that refer to the cost per student.

Exercise 8 Close Excel

- Ensure that you have saved your updated workbook
- Click the [Close] button at the top right of the screen
  - To close your Excel workbook
  - If this is the only Excel workbook open, it will also close down Excel

Example 4 - At the Gym

This Example will chart progress at the gym – displaying how much time is spent on various exercise machines over a 4 week period.



	A	B	C	D	E	F	G
1	**At the Gym**						
2				Average calories burned per minute:		15	
3							
4	Minutes per exercise machine:						
5							
6		Treadmill	Bike	Cross Trainer	Rowing Machine	Average	Round
7	Week 1	15	15	10	5	11.25	11
8	Week 2	20	15	10	5	12.5	13
9	Week 3	25	20	10	10	16.25	16
10	Week 4	30	20	15	10	18.75	19
11							
12	Total Minutes	90	70	45	30		
13							
14	Total calories burned to date	1350	1050	675	450		

The Example will go through the stages of creating the spreadsheet as if it were being filled in over the 4 week period. Thus, the basic table and an 'empty' chart will be created first. Detailed weekly figures will be added – showing how the chart will gradually form each week as the data is entered into the table.

After this, a second chart will be created. Both charts will be edited, to display their content more effectively.

Exercise 1 Open Microsoft Excel

- From the Task Bar at the bottom of the screen, click the [Start] button
- Select [All Programs] [Microsoft Office] [Microsoft Office Excel]
  - Microsoft Excel will open, with a new, blank workbook on screen

Exercise 2 Work with cells

This exercise will enter and format the headings in rows 1-6. This will use some of the formatting skills learnt in Examples 2 and 3.

- In cell A1 type the heading "**At the Gym**"
- Press [Enter] on the keyboard
  - To complete entry of the heading
- Select cell A1
- Ribbon [Home] [Font] – change the [Font Size] to [14]

- Ribbon [Home] [Font] – change the [Font] to [Comic Sans MS]

- Ribbon [Home] [Font] – make the cell [Bold]

- In cell A4 type "**Minutes per exercise machine:**"

- In cell B6 type "**Treadmill**"
- In cell C6 type "**Bike**"
- In cell D6 type "**Cross Trainer**"
- In cell E6 type "**Rowing Machine:**"
- In cell F6 type "**Average**"
- Select cells B6-F6
- [Ribbon] [Home] [Alignment] – click the [Wrap Text] button

  - To wrap the text onto multiple lines where necessary
- Ribbon [Home] [Alignment] – [Align Text Right]

Exercise 3 Use the Auto Fill tool

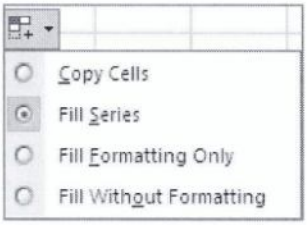
In Example 2, the Auto Fill tool was used to copy a text entry from one cell to adjacent cells.

The Auto Fill tool can copy either the entry (with or without formatting) or just the formatting from your currently selected cell to as many adjacent cells as required. In addition to the text example used in Example 2, the tool is very useful to copy formulas and functions from one cell to others. The Auto Fill tool will be used in Exercise 4 to copy the Average function in column F from row 7 to rows 8-10.

It is also possible to use the Auto Fill tool to increment your current entry, in order to create a series of entries in the adjacent cells. This exercise will use Auto Fill to copy the Week headings in column A from row 7 to rows 8-10.

- In cell A7 type the heading "**Week 1**"
- Move the pointer over the bottom right of cell A7, until the pointer changes to the Auto Fill cross
- When the Auto Fill cross appears, click and drag the pointer down over cells A8-A10, until "Week 4" is shown to the right of the Auto Fill cross
    - To automatically enter the Week numbers into cells A8-A10
    - To view the [Auto Fill Options] box 

If you hover over the [Auto Fill Options] box, a drop down arrow will appear to the right of it. Clicking this arrow will display the available choices of how the highlighted cells could be filled. The [Auto Fill Options] box will close when you start typing in another cell on the spreadsheet.



Exercise 4 Use AVERAGE function

The AVERAGE function displays the average (arithmetic mean) of the numbers or cell references contained in its arguments. In cell F7, the AVERAGE function will look like this:

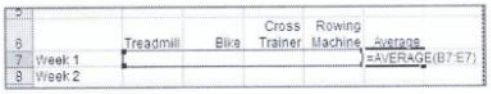
=AVERAGE(B7:E7)

This will work out and display the average of the numbers currently showing in cells B7-E7.

Create the formula

You will create the formula by typing the function into cell F7. *However, you should remember from your work on functions in Example 3 that you could use [Ribbon] [Formulas] [Function Library] [Insert Function] to locate the function you wish to use. This would display the Function Arguments dialog box, which would give you help to create your function.*

- In cell F7 enter the function "**=AVERAGE(B7:E7)**" and press [Enter]
  - To complete entry of the function in cell F7
  - To view an error message in cell F7

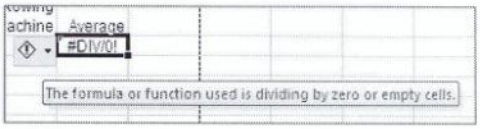


6		Treadmill	Bike	Cross Trainer	Rowing Machine	Average
7	Week 1					#DIV/0!
8	Week 2					
9	Week 3					
10	Week 4					
11						

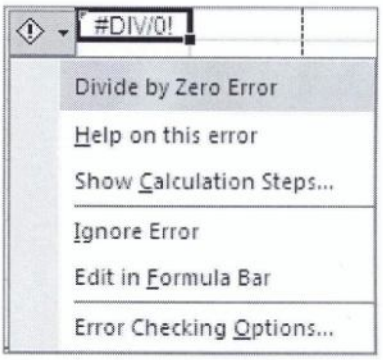
Exercise 5 Identify and understand standard error values

The cells in column F containing the AVERAGE functions will show the error message '**#DIV/0!**' until the weekly exercise figures begin to be entered into cells B7-E10. This indicates that, at present, the AVERAGE calculation is trying to divide by 0. Don't worry – when the figures are entered later in this Example, the error message will be replaced by the average figures!

Any cell containing an error will have a small green triangle in its top left corner, as well as the appropriate error message. Selecting this cell will display an error box next to it. Allowing the pointer to hover over the error box will display a tip showing the cause of the error.



Clicking the error box will display a drop down menu containing options to help deal with the error if you wish.



Other common error messages you may encounter are:

Error	Meaning
#NAME?	There is text in your calculation that Excel does not recognize. Suggest you check the spelling of formulas and named ranges. Also, enclose text in quotes.
#NUM!	There is a problem with the use of a number in a formula or function.
#REF!	There is a cell reference in the calculation that is not valid. For example, a cell used in calculations may be deleted or pasted over.
#N/A	A value looked for in a formula or function is not available.

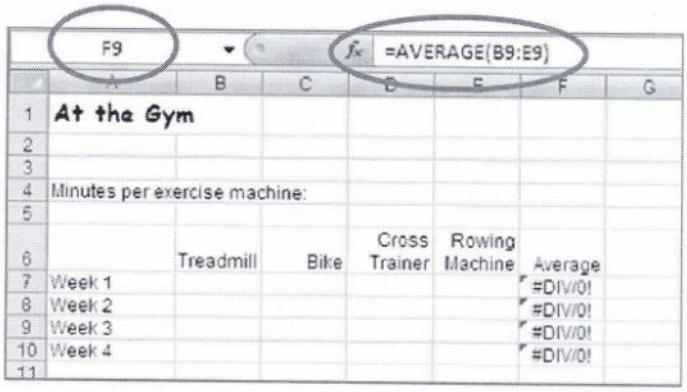
Exercise 6 Understand and use relative cell referencing in formulas

Think of the formula created in cell F7 as "the average of the figures in the 4 cells to the left of this cell".

In cells F8-F10, this same formula is required, to work out the averages for Weeks 2-4. It is possible to copy the formula to these rows, and Excel will automatically change the formula for each of these rows to relate to the cells in that row. This is called '**relative**' cell referencing – the calculations change relative to the current cell in the worksheet.

The cells in column F are adjacent to each other, therefore it will be easiest to copy the formula using the Auto Fill tool.

- Select cell F7
- Use the Auto Fill cross
  - To copy this formula to cells F8-F10
  - To view #DIV/0! error messages in each of the cells
  - For Excel to automatically change the formula for each row to work out the average for the appropriate row
- Select each of the cells F8-F10
  - To see, in the formula bar, how Excel has changed the formula to be applicable for that row



- On the Quick Access Toolbar, click the [Save] button and save the workbook in an appropriate location

Keyboard shortcut:
- [Ctrl] + S
- To save the workbook

Exercise 7 Use SUM function

The SUM function, which was fully explained in Example 3, will now be used in cells B12-E12, to add up the minutes spent on each exercise machine over the course of the 4 week period. You will type the function into cell B12 and use the Auto Fill tool to copy it to cells C12-E12. *Don't forget that you could use the Function Library or the [AutoSum] button to create the function.*

At present, after inserting the SUM function into these cells, the figure '0' will be displayed in each cell, as no exercise figures have been inserted so far. The figure in cells B12-E12 will change as the weekly exercise figures are inserted for each machine later in this Example.

- In cell A12, type "**Total Minutes**" and press the [Right Arrow] on the keyboard
  - To complete the entry in cell A12
  - To move to cell B12
- In cell B12, enter the function "**=SUM(B7:B10)**"
  - To display in cell B12 the total of the values in cells B7-B10
- Use the Auto Fill cross
  - To copy this function across cells C12-E12
  - To amend the cells totalled in the function relative to each of the cells
  - To display the total minutes spent on each of the exercise machines
- You may need to amend the width of column A to fit the entry cell A12

B12 =SUM(B7:B10)

	A	B	C	D	E	F
1	At the Gym					
2						
3						
4	Minutes per exercise machine:					
5						
6		Treadmill	Bike	Cross Trainer	Rowing Machine	Average
7	Week 1					#DIV/0!
8	Week 2					#DIV/0!
9	Week 3					#DIV/0!
10	Week 4					#DIV/0!
11						
12	Total Minutes	0	0	0	0	
13						

Exercise 8 Understand and use absolute cell referencing in formulas

This Exercise will insert into cell F2 the average calories per minute that you expect to burn whilst exercising.

After this, in cell B14, you will insert a formula to calculate the total calories burned to date for the treadmill. This formula will multiply the 'Average calories per minute' (displayed in cell F2) by the 'Total minutes exercised' on the treadmill (as displayed in cell B12).

This formula will then be copied with the Auto Fill tool to cells C14-E14, to display the total calories burned to date for each of the other machines.

Absolute references

In Exercise 6, you saw that, usually when copying formulas from one cell to another, all the cells referenced in the copied formulas need to be changed to take account of the different cells on the worksheet, to which each copied formula refers.

For the formula you are about to create, the cell referencing the 'Total minutes exercised' for each individual machine will vary from column to column. However, the 'Average calories per minute' will always be stored in cell F2. Therefore, as you create the formula for the treadmill (in column B), you have to 'fix' the reference to cell F2, so that it does not change when you copy the formula to columns C-E.

These fixed references are known as 'absolute cell references'. They are created by adding the '$' sign before the column and row reference in the formula. The formula you will create in cell B14 will look like this:

=$F$2*B12

This states that references to column F and row 2 are absolute, and must not be changed if the formula is copied to other cells. Because the reference to cell B12 does not contain '$' signs, this ***will*** change when the formula is copied, to take account of the different cell locations on the worksheet to which the formula is copied.

- In cell E2, type "**Average calories per minute**" and press [Enter]
- Select cell E2 again
- [Ribbon] [Home] [Alignment] – click the [Align Text Right] button 
  - To right align this text entry in cell E2
- In cell F2, type "**15**" and press [Enter]
  - To display the average calories burned per minute whilst exercising

- In cell A14, type "**Total calories burned to date**" and press [Enter]
- Select cell A14 again
- [Ribbon] [Home] [Alignment] – click the [Wrap Text] button
  - To wrap the text in this cell onto multiple lines.
- In cell B14, type the formula "**=$F$2*B12**" and press [Enter]
- Select cell B14 once again
- Use the Auto Fill cross to copy this formula across to cells C14-E14
  - To amend the reference to the Total in row 12 for each column
  - To keep the reference to the Average calories per minute as F2 for each column
  - To view the total calories burned to date for each exercise machine

E14 =$F$2*E12

	A	B	C	D	E	F
1	At the Gym					
2			Average calories burned per minute:			15
3						
4	Minutes per exercise machine:					
5						
6		Treadmill	Bike	Cross Trainer	Rowing Machine	Average
7	Week 1					#DIV/0!
8	Week 2					#DIV/0!
9	Week 3					#DIV/0!
10	Week 4					#DIV/0!
11						
12	Total Minutes	0	0	0	0	
13						
14	Total calories burned to date	0	0	0	0	

You may like to know:

When creating the formula, rather than typing in the $ signs, you can type "=F2" then press function key [F4] on the keyboard to add the $ signs. If you repeatedly press [F4], the placement of the $ signs will change as follows:

$F$2; F$2; $F2; F2

(F$2 fixes the reference to row 2, while allowing the reference to column F to change as the formula is copied to other parts of the spreadsheet; $F2 fixes the column reference, while allowing the row reference to change. These are known as "mixed' cell references".)

You may like to know:

When you start the calculation in cell B14, having typed "=", it is possible to click on the next cell you wish to use in your calculation, rather than typing its reference in. In the above example:

Select cell B14
Type in "="
Click on cell F2
Press function key [F4] on the keyboard
*Type in "**"*
Click on cell B12
Press [Enter]

This can be useful when the cell you wish to use is not visible on screen and you can't see its cell reference; as it allows you to scroll to the cell and ensure you select the right one.

Exercise 9 Create charts

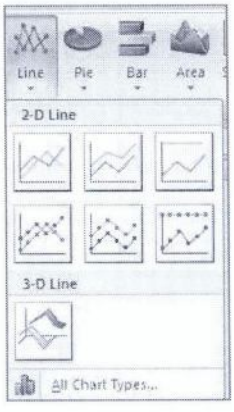
This Exercise will create a line chart, ready to display the minutes for each machine each week. This chart will be based on the table you have already created. Initially, the chart will display a legend box, indicating what colour line will be used for each machine, but it will not contain any lines within the chart area, as you have not yet entered any data into the table.

Once the chart has been created, the weekly figures will be entered. As each figure is entered, the chart will begin to display the lines for each machine, showing the trend for minutes exercised over the weeks.

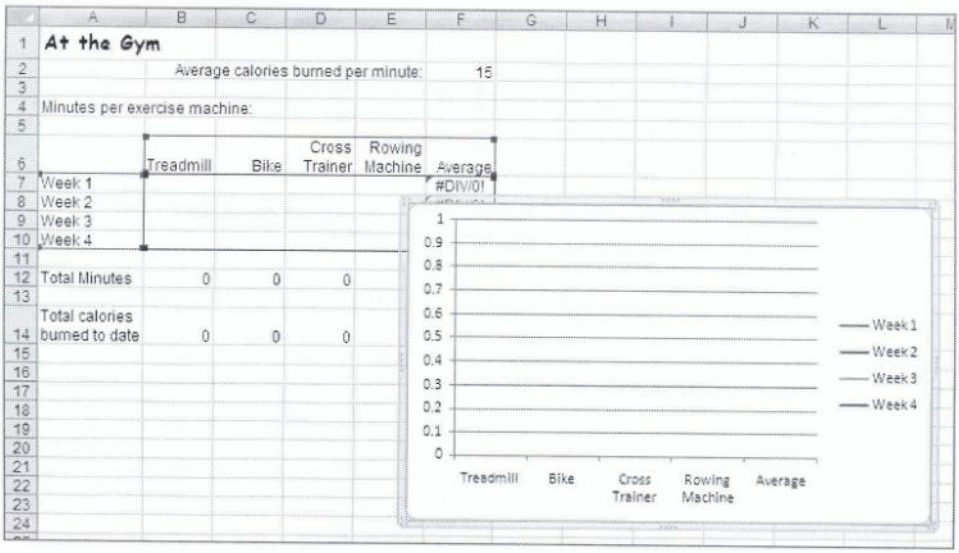
After this, a pie chart will be created, to display the percentage of calories burned on each exercise machine.

Create a line chart from spreadsheet data

- Select cells A6-F10
  - As these will contain the data you wish to use in the line chart
- [Ribbon] [Insert] [Charts] – click the [Line] button
  - To view a drop down menu of the sub-types available for line charts
- Select the [Line] chart at the top left of the [2-D Line] section
  - To create a 2-D line chart based on the currently selected cell range
  - To view coloured lines around your selected cell range, indicating which cells have been used to create the different parts of the chart



Keyboard shortcut:
- [F11]
- Creates a default column chart from the selected data



Select a chart

Your chart will probably still be selected. You can tell if it is, because it will have a coloured line around the outside, the range being used in the chart will be outlined in various colours, and the Name Box will contain the chart name (Chart 1) rather than the current cell reference. However, if you do need to select the chart:

- Move the pointer over the white area near the edge of the chart
  - To view the screen tip indicating that this is the "Chart Area"
- When you see the "Chart Area" screen tip, click once
  - To select the chart

Because a chart is selected, the contextual tabs for charts will be displayed to the right of the other tabs on the Ribbon. These contextual tabs contain chart tools, enabling you to work with your chart. These tools will be used in the rest of this Example.

If you click over the legend box, the plot area or one of the axes, these will be selected, rather than the chart in general. You will need to select individual parts of the chart when you edit them later in this Exercise.

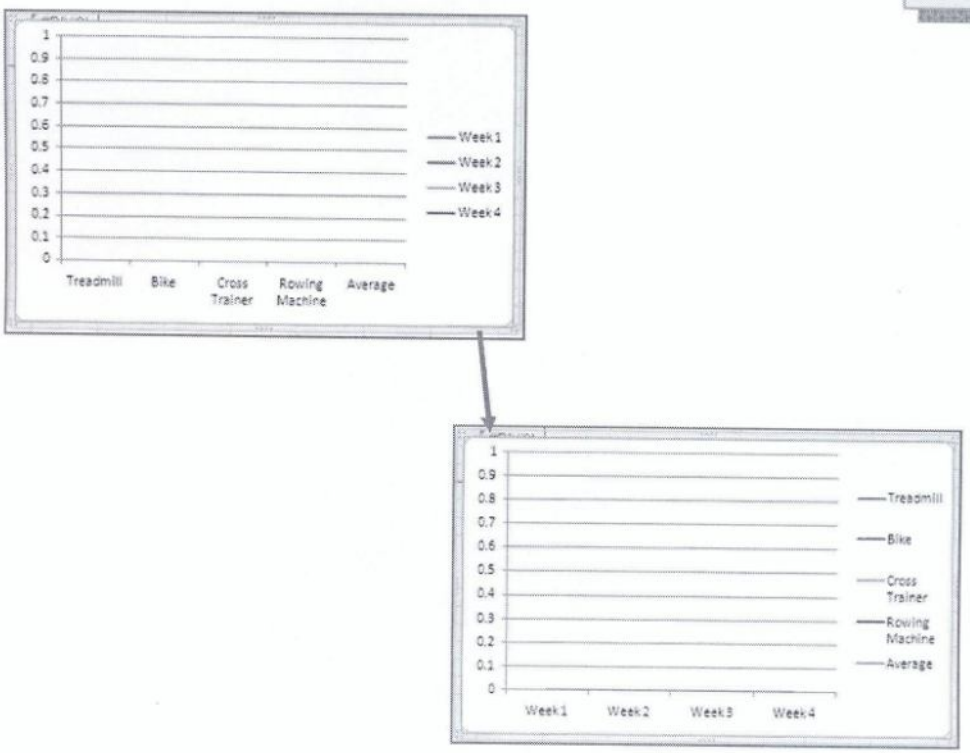
Switch row/column data

At present, the chart is displaying the exercise machines from row 6 across the x-axis, and the Weeks from column A as the data series. This means that, as the figures are input to the table, the chart will display a line for each week.

You want to see a line for each exercise machine, with the weeks displayed on the x-axis. To achieve this, you will switch the row and column data in the chart.

- Ensure the chart is selected
- [Ribbon] [Design] [Data] – click the Switch Row/Column button
  - To select the data series from the entries in row 6
  - To select the x-axis data from the entries in column A

Right Click:
- [Select Data...]
- [Switch Row/Column] button
- [OK]



Move and resize a chart

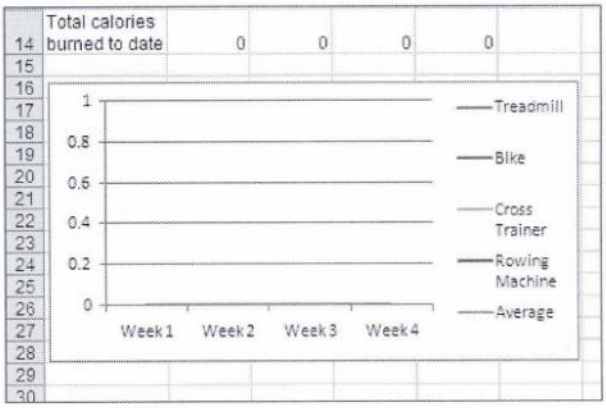
At present, the chart sits in the middle of the screen. You will move it to sit underneath the table, and resize it to be the same width as the table.

Move the chart

- Move the pointer over the Chart Area
  - The pointer will change to a black cross with arrow heads
- Click and drag the chart to the left and below the table
  - To move it to this location

Resize the chart

- Move the pointer to the bottom right corner of the chart
  (you may need to scroll down slightly to view the bottom of the chart)
  - The pointer will change to a double ended arrow
- Click and drag the bottom of the chart up and inwards
  - To make the chart fit between columns A-F of the worksheet



You will need to know:

Delete a chart

The easiest way to delete a chart is as follows:

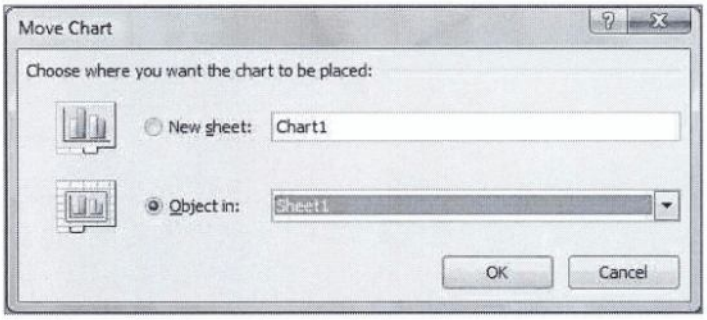
- *Select the chart*
- *Press the [Delete] key on the keyboard*
  - *To delete the selected chart*

You may like to know:

Move the chart to other locations

It is possible to move the chart to another sheet in the workbook; or to create a specific chart sheet, which will contain only this chart. This is achieved in the following way:

- *Select the chart to be moved*
- *[Ribbon] [Design] [Location] – click the [Move Chart] button*
  - *To view the Move Chart dialog box*
- *Select [New sheet:] and type a name for the sheet, or accept the suggested name*
  - *To create a specific chart sheet for the chart*
- *Select [Object in:] and click the drop down arrow to view the available sheets*
  - *To move the chart as an object in one of the existing sheets*

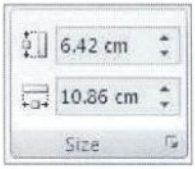


You may like to know:

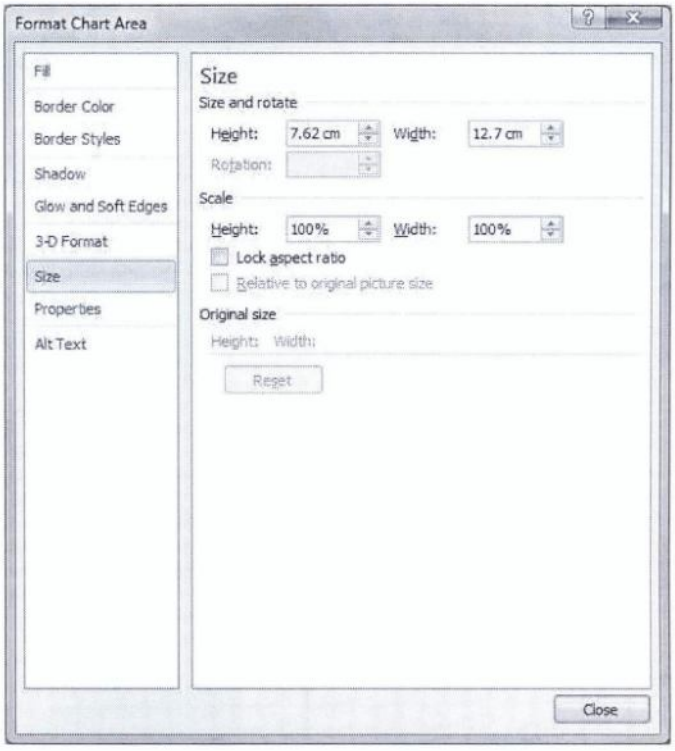
Resizing the chart

It is possible to specify a particular height or width for a chart, as follows:

- *Select the chart to be resized*
- *[Ribbon] [Format] [Size] – either type the height or width you require into the [Shape Height] and [Shape Width] fields, or use the up and down arrows to adjust the measurements*



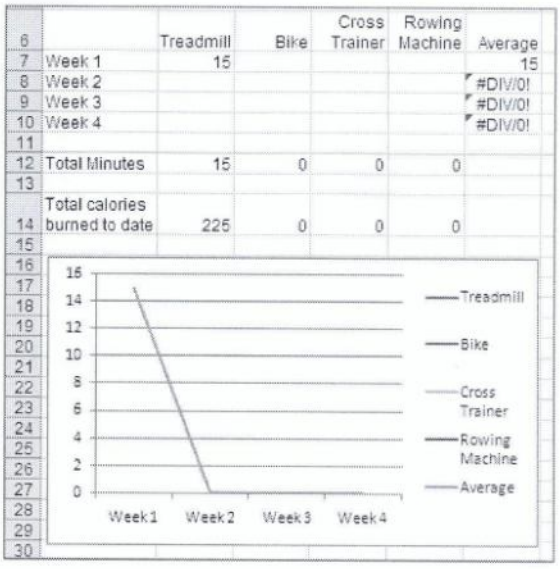
If you click the dialog box launcher in the [Size] group, you will view the [Size] section of the Format Chart Area dialog box, giving access to all the 'Size' options for your charts.



Enter data

You will now enter the weekly exercise figures into the table. This will provide the data for the chart and, as you enter each figure, you will see the chart lines appear. Each chart line is known as a data series and the individual values along the line are known as data points.

- Select cell B7
- Type "**15**" and press [Enter]
  - To enter the number of minutes of exercise done on the Treadmill in Week 1
  - To display the current Average minutes for Week 1 in cell F7
  - To display the current Total minutes for the Treadmill in cell B12
  - To display the current Total calories burned to date for the Treadmill in cell B14
  - To create the 'Treadmill' line on the chart



		Treadmill	Bike	Cross Trainer	Rowing Machine	Average
7	Week 1	15				15
8	Week 2					#DIV/0!
9	Week 3					#DIV/0!
10	Week 4					#DIV/0!
12	Total Minutes	15	0	0	0	
14	Total calories burned to date	225	0	0	0	

- Enter the figures shown below into cells B7-E10
  - To create the remainder of the chart

		Treadmill	Bike	Cross Trainer	Rowing Machine
7	Week 1	15	15	10	5
8	Week 2	20	15	10	5
9	Week 3	25	20	10	10
10	Week 4	30	20	15	10

Create a pie chart from spreadsheet data

You will now create a pie chart to display the percentage of calories burned to date on each exercise machine. A pie chart contains only one data series, and each pie slice is a data point.

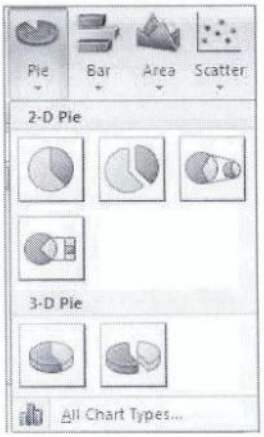
This chart will display the calorie figures contained in cells B14-E14. You will also need to include in the chart the exercise machine names in cells B6-E6, so that you know which figure relates to which machine. To use these 2 non-adjacent ranges of cells (B6-E6 and B14-E14), you will need to select them both before you begin creating the pie chart.

Select the range of non-adjacent cells

- Select the range B6-E6
- Hold down the [Ctrl] key on the keyboard and select range B14-E14
    - To select this second range in addition to the first range

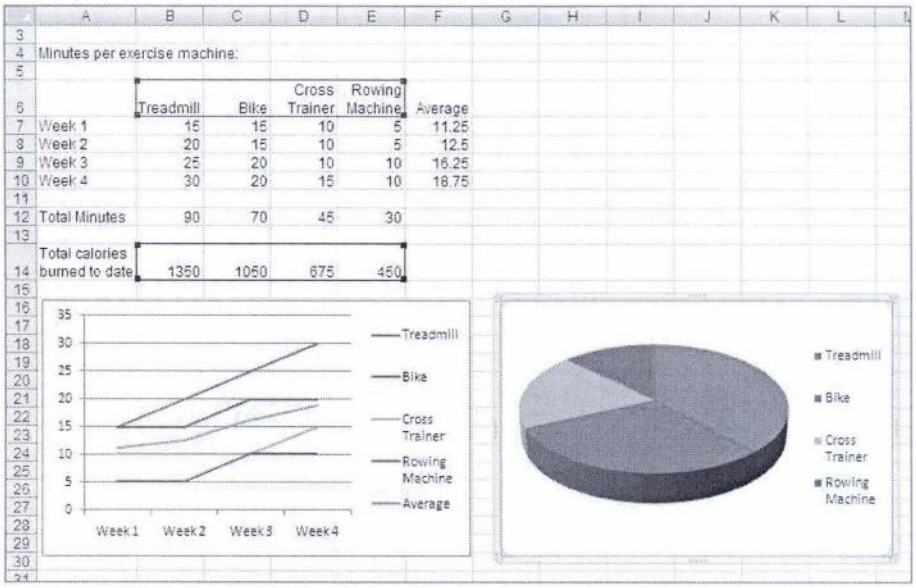
Create the chart

- [Ribbon] [Insert] [Charts] – click the [Pie] button
    - To view a drop down menu of the sub-types available for pie charts
- Select the [Pie in 3-D] chart at the top left of the [3-D Pie] section
    - To create a 3-D pie chart based on the currently selected cell ranges
    - To view coloured lines around your selected cell range, indicating which cells have been used to create the different parts of the chart
    - To have a pie slice for each exercise machine



- Move the pie chart to sit alongside the line chart
- Resize the pie chart to be the same height as the line chart

  You can click and drag to resize the chart, or use [Ribbon] [Format] [Size] and change the height of your charts with the [Shape Height] button

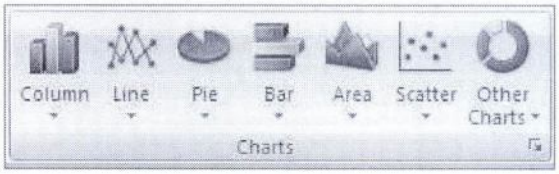


You will need to know:

Create different types of chart from spreadsheet data

Other types of chart, such as ***column charts*** *and* ***bar charts*** *are available within the [Charts] group. They are created in the same way as the line and pie chart you have already created:*

- *Select the ranges containing the data you wish to chart*
- *[Ribbon] [Insert] [Charts] – click the button for the chart type you require*
  - *To view a drop down menu of the sub-types available for this chart*
- *Click the type you require*
  - *To create the chart on your worksheet*



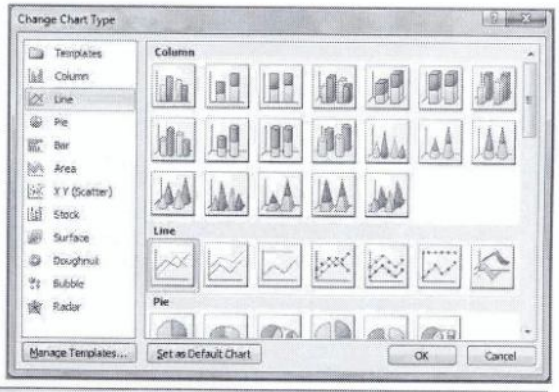
Change the chart type

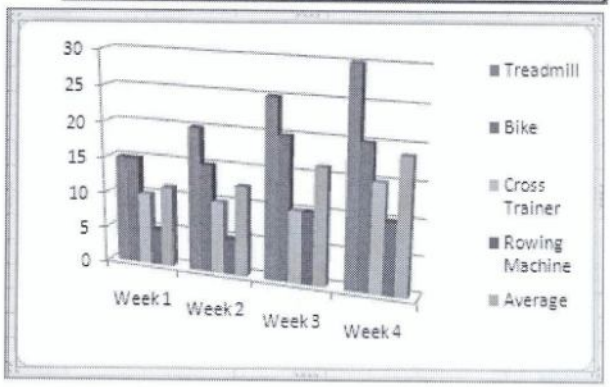
Once you have created a chart, it is possible to change the chart type. This will display the data originally used in the chart, but with whatever chart type you select.

- Select your line chart
- [Ribbon] [Design] [Type] – click the [Change Chart Type] button
  - To view the Change Chart Type dialog box
- In the left hand pane, select [Column]
  - To view the sub-types available for a column chart
- Select [3-D Clustered Column] from the sub-types and click [OK]
  - To change your line chart to a 3-D clustered column chart

Right Click:
- [Change Chart Type..]
- To view the Change Chart Type dialog box

Each group of similarly coloured columns is a data series, and each individual column is a data point.



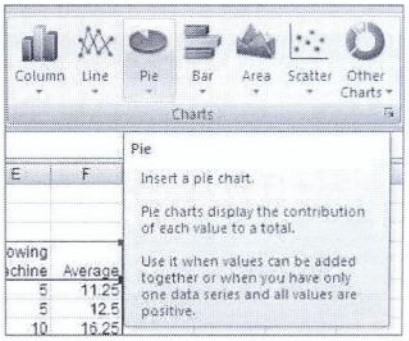


For the purposes of our Example, this chart would be better as a line chart, therefore repeat the above process to change the chart to a line chart.

You may like to know:

Not all chart types are suitable to display all kinds of data. For instance, the pie chart you have created can only display one data series (in this case, the total calories burned to date). It is possible to view suggestions of uses for each chart type within the [Charts] group:

- *[Ribbon] [Insert] [Charts] - move the pointer over each button in turn*
    - *To view the screen tip indicating what each chart type is best used for.*



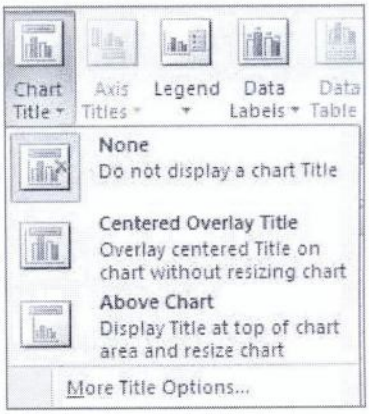
Exercise 10 Edit charts

This Exercise will edit the line and pie charts you have created, in order to make them easier to read and to provide more information on each chart.

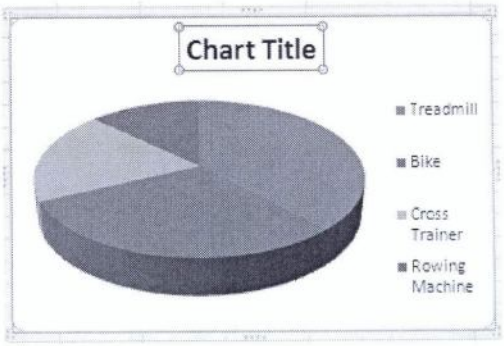
Add a chart title

At present, it is not clear what information the pie chart is displaying. You will, therefore, add a title to the chart, to give this information.

- Select the pie chart
- [Ribbon] [Layout] [Labels] – click the [Chart Title] button
  - To view options for displaying a chart title

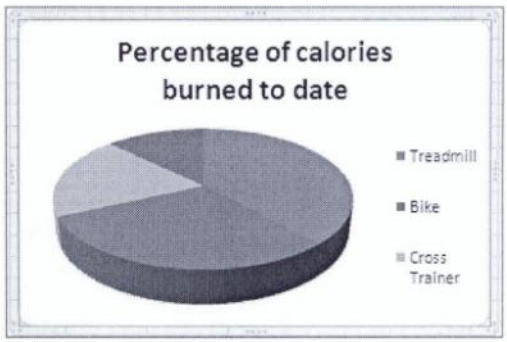


- Select [Above Chart]
  - To display a title above the chart
  - To resize the chart within the Chart Area to make room for the title



- Click in the Chart Title box and select the words [Chart Title]
- Type "**Percentage of calories burned to date**"
  - To replace the highlighted words with your title
- Click away from the Chart Title box
  - To complete entry of the chart title
  - To resize the chart in the Chart Area to fit the new title

  You may find that part of the Legend box, containing the pie slice descriptions, has disappeared now that the chart area is smaller. Don't worry – this will be sorted out shortly!



Edit a chart title

If you wish to change the wording of the chart title:

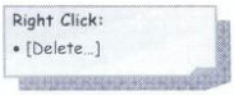
- Click the Chart Title box
  - To select the Chart Title box
- Click again, at the point where you wish to change the text
- Add or delete text as necessary
  - To edit the title

You will need to know:

Remove a chart title

A chart title would be removed in the following way:

- *Click in the Chart Title box*
  - *To select the Chart Title box*
- *Press the [Delete] key on the keyboard*
  - *To delete the selected Chart Title box*
  - *To resize the chart to fill the Chart Area*



Add data labels to a chart

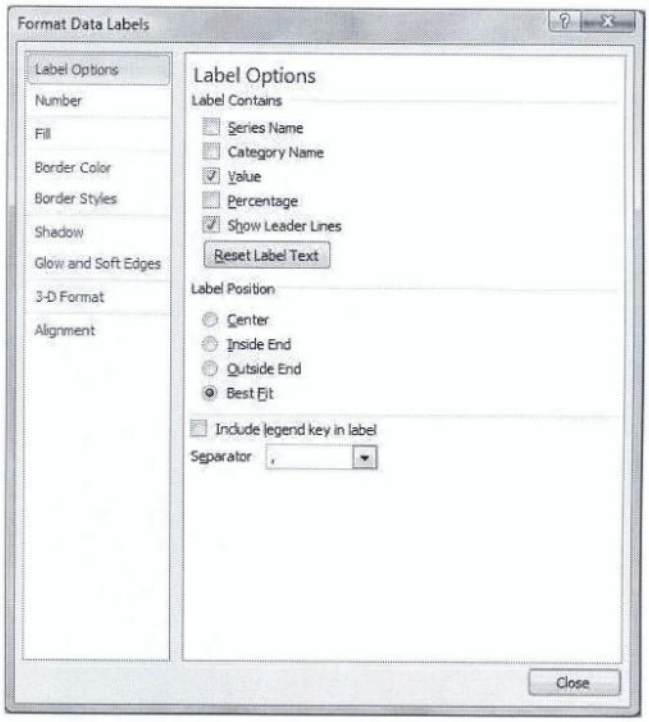
Data labels display the data value for each element of a chart. You will use them to display the actual calorie figures in each slice of the pie. You will then amend the figures shown, to display the percentage value of each slice of the pie, rather than the actual calorie figure.

- Select the pie chart
- [Ribbon] [Layout] [Labels] – click the [Data Labels] button
  - To view the positions in which you can place the data labels for your chart

- Select [Best Fit]
  - To display the data labels with best fit in your current chart
  - To view your pie chart with the calories burned to date figures for each exercise machine displayed in each pie slice.

Display as percentages

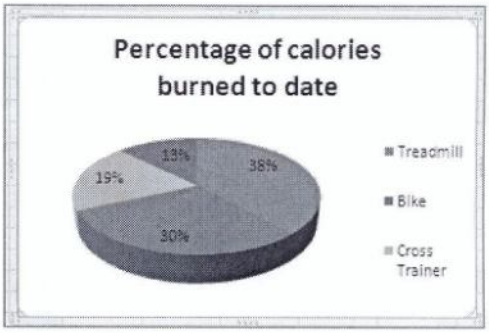
- Select the pie chart
- [Ribbon] [Layout] [Labels] – click the [Data Labels] button
- At the bottom of the drop down list, select [More Data Label Options…]
  - To view the Format Data Labels dialog box



The Label Options section shows the various labels that can be added to your chart.

- Move the pointer over the Title Bar of the dialog box
- Click and drag the dialog box to the left of the screen
  - So that you can see your pie chart as you are working in the dialog box
- Click the [Percentage] field
  - To add a tick in this field
  - To add percentage figures to each slice of your pie chart ***in addition*** to the actual calorie value figures
  - As the label position is [Best Fit], the figures will reposition in the chart to be most easily read

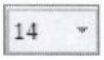
- Click the [Value] field
  - To remove the tick from this field
  - To remove the actual calorie values from each slice of your pie chart
  - To view only the percentage figures in each slice of your pie chart
- [Close] the Format Data Labels dialog box



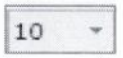
Change font size of chart title, chart legend text

When you created the chart title, the Legend box became too small to display the data series properly. You will now change the font size in the Chart Title box and the Legend box, to display both these elements effectively.

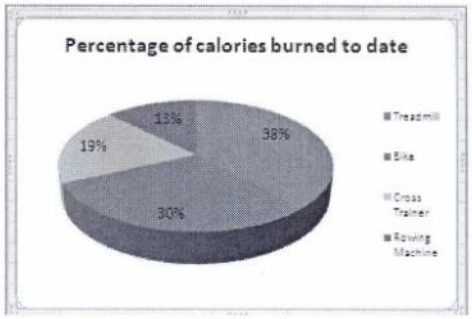
- Select the Chart Title box
- [Ribbon] [Home] [Font] – either click the [Shrink Font] button or select a smaller size from the [Font Size] button



  - To reduce the size of the chart title text
  - To fit the chart title onto one line
- Select the Legend box
- [Ribbon] [Home] [Font] – either click the [Shrink Font] button or select a smaller size from the [Font Size] button



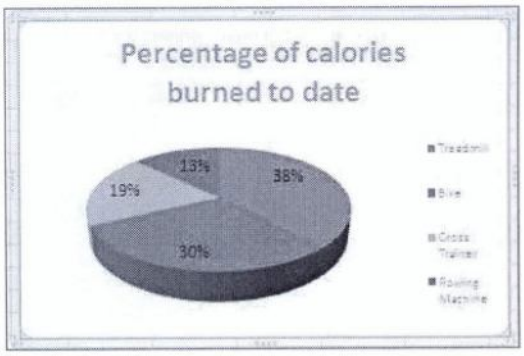
  - To reduce the size of the legend text
  - To fit the legend box more effectively into the Chart Area



Change font colour of chart title, chart legend text

The font colour of the chart title and legend text can be changed, if required.

- Select the Chart Title box
- [Ribbon] [Home] [Font] – click the drop down arrow to the right of the [Font Color] button 
  - To view the font colours available
- Click a colour from the selection
  - To change the font colour of the chart title
- Select the Legend box
- [Ribbon] [Home] [Font] – click the drop down arrow to the right of the [Font Color] button 
  - To view the font colours available
- Click a colour from the selection
  - To change the font colour of the legend



Right Click:
- [Font]
- To view the Font dialog box, with all font formatting options

You will need to know:

Change font size and colour of chart axes

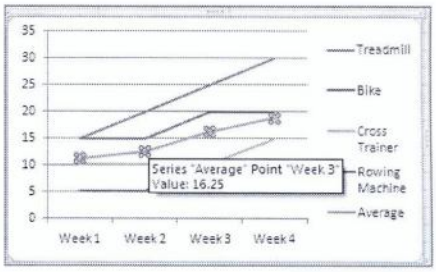
In charts such as your line chart, which have a horizontal axis and a vertical axis, the font size and colour of these axes can be changed in the same way as above:

- *Select either the horizontal or vertical axis of the chart*
- *Use the [Font Size] and [Font Color] buttons*
  - *To change the size and colour of the text in the selected axis*

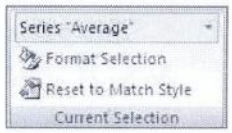
Change the line colours in the chart

Changing the colour of one or more of the lines in your line chart may make the chart easier to read, and can make certain lines stand out. You will now change the colour of the [Average] line.

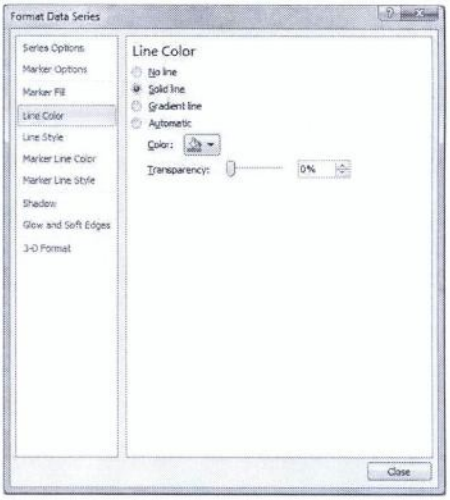
- Move the pointer over the Average line
  - To view a description of the line
- Click once
  - To select the Average line
  - To view selection marks at each data point along the line



- [Ribbon] [Format] [Current Selection] – click the [Format Selection] button
  - To view the Format Data Series dialog box

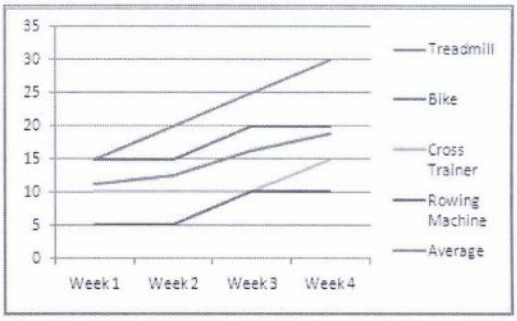


Right Click:
- [Format Data Series]
- To open the Format Data Series dialog box



- In the left hand pane, select [Line Color]
- In the right hand pane, select [Solid Line]

- Click the drop down arrow to the right of the [Color:] field
  - To view the available colours
- Select [Red] from the available colours and click [Close]
  - To change the colour of the Average line to red



You will need to know:

Change the column, bar, pie slice colours in a chart

The colours of any data series (such as a set of values within a line, column or a bar chart) or a data point (such as a pie slice or the individual values within a line, column or bar chart) can be changed. The procedure is as follows:

Either

- *Select the data series to be changed as shown on the previous page*

Or

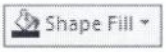
- *Select a data series, then select one data point within the currently selected data series*
- *[Ribbon] [Format] [Current Selection] - click the [Format Selection] button*
  - *To view the Format Data Series or Format Data Point dialog box*
- *In the left hand pane, select [Fill]*
- *In the right hand pane, select [Solid Fill]*
- *Click the drop down arrow to the right of the [Color:] field and select the colour you wish to use*
- *Click the [Close] button*
  - *To change the colour of the selected data series or data point*

Change chart area background colour, legend fill colour

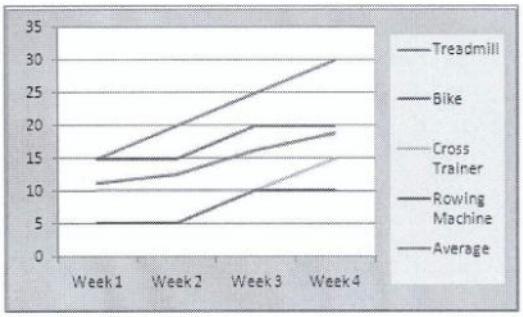
Using the line chart, you will now change the background colour of the Chart Area and the Legend box.

- Select the line chart
- [Ribbon] [Format] [Shape Styles] – click the drop down arrow to the right of the [Shape Fill] button

  - To view the colours available
- Select a colour from those available
  - To change the background colour of the chart area
- Select the Legend box
- [Ribbon] [Format] [Shape Styles] – click the drop down arrow to the right of the [Shape Fill] button



  - To view the colours available
- Select a colour from those available
  - To change the background colour of the Legend box



The background colours can also be changed within the Format Selection dialog box ([Ribbon] [Format] [Current Selection] – click the [Format Selection] button).

Right Click:
- [Format Chart Area] or
- [Format Legend] as appropriate
- To open the appropriate Format dialog box

Exercise 11 Use ROUND function

The Average figures in column F each contain decimal places. In a previous Example, you learned how to show more or fewer decimal places on screen. However, *hidden* decimal places are still used when a figure is used in a calculation. If you wish to *remove* decimal places from a figure, the ROUND function can be used. The Average figures will now be rounded in this way.

The ROUND function rounds the numbers or cell references contained in its arguments to a specified number of digits. In cell G7, the ROUND function will look like this:

=ROUND(F7,0)

This will take the number in cell F7 and round it in cell G7 to the nearest integer ('0' decimal places). The second argument (the number after the comma) indicates how many decimal places to round to. Decimal places from 0-4 will be rounded down and decimal places from 5-9 will be rounded up. It the second argument is a negative number, this will round to the left of the decimal point.

- In cell G6, type '**Round**' and press [Enter]
- In cell G7 enter the function "**=ROUND(F7,0)**"

		Treadmill	Bike	Cross Trainer	Rowing Machine	Average	Round
7	Week 1	15	15	10	5	11.25	=ROUND(F7,0)
8	Week 2	20	15	10	5	12.5	
9	Week 3	25	20	10	10	16.25	
10	Week 4	30	20	15	10	18.75	

- Use the Autofill cross at the bottom right of cell G7
  - To complete entry of the function in cell F7
  - To copy the function down to cell G10

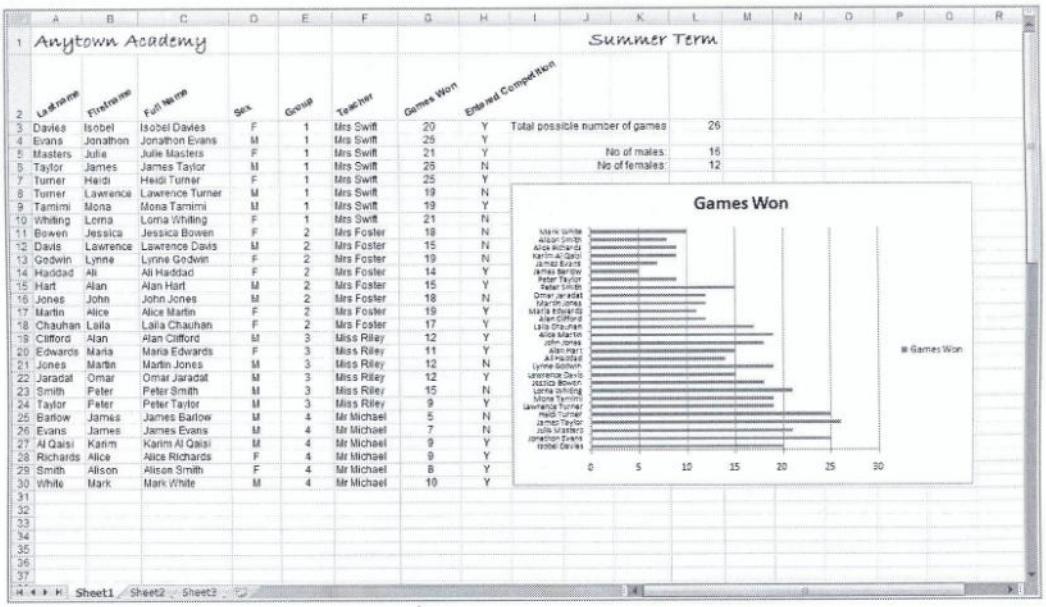
G7 =ROUND(F7,0)

	A	B	C	D	E	F	G	H	I
1	**At the Gym**								
2				Average calories burned per minute		15			
3									
4	Minutes per exercise machine:								
5									
6		Treadmill	Bike	Cross Trainer	Rowing Machine	Average	Round		
7	Week 1	15	15	10	5	11.25	11		
8	Week 2	20	15	10	5	12.5	13		
9	Week 3	25	20	10	10	16.25	16		
10	Week 4	30	20	15	10	18.75	19		
11									
12	Total Minutes	90	70	45	30				
13									

Exercise 12 Close Excel

- Ensure that you have saved your updated workbook
- Click the [Close] button at the top right of the screen
  - To close your Excel workbook
  - If this is the only Excel workbook open, it will also close down Excel

Example 5 - Chess Club Records



	A	B	C	D	E	F	G	H	I	J	K	L
1	Anytown Academy										Summer Term	
2	Lastname	Firstname	Full Name	Sex	Group	Teacher	Games Won	Entered Competition				
3	Davies	Isobel	Isobel Davies	F	1	Mrs Swift	20	Y	Total possible number of games			26
4	Evans	Jonathon	Jonathon Evans	M	1	Mrs Swift	25	Y				
5	Masters	Julie	Julie Masters	F	1	Mrs Swift	21	Y	No of males			15
6	Taylor	James	James Taylor	M	1	Mrs Swift	25	N	No of females			12
7	Turner	Heidi	Heidi Turner	F	1	Mrs Swift	25	Y				
8	Turner	Lawrence	Lawrence Turner	M	1	Mrs Swift	19	N				
9	Tamimi	Mona	Mona Tamimi	M	1	Mrs Swift	19	Y				
10	Whiting	Lorna	Lorna Whiting	F	1	Mrs Swift	21	N				
11	Bowen	Jessica	Jessica Bowen	F	2	Mrs Foster	18	N				
12	Davis	Lawrence	Lawrence Davis	M	2	Mrs Foster	15	N				
13	Godwin	Lynne	Lynne Godwin	F	2	Mrs Foster	19	N				
14	Haddad	Ali	Ali Haddad	F	2	Mrs Foster	14	Y				
15	Hart	Alan	Alan Hart	M	2	Mrs Foster	15	Y				
16	Jones	John	John Jones	M	2	Mrs Foster	18	N				
17	Martin	Alice	Alice Martin	F	2	Mrs Foster	19	Y				
18	Chauhan	Laila	Laila Chauhan	F	2	Mrs Foster	17	Y				
19	Clifford	Alan	Alan Clifford	M	3	Miss Riley	12	Y				
20	Edwards	Maria	Maria Edwards	F	3	Miss Riley	11	Y				
21	Jones	Martin	Martin Jones	M	3	Miss Riley	12	N				
22	Jaradat	Omar	Omar Jaradat	M	3	Miss Riley	12	Y				
23	Smith	Peter	Peter Smith	M	3	Miss Riley	15	N				
24	Taylor	Peter	Peter Taylor	M	3	Miss Riley	9	Y				
25	Barlow	James	James Barlow	M	4	Mr Michael	5	N				
26	Evans	James	James Evans	M	4	Mr Michael	7	N				
27	Al Qaisi	Karim	Karim Al Qaisi	M	4	Mr Michael	9	Y				
28	Richards	Alice	Alice Richards	F	4	Mr Michael	9	Y				
29	Smith	Alison	Alison Smith	F	4	Mr Michael	8	Y				
30	White	Mark	Mark White	M	4	Mr Michael	10	Y				

This Example uses a workbook containing information about members of a chess club. The workbook has been created in Excel and stored with your exercise files. You will amend the workbook, to learn some of the features and functions available within Excel.

The workbook already contains quite a few Excel features and functions – which you may find interesting to look through.

Exercise 1 Open Microsoft Office Excel

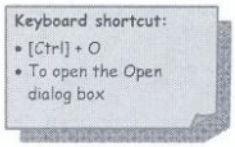
- From the Task Bar at the bottom of the screen, click the [Start] button
- Select [All Programs] [Microsoft Office] [Microsoft Office Excel]
  - Microsoft Excel will open, with a new, blank workbook on screen

Exercise 2 Open a spreadsheet and save under another name

Open a spreadsheet

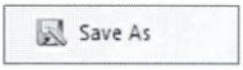
- Ribbon [File] click the [Ope n] button

  - To open the Open dialog box
- Navigate through the drives and folders in your filing system and select your exercise file location
- From the list of folders in your exercise file location, select [Module 4]
- In the Module 4 folder, select the file named "Chess Club Records Example 5"
- Click the [Open] button
  - To open the workbook on screen



Save the spreadsheet under another name

- Ribbon [File] click the [Save As] button
  - To open the Save As dialog box



- In the [File name:] field, type an appropriate name for your workbook
- Within your filing system, select an appropriate folder
- Click [Save]
  - To save the workbook with a new name in the selected folder

Keyboard shortcut:
- [F12]
- To open the Save as dialog box

Once you have saved your file in this way, your updates will be saved in the new folder, under the new name, and the original exercise file will be unchanged.

Don't forget to [Save] your workbook at regular intervals, as you are updating it!

Exercise 3 Worksheets

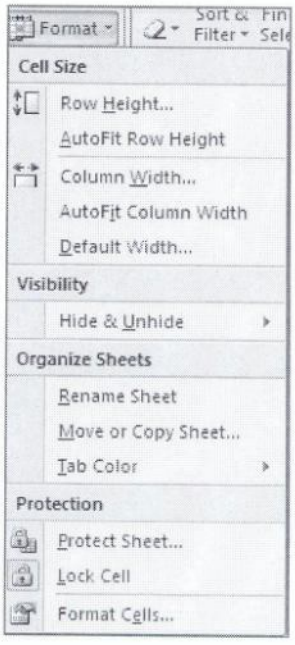
This Exercise will create a copy of the first sheet in the Chess Club workbook. The copied sheet will be used to store the chess club results for the Spring Term.

The Exercise will also insert a new worksheet in the workbook and delete an existing worksheet. The sheets in the workbook will also be renamed.

Copy a worksheet

This will copy Sheet1 and place the copy after Sheet1 in the workbook.

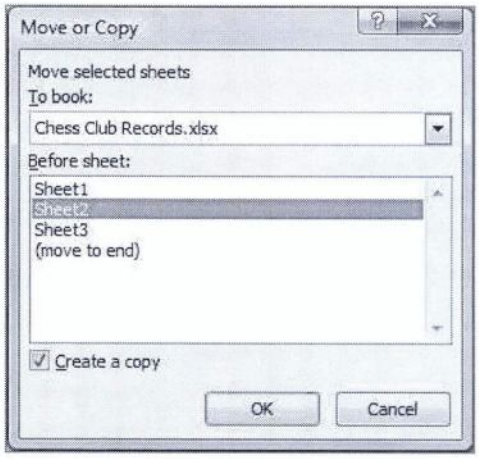
- Click the sheet tab of Sheet1
  - To ensure this sheet is selected
- Ribbon [Home] [Cells] – click the drop down arrow to the right of the [Format] button
  - To view the cell formatting options



- Select [Move or Copy Sheet…] from the drop down menu
  - To view the Move or Copy dialog box

Right Click:
- Move the pointer over the sheet tab of the sheet to be copied
- Right Click
- [Move or Copy...]
- To view the Move or Copy dialog box

- In the [Before Sheet…] field, click [Sheet2]
- So the copied sheet is inserted between Sheet1 and Sheet2
- Click [Create a Copy]
  - To put a tick in this field
- Click [OK]
  - To insert a duplicate sheet between Sheet1 and Sheet2
- This new sheet will be called 'Sheet1 (2)'



You will need to know:

Move a worksheet

To move a worksheet, rather than copying it:

- *Click the sheet tab of the sheet you wish to move*
- *Ribbon [Home] [Cells] - click the drop down arrow to the right of the [Format] button*
  - *To view the cell formatting options*
- *Select [Move or Copy Sheet…] from the drop down menu*
  - *To view the Move or Copy dialog box*
- *In the [Before Sheet…] field, click the appropriate sheet*
  - *To select where to move the sheet*
- *Click [OK]*
  - *To move the sheet to the selected location*

You may like to know:

Move a sheet using drag and drop

- *Place the pointer over the sheet tab to be moved*
- *Click and drag the pointer to the left or the right of the current sheet tab*
  - *A 'worksheet' sign will appear next to the pointer*
  - *A black arrow will move along the sheet tabs as you drag the pointer to the left or the right*
- *Drag until the black arrow is positioned where you wish the new sheet to be placed*
  - *The sheet will be moved to the new location*

*To **copy** rather than move the sheet:*

- *Press and hold the [Ctrl] key on the keyboard as you drag the pointer along the sheet tabs.*
  - *The worksheet sign will contain a '+'*
- *Ensure you let go of the [Ctrl] key **before** you stop clicking*

Switch between worksheets

To switch between worksheets in a workbook:

- Click the sheet tab of the worksheet you wish to view
  - To select that worksheet
  - To view the contents of that worksheet

Keyboard shortcut:

- [Ctrl] + [Page Up] or [Ctrl] + [Page Down]
- To move sheet by sheet backwards and forwards through the sheets in your workbook

Recognise good practice in naming worksheets

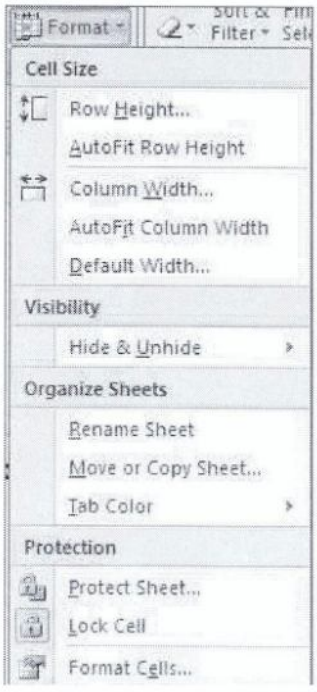
At present, the worksheets in the Chess Club Records workbook are called 'Sheet1', 'Sheet1 (2)', 'Sheet2' and 'Sheet3'. These are the default sheet names that are created by Excel.

It is good practice to give your worksheets meaningful names, rather than keeping these default ones; as this will make it easier to identify your worksheets when formatting and editing your workbooks.

You will now, therefore, rename the worksheets in the Chess Club Records workbook.

Rename a worksheet

- Click the Sheet1 tab
  - To ensure Sheet1 is selected
- Ribbon [Home] [Cells] – click the drop down arrow to the right of the [Format] button
  - To view the cell formatting options



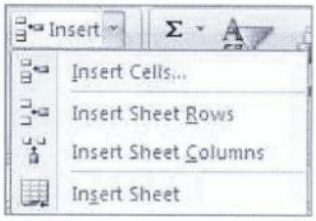
Keyboard shortcut:
- Double click on the sheet tab to be changed
- To highlight the sheet name

- Select [Rename Sheet] from the drop down menu
  - To highlight the sheet name
- Type "**Summer**" and press [Enter]
  - To rename Sheet1 as Summer
- Repeat the process to rename the other sheet tabs as follows:

Insert a new worksheet

You have just created a new worksheet by copying an existing sheet. You will now insert a new, blank worksheet before the Teachers sheet. You will rename the sheet as 'Members'.

- Click the Teachers sheet tab
  - To ensure the Teachers sheet is selected
- Ribbon [Home] [Cells] – click the drop down arrow to the right of the [Insert] button
  - To view the Insert options for cells



- Select [Insert Sheet]
  - To insert a new, blank sheet before the Teachers sheet

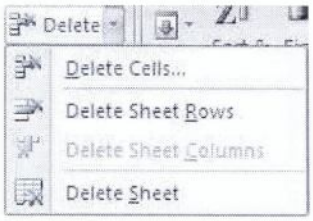
- Rename the new sheet as "**Members**"

Right Click:
- Right click over the sheet to the left of where the new sheet is to be inserted
- [Insert...]
- Options to insert Excel items are available

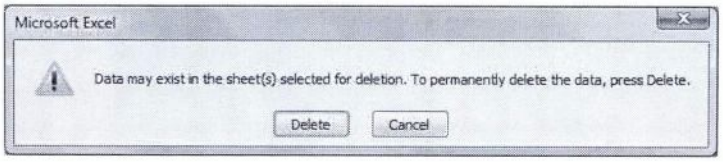
Delete a worksheet

The Winners sheet is not needed in the workbook. You will, therefore, delete it.

- Click the Winners sheet tab
  - To select the Winners sheet
- Ribbon [Home] [Cells] – click the drop down arrow to the right of the [Delete] button
  - To view the Delete options for cells



- Select [Delete Sheet]
  - To view a warning that sheet deletion is permanent
    (This warning will not appear if the sheet to be deleted does not contain any data)



- Click [Delete]
  - To permanently delete the sheet

Right Mouse:
- [Delete...] over sheet tab
- To view deletion warning

Ensure you don't delete any of the other sheets in your current workbook, as you will need them!

Exercise 4 Work with spreadsheets

The previous Exercise switched between sheets in the same workbook. This Exercise will create a new workbook, and will show you how to switch between workbooks, in order to use more than one workbook at a time.

Create a new spreadsheet

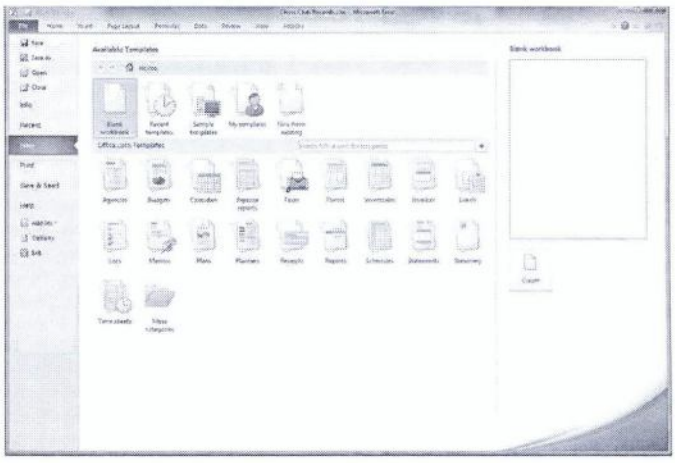
When you create a new workbook based on the default template, a blank workbook is opened on screen. This workbook will have the default layout and formatting (such as page setup, font and alignment) that are contained in the default template.

- Ribbon [File] click the [New] button

  New

  - To view the New dialog box
  - To view the workbook templates available to you
- Select [Blank Workbook] from the list of available templates
- Click [Create]
  - To create a new, blank workbook, based on the default template

Keyboard shortcut:
- [Ctrl] + N
- To create a new , blank workbook based on the default template



- [Save] the new workbook in an appropriate location, with the file name "**Rounders Club**"

Switch between open spreadsheets

You now have two workbooks open – "Chess Club Records" and "Rounders Club". These are contained in two separate windows. You will now switch between these windows.

- Ribbon [View] [Window] – click the [Switch Windows] button
  - To view your currently open workbook windows
- Click [Chess Club Records.xlsx]
  - To view the "Chess Club Records" workbook

You may like to know:

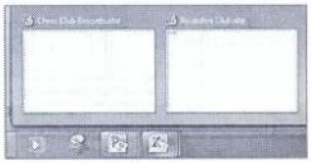
The Taskbar will probably display all your currently open Excel workbooks.

If they are shown side-by-side:

- *Click the workbook you wish to view,*
  - *In order to switch to that workbook*

If there is only one button on the Taskbar for Excel:

- *Click the Excel button*
  - *To view your currently open Excel workbooks*
- *Select the workbook you wish to view*
  - *In order to switch to that workbook*



Keyboard shortcut:

- [Alt] + [Tab] scrolls through all the currently open windows displayed in your Taskbar

Exercise 5 Copy, Move and Delete

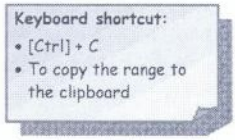
This Exercise will copy the Students' names between worksheets in "Chess Club Records"; and between open workbooks into "Rounders Club".

After this, you will delete the contents of cells. The Spring sheet was created by copying the Summer sheet. It contains details, such as the number of games won, which will not be relevant for the Spring term. You will, therefore, delete the contents of this cell range on the Spring sheet.

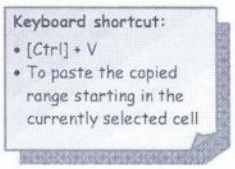
Copy the content of a cell range between worksheets

This will copy the students' last names and first names to the Members sheet.

- Ensure that you are viewing the 'Chess Club Records' workbook
- On the Summer sheet, select the range A2-B30
- Ribbon [Home] [Clipboard] – click the [Copy] button
  - To copy the selected range to the clipboard



- Select the Members sheet
- Select cell A1 on the Members sheet
- Ribbon [Home] [Clipboard] – click the [Paste] button
  - To paste the copied range to the Spring sheet, starting in cell A1



You will need to know:

Copy the content of a cell range within a worksheet

To copy the content of a cell range within a worksheet:

- *Select the cell range to be moved*
- *Ribbon [Home] [Clipboard] - click the [Copy] button*

  - *To copy the selected range to the clipboard*
- *Select the top, left cell of the range into which you wish to move the range*
- *Ribbon [Home] [Clipboard] - click the [Paste] button*
  - *To paste the copied range to the additional location, starting in the currently selected cell*

Copy the content of a cell within and between worksheets

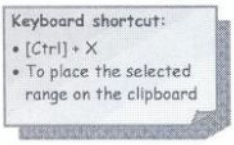
The content of an individual cell is copied within and between worksheets in exactly the same way as a range, after selecting the individual cell to be copied.

Move the content of a cell, cell range within and between worksheets

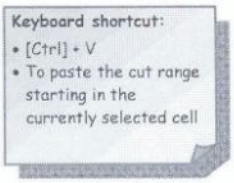
To move the content of a cell or range:

- *Select the cell or range to be moved*
- *Ribbon [Home] [Clipboard] - click the [Cut] button*

  - *To place the selected range on the clipboard*
  - *To view animated dotted lines around the cut range*



- *Select the top, left cell of the range into which you wish to move the range*
- *Ribbon [Home] [Clipboard] - click the [Paste] button*
  - *To remove the cut range from its original location*
  - *To paste the cut range to the new location, starting in the currently selected cell*



Copy the content of a cell, cell range between open spreadsheets

This will copy the students' names from the Summer sheet of the Chess Club Records workbook to the Rounders Club workbook. Although this is copying a cell range, the same procedure would be used to copy the content of a single cell between workbooks.

- In the Chess Club Records workbook, select the Summer sheet
- Select the range A2-B30
- Ribbon [Home] [Clipboard] – click the [Copy] button

  - To copy the selected range to the clipboard

- Ribbon [View] [Window] – click the [Switch Windows] button
  - To view the currently open Excel workbooks
- Select [Rounders Club.xlsx]
  - To view the Rounders Club workbook
- Select cell A1 on Sheet1 of the Rounders Club workbook
- Ribbon [Home] [Clipboard] – click the [Paste] button

  - To paste the copied range to the Rounders Club workbook, starting in cell A1 on Sheet1

You will need to know:

Move the content of a cell, cell range between open spreadsheets

To move the content of a cell or range between workbooks:

- *Select the cell or range to be moved*
- *Ribbon [Home] [Clipboard] - click the [Cut] button*

  - *To place the selected range on the clipboard*
  - *To view animated dotted lines around the cut range*

- *Ribbon [View] [Window] - click the [Switch Windows] button*
  - *To view the currently open Excel workbooks*
- *Select the workbook into which you wish to move the selected range*
- *In this workbook, select the top, left cell of the range into which you wish to move the cut range*
- *Ribbon [Home] [Clipboard] - click the [Paste] button*

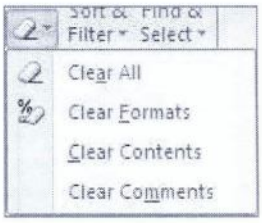
  - *To remove the cut range from its original location in the other workbook*
  - *To paste the cut range to the new location, starting in the currently selected cell*

Delete cell contents

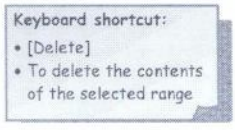
This will delete the 'Games Won' numbers from the cells in column G in the Spring sheet of the Chess Club Records workbook, so that these cells are empty, ready to insert the actual games won figures once the Spring term takes place.

- In the Chess Club Records workbook, select the Spring sheet
- On the Spring sheet, select cells G3-G30
- Ribbon [Home] [Editing] – click the [Clear button]

  - To view the clear options available



- From the drop down menu, select [Clear Contents]
  - To delete the contents from the selected range
  - To keep any formatting that has been applied to the selected range



Exercise 6 Edit and Sort

This Exercise will edit the content of your worksheets in the Chess Club Records workbook. You will search for and replace content. You will also sort the students' names on the Members sheet into alphabetical order. Finally, you will use the undo command.

Edit cell content

The Spring sheet was created by copying the Summer sheet. You will now change the content of cell L1 on the Spring sheet to show that these are the results for the Spring term rather than the Summer Term.

- Select the Spring sheet
- Select cell L1 of the Spring sheet
- Click in the Formula Bar
- Highlight the word 'Summer' and type '**Spring**', then press [Enter]
    - To replace the word 'Summer' with the word 'Spring'

You will need to know:

Additional content can be added into a cell using the same procedure:

- *Click in the Formula Bar at the point at which you wish to insert additional data*
- *Insert the data and press [Enter]*
    - *To complete entry of the additional data in the cell*

Use the search and replace command

This will find references to *Alice Martin* on the Summer sheet, and change her first name to *Alicia.*

Use the replace command

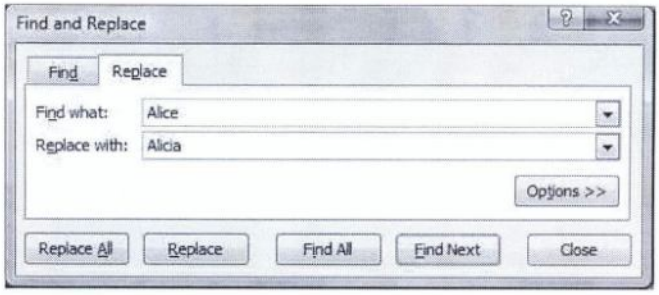
- In the Chess Club Records workbook, select the Summer sheet
- On the keyboard, press [Ctrl] [Home]
  - To go quickly to cell A1

- Ribbon [Home] [Editing] – click the [Find and Select] button
  - To view the find and select options

- From the drop down menu, select [Replace…]
  - The [Find and Replace] dialog box will open, with the Replace tab selected
- In the [Find what:] field, type "**Alice**"
- In the [Replace with;] field, type "**Alicia**"
- Click the [Find Next] button
  - To find the first cell containing the word 'Alice'
- If necessary, keep clicking [Find Next] until you find a cell containing Alice Martin's first name

Keyboard shortcut:
- [Ctrl] + H
- To open the Find and Replace dialog box with the Replace tab selected

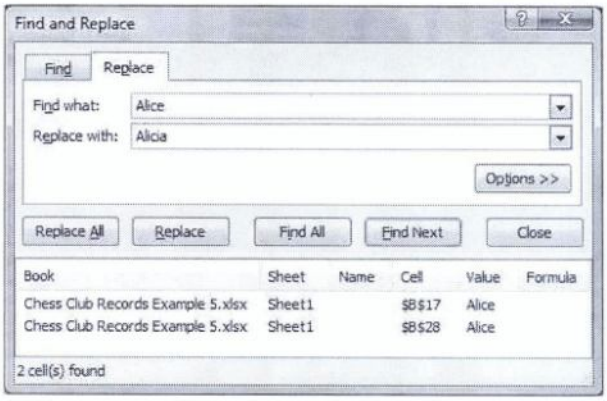
- Click the [Replace] button
  - To change the entry in the current cell from Alice to Alicia (The initial capital will be retained in the replaced word)
  - To change the cell containing Alice Martin's full name to Alicia Martin, as this cell refers to the cell containing Alicia's first name
  - To select the next cell containing 'Alice'
- If this entry does not refer to Alice Martin on the spreadsheet, click [Find Next] to select the next cell containing 'Alice'
- Once you are happy that all instances of Alice Martin's name have been changed, click [Close]
  - To close the Replace dialog box



You will need to know:

Selecting [Replace All] would replace every instance of the word Alice on the worksheet. As is the case on this worksheet, you may not want to change every instance automatically - as some of the entries refer to Alice Richards rather than Alice Martin.

Selecting [Find All] would produce a list of each cell that contains 'Alice'



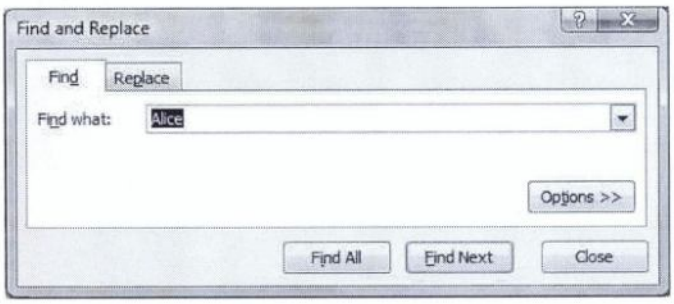
You will need to know:

Use the search command

The Find option in the Find and Replace dialog box will enable you to search for content in your worksheet, without replacing it with something else

- *Ribbon [Home] [Editing] - click the [Find and Select] button*
  - *To view the Find and Select options*
- *From the drop down menu, select [Find...]*
  - *The Find and Replace dialog box will open with the Find tab selected*
- *In the [Find what:] field, type "**Alice**"*
- *Click the [Find Next] button*
  - *To find the first cell containing the word 'Alice'*
- *Keep clicking [Find Next] until you find the instance of the word you are looking for*
- *[Close] the Find and Replace dialog box*

Keyboard shortcut:
- [Ctrl] + F
- To open the Find and Replace dialog box with the Find tab selected

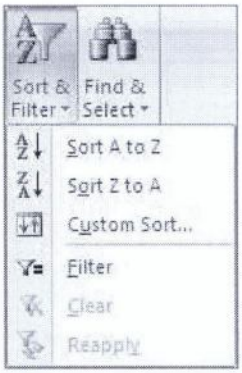


Sort a cell range

This will sort the students' names on the Members sheet in alphabetical order by the 'Lastname' column.

Because the students' last names and first names are in a list, with no blank rows or columns in the list, it is possible to sort both columns after selecting one of the cells in the column that you wish to sort by. Excel looks at the rows and columns surrounding the current list and determines the extent of the list, by stopping when it reaches an empty row or column. It will assume that the top row is a header row, and will not include it in the sort.

- In the Chess Club Records workbook, select the Members sheet
- Select one of the cells in column A that contains a last name
  - To specify that this is the column you wish to sort by
- Ribbon [Home] [Editing] – click the [Sort & Filter] button
  - To view the sort and filter options available



- From the drop down list, select [Sort A to Z]
  - To sort columns A and B into ascending alphabetical order by the last names in column A

Right click:
- [Sort]
- Select sort order from sub-menu

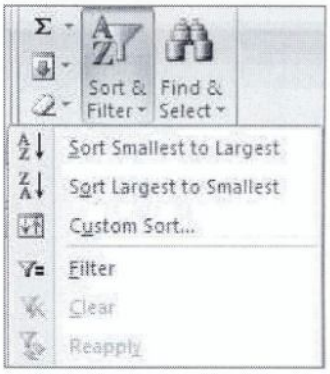
You will need to know:

Sort in descending alphabetic order

Clicking the [Sort Z to A] button will sort the list in descending alphabetical order

Sort in ascending and descending numerical order

If the column by which you wish to sort contains numbers, rather than words, the drop down menu of the [Sort & Filter] button will display [Sort Smallest to Largest] and [Sort Largest to Smallest] buttons, in order to sort by the numbers.

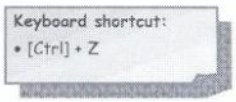


Use the undo and redo command

It is possible to 'undo' actions you have carried out within Excel. You can undo as many actions as you wish – but have to include all actions carried out since the one you wish to undo. If, after undoing an action, you wish to retain it, it is possible to 'redo' actions.

Undo sorting the list

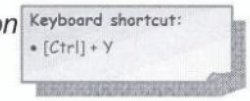
- On the Quick Access Toolbar, click the [Undo] button 
  - To return the list to its order before it was sorted



Redo the sort

- On the Quick Access toolbar, click the [Redo] button 
  - To resort the list in ascending alphabetical order

The Redo button will be greyed out until you have used the Undo button



You may like to know

Undo several actions:

- *On the Standard toolbar, click the drop down arrow to the right of the [Undo] button*
- *Scroll down through the list of actions until you have highlighted all those you wish to undo*
- *Click on the earliest action you wish to undo*

Redo several actions:

- *On the Standard toolbar, click the drop down arrow to the right of the [Redo] button*
- *Scroll down through the list of actions until you have highlighted all those you wish to redo*
- *Click on the earliest action you wish to redo*

Ensure that anything you have 'undone' is 'redone'!

Exercise 7 Use minimum, maximum functions

This will use the MIN and MAX functions to show the lowest number and the highest number of wins for any chess club member in the Summer Term, as listed in rows 3-30 of column G – the [Games Won] column.

MIN function

The MIN function you will use will look like this:

=MIN(G3:G30)

This will look for the smallest number in the range G3-G30

- On the Summer sheet, in cell P3, type "**Lowest number of wins**" and press [Enter]
- Press the [Align Text Right] button 
  - To right align the text in this cell
- In cell Q3, type =MIN(G3:G30) and press [Enter]
  - To look for the minimum (lowest) entry in cells G3-G30
  - To display in cell Q3 the lowest number of wins for any club member

MAX function

The MAX function you will use will look like this:

=MAX(G3:G30)

This will look for the largest number in the range G3-G30.

- In cell P4, type "**Highest number of wins**" and press [Enter]
- Press the [Align Text Right[button 
  - To right align the text in this cell
- In cell Q4, type =MAX(G3:G30) and press [Enter]
  - To look for the maximum (highest) entry in cells G3-G30
  - To display in cell Q4 the highest number of wins for any club member

Lowest number of wins	5.0
Highest number of wins	=MAX(G3:G30)

Exercise 8 Use the logical function IF

This exercise will insert a column which will be used to show those chess club members who have performed well during the term. It will indicate that all members who have won at least 13 games should receive a Certificate.

Insert a column

- On the Summer sheet, move the pointer over the column header for Column H and click
  - To select that column
- Ribbon [Home] [Cells] – click the [Insert] button
  - To insert a new Column H
- In cell H2, type the heading "**Certificate?**" and press [Enter]

The IF function

The IF function will be used for this exercise. It will look like this:

=IF(G3>=13,"Yes","")

The function will work out the following:

"IF a member has won at least 13 games, insert "Yes" in the Certificate column; if not, leave the column blank for that member"

There are 3 arguments within the IF function – each separated by a comma.

- *The **first** argument specifies the criterion to be met – in this case "look in the Games Won cell for the current chess club member (G3) and check whether the Games Won figure is greater than or equal to 13"*
- *The **second** argument specifies what value to put in the current cell if the criterion is TRUE – in this case "if the Games Won figure IS greater than or equal to 13, put the word 'Yes' in the Certificate cell"*
- *The **third** argument specifies what value to put in the current cell if the criterion is FALSE – in this case "if the Games Won figure IS NOT greater than or equal to 13, leave the Certificate cell blank".*

Insert the IF function

- In cell H3, type =IF(G3>=13,"Yes","") and press [Enter]
  - To insert the IF function
  - To check whether the figure in cell G3 is greater than or equal to 13
  - To insert 'Yes' in cell H3, if the figure *is* greater than or equal to 13
  - To leave cell H3 blank, if the figure *is not* greater than or equal to 13

The empty speech quotes ("") shown for the third argument mean 'leave the cell blank'.

You may like to know

Comparison Operators

The first argument in this IF function uses the comparison operators '>' (greater than) and '=' (equal to), to check whether the number of games won is 13 or more

It is also possible to use the '<' (less than) operator in functions, to check whether a value is smaller than a given figure.

Copy function to other rows

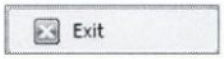
- Select cell H3 again
- Use the Auto Fill cross, to copy the calculation down as far as cell H30
  - To insert the word '**Yes**' into any of these cells where a chess club member has won at least 13 games
  - To leave the remainder of these cells blank

H3 =IF(G3>=13,"Yes","")

	A	B	C	D	E	F	G	H
1	Anytown Academy							
2	Lastname	Firstname	Full Name	Sex	Group	Teacher	Games Won	Certificate?
3	Davies	Isobel	Isobel Davies	F	1	Mrs Swift	20	Yes
4	Evans	Jonathon	Jonathon Evans	M	1	Mrs Swift	25	Yes
5	Masters	Julie	Julie Masters	F	1	Mrs Swift	21	Yes
6	Taylor	James	James Taylor	M	1	Mrs Swift	26	Yes

Exercise 9 Close Excel

- Ensure that you have saved your updated workbook
- Ribbon [File] click the [Exit] button



  - To close down Excel as well as any open workbooks
  - If you have any open workbooks that have not been saved since they were last updated, a warning box will open for each of these workbooks in turn, asking if you want to save the changes you made to the workbook.

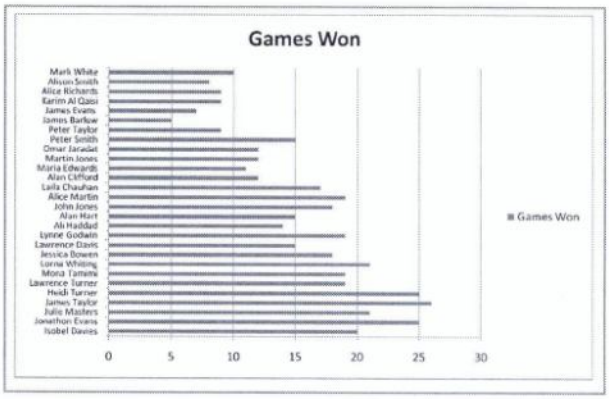
Keyboard shortcut:
- [Alt] + [F4]

Example 6 - Chess Club Records

This Example uses the Chess Club Records workbook from Example 5. You will amend the page setup and print options before outputting parts of the document to the screen and printer.


Anytown Academy

Last name	First name	Full name	Sex	Set up	Teacher	Games Won	Entered Co
Davies	Isobel	Isobel Davies	F	1	Mrs Swift	20	Y
Evans	Jonathon	Jonathon Evans	M	1	Mrs Swift	25	Y
Masters	Julie	Julie Masters	F	1	Mrs Swift	21	Y
Taylor	James	James Taylor	M	1	Mrs Swift	26	N
Turner	Heidi	Heidi Turner	F	1	Mrs Swift	25	Y
Turner	Lawrence	Lawrence Turner	M	1	Mrs Swift	19	N
Tammi	Mona	Mona Tammi	M	1	Mrs Swift	19	Y
Whiting	Lorna	Lorna Whiting	F	1	Mrs Swift	21	N
Bowen	Jessica	Jessica Bowen	F	2	Mrs Foster	18	N
Davis	Lawrence	Lawrence Davis	M	2	Mrs Foster	15	N
Godwin	Lynne	Lynne Godwin	F	2	Mrs Foster	19	N
Haddad	Ali	Ali Haddad	F	2	Mrs Foster	14	Y
Hart	Alan	Alan Hart	M	2	Mrs Foster	15	Y
Jones	John	John Jones	M	2	Mrs Foster	18	N
Martin	Alice	Alice Martin	F	2	Mrs Foster	16	Y
Chauhan	Laila	Laila Chauhan	F	2	Mrs Foster	17	Y
Clifford	Alan	Alan Clifford	M	2	Miss Riley	12	Y
Edwards	Maria	Maria Edwards	F	3	Miss Riley	11	Y
Jones	Martin	Martin Jones	M	3	Miss Riley	12	N
Jaradat	Omar	Omar Jaradat	M	3	Miss Riley	12	Y
Smith	Peter	Peter Smith	M	3	Miss Riley	15	N
Taylor	Peter	Peter Taylor	M	3	Miss Riley	9	Y
Barlow	James	James Barlow	M	4	Mr Michael	5	N
Evans	James	James Evans	M	4	Mr Michael	7	N
Al Qassi	Karim	Karim Al Qassi	M	4	Mr Michael	9	Y
Richards	Alice	Alice Richards	F	4	Mr Michael	9	Y
Smith	Alison	Alison Smith	F	4	Mr Michael	8	Y
White	Mark	Mark White	M	4	Mr Michael	10	Y



Exercise 1 Open Microsoft Office Excel

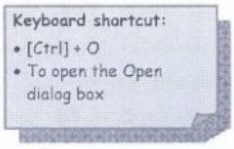
- From the Task Bar at the bottom of the screen, click the [Start] button
- Select [All Programs] [Microsoft Office] [Microsoft Office Excel]
  - Microsoft Excel will open, with a new, blank workbook on screen

Exercise 2 Open a spreadsheet and save under another name

Open a spreadsheet

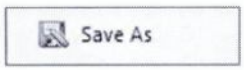
- Ribbon [File] click the [Open] button

  - To open the Open dialog box
- Navigate through the drives and folders in your filing system and select your exercise file location
- From the list of folders in your exercise file location, select [Module 4]
- In the Module 4 folder, select the file named "Chess Club Records Example 6"
- Click the [Open] button
  - To open the workbook on screen

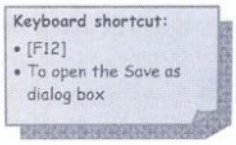


Save the spreadsheet under another name

- Ribbon [File] click the [Save As] button



  - To open the Save As dialog box
- In the [File name:] field, type an appropriate name for your workbook
- Within your filing system, select an appropriate folder
- Click [Save]
  - To save the workbook with a new name in the selected



Once you have saved your file in this way, your updates will be saved in the new folder, under the new name, and the original exercise file will be unchanged.

Don't forget to [Save] your workbook at regular intervals!

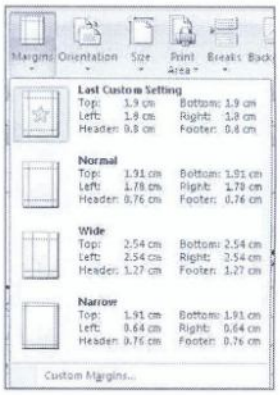
Exercise 3 Setup

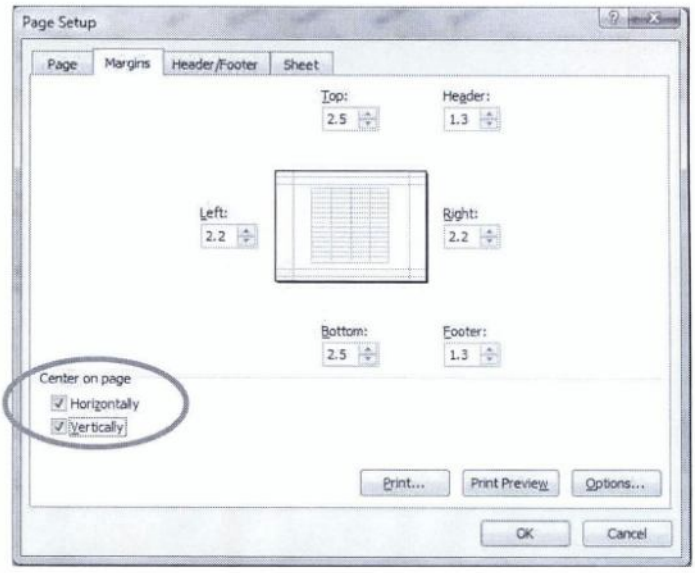
This exercise will amend the page setup of the document, in preparation for printing at a later stage.

- Ribbon [Page Layout] [Page Setup]
  - To view the page setup buttons – to be used for the following actions

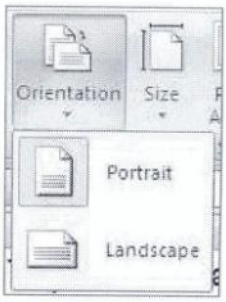
Change worksheet margins

- Click the [Margins] button
  - To view 3 preset margins options
- Click [Custom Margins…]
  - To view the [Margins] tab of the Page Setup dialog box
  - To view the fields where the [Top], [Bottom], [Left] and [Right] margins can be amended
- In the [Center on page] section, click [Horizontally] and [Vertically]
  - To place the table in the centre of the page when it is printed
- Click [OK]
  - To close the Page Setup dialog box





Change worksheet orientation

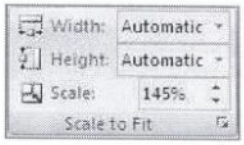


- Click the [Orientation] button
  - To view the [Portrait] and [Landscape] options
- Click [Landscape]
  - To change the Orientation from [Portrait] to [Landscape]

Change paper size

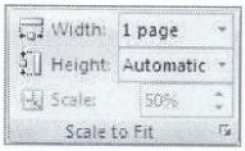
- Click the [Size] button
  - To view a list of different paper sizes
- Ensure the correct [Paper size:] for your printer is selected

Adjust page setup to fit worksheet contents



- Ribbon [Page Layout] [Scale to Fit] – click the up or down arrow to the right of the [Scale] field
  - To adjust the size of the table on the page when it prints

Adjust to a specified number of pages



- Amend the [Width] field to [1 page]
  - To adjust all the data to fit across the width of one printed page.

Amending the [Height] field to [1 page] as well would fit all the data on one page. However, if too many columns and rows are fitted on a page, a document can be extremely difficult to read when it prints out.

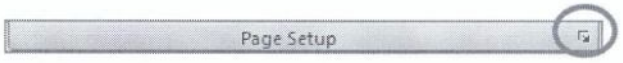
As mentioned on Page 6, you may find it easier to carry out the folloiwng exercised in [Normal] view, rather than the current [Page Layout] view. To change to [Normal] view:

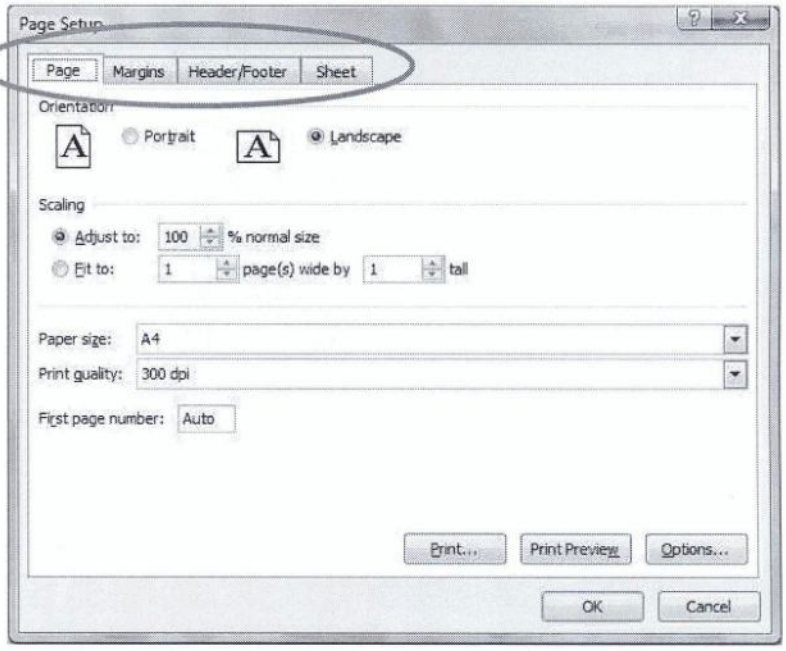
- Click the [Normal] view button at the bottom right of the Status Bar

You may like to know:

The Page Setup dialog box

Ribbon [Page Layout] [Page Setup] - clicking the dialog box launcher at the bottom right of the Page Setup group will open the Page Setup dialog box, with tabs to access all the page setup options.





Headers and footers

Headers and footers contain text that will appear at the top (header) and/or bottom (footer) of a document when it is printed. Entries can be put in text boxes that are preset at the left, centre and right of the header and footer.

When headers and footers are inserted into a document, the worksheet will change to [Page Layout] view. The document will be viewed on screen page by page, as it will print out. You can continue to work in this view, or can return to [Normal] view by clicking the appropriate [View] button at the bottom right of the status bar.

Add, edit, delete text in headers, footers

- Ribbon [Insert] [Text] – click the [Header & Footer] button

  - To view the header, containing 3 text boxes to the left, centre and right of the header, with the centre text box currently highlighted
  - To insert the cursor in the centre text box of the header of the workbook, ready to input header text
- Type your name in the header

- Ribbon [Design] [Navigation] – click the [Go to Footer] button

  - To move the cursor to the footer of the workbook

You will need to know:

Edit or delete text in headers, footers

To edit or delete header and footer entries, move the pointer over the relevant entry, click in the appropriate place and amend or delete the entry as necessary.

Insert and delete fields in headers, footers

Fields can be input into headers and footers that will be updated each time the workbook is saved or printed.

- Click the left text box in the footer
- Above the ribbon, click the [Header & Footer Tools] tab

    - To view the header and footer tool buttons under the [Design] tab

The [Header and Footer Elements] group enables you to input fields into the header or footer, such as:

- page numbering
- date, time
- file path and name
- worksheet name

- In the left text box, type "**Club members as at**", followed by a space
- Click the [Current Date] button after the space
    - The field code will be displayed. This will change to the appropriate text when you leave the header and footer
- Click the centre text box and add a second, different field from the [Header & Footer Elements] group
- Click the right text box and add a third field from the [Header and Footer Elements] group
- Use the vertical scroll bar to move up the workbook and click somewhere in the table
    - To close the header and footer and return to editing the workbook

Exercise 4 Check and print

This Exercise will check, preview and print different parts of the workbook, using the worksheet margins, orientation and page setup that you have just changed.

Other print settings will be adjusted, such as printing gridlines and row and column headings, and repeating title rows on each printed page.

Check and correct spreadsheet calculations and text

It is important to check the content of any spreadsheet before printing. It is very easy with a spreadsheet to assume that the answers shown must be right because the spreadsheet has done the calculation. Therefore, before previewing the sheet, it is possible to audit the cells, to show up common errors that may have occurred in the calculations. Spellcheck will check the text.

Spellcheck

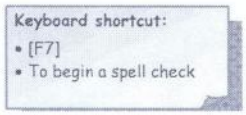
The Spelling dialog box will only open if there are errors in the current document.

- Press [Ctrl] + [Home]
  - To return to the beginning of the worksheet
- Ribbon [Review] [Proofing] – click the [Spelling] button

  - If there are any errors in the worksheet, the Spelling dialog box will open
  - Suggested corrections for the first error will be displayed
- Select the correction you require
- Click the relevant button, as explained below

The options available in the Spelling dialog box will vary, depending on the type of error found

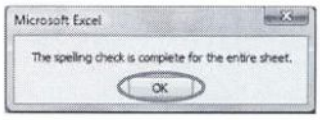
- Click [Ignore Once]
  - To retain your current spelling/grammar in this instance

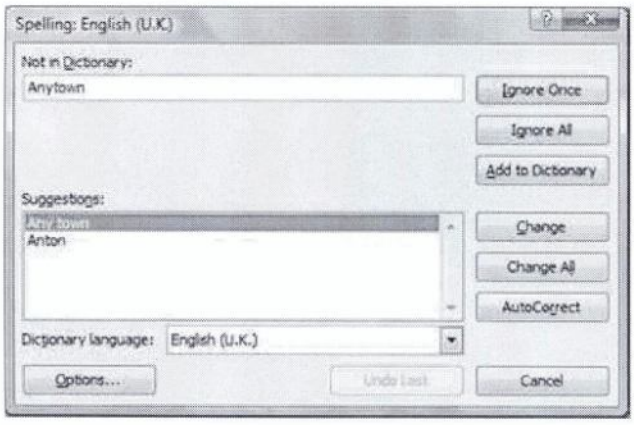


- Click [Ignore All]
  - To ignore all instances of this spelling in the worksheet
- Click [Add to Dictionary]
  - To add your spelling to the Excel custom dictionary
- Click [Change]
  - To change the spelling of this word in the worksheet to the highlighted suggested amendment
- Click [Change All]
  - To change the spelling of all instances of this word in the worksheet to the highlighted suggested amendment
- Click [Delete]
  - To delete a repeated (duplicated) word in a cell

When the check is complete a dialog box message will be displayed:

- Click the [OK] button
  - To close the message





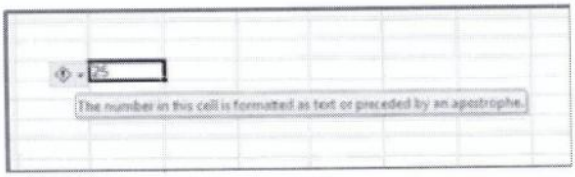
Error Checking

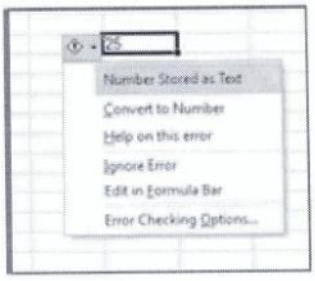
It is important to look through worksheets yourself, to check whether any answers shown are obviously incorrect, and may, therefore, contain an error in the calculation.

However, certain common errors can be checked for by Excel. By default, these errors will be checked for as you enter data and calculations into the workbook. Any potential errors will be indicated by a coloured rectangle at the top left of a cell.

To deal with a cell containing an error indicator:

- Select a cell containing an error indicator
  - The error checking button will be displayed next to the cell 
- Move the pointer over the error checking button
  - To display a message, describing the potential error
- Click the drop down arrow to the right of the error checking button
  - To view the options available for that error
- Select the appropriate option for this cell
  - If you select [Ignore Error], the error will be permanently ignored in this cell, even if you do a manual error check

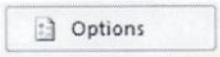




The Excel Options dialog box enables you to choose whether errors are checked as you enter data, or only when you manually carry out an error check. You can also select which common errors are checked.

To select error checking options:

- Ribbon [File] – click the [Options] button



  - To open the Excel Options dialog box
- In the left pane of the Excel Options dialog box, select [Formulas]
  - To view the options available for formulas

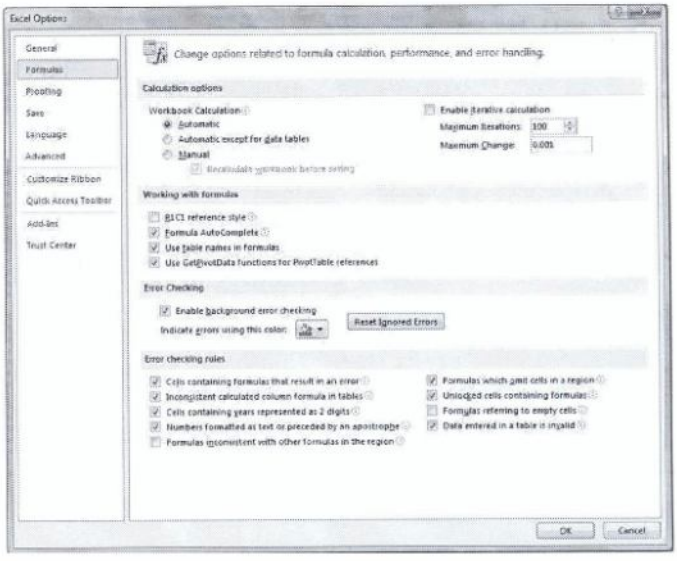
In the Error Checking section:

- Ensure there is a tick in the [Enable background error checking] field
  - If you want error checking to be carried out as you enter data and calculations into workbooks
- If you have previously selected [Ignore Error] for any cells containing the error indicator, click [Reset Ignored Errors]
  - If you wish to show these errors again
- Click the drop down arrow to the right of the [Indicate errors using this colour:] field
  - To select the colour you wish to use for the error indicator

In the Error checking rules section:

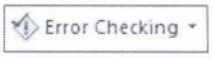
- Ensure there is a tick to the left of each rule that you wish to be checked
- Move the mouse pointer over the [ⓘ] to the right of any rule
  - To see an explanation of that rule

    More detailed explanations of the rules can be found in Excel Help
- Click [OK]
  - To close the Excel Options dialog box

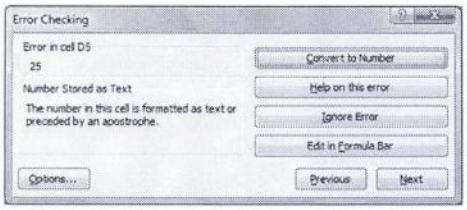


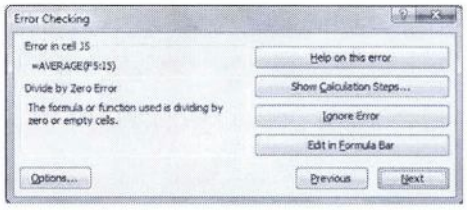
If you have turned off background error checking, the following will manually check for those errors ticked in the Excel Options dialog box.

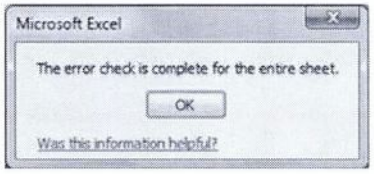
- Ribbon [Formulas] [Formula Auditing] – click the [Error Checking] button



  - To begin the error check
  - To display the Error Checking dialog box if an error is found
- Choose the appropriate option from the Error Checking dialog box and click [Next]
  - To search for the next error
- When the message [The error check is complete for the entire sheet] is displayed, click [OK]
  - To finish the error check





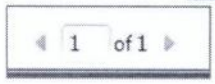


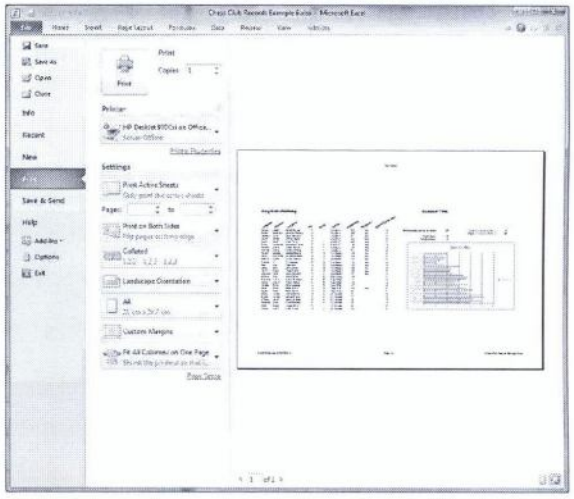
Preview a worksheet

Previewing a worksheet is very useful, as the screen does not show what the printed page will look like. First, you will preview the entire Summer worksheet.

- Ribbon [File] click the [Print] button
  - To open the Print dialog box
  - To view the print options
  - To preview the Summer worksheet on screen as it would print
- At the bottom of the dialog box, use the left and right arrows
  - To move between the pages of the worksheet
  - To see how the worksheet would currently print out

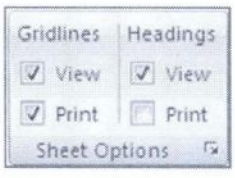
Keyboard shortcut:
- [Ctrl] + P
- To preview the workbook

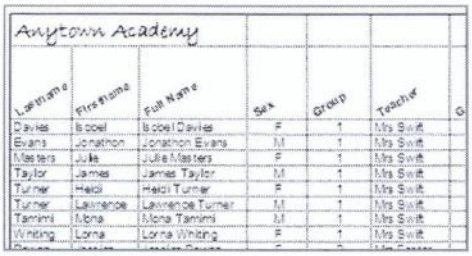




Turn on, off display of gridlines for printing

- Ribbon [Page Layout] [Sheet Options] – click the [Print] button in the Gridlines section
  - To insert a tick in the Gridlines [Print] field
  - To include the gridlines when the worksheet is printed
- Click the [Print] button again
  - To remove the tick from the Gridlines [Print] field
  - To turn off the printing of gridlines





Anytown Academy

Lastname	Firstname	Full Name	Sex	Group	Teacher
Davies	Isobel	Isobel Davies	F	1	Mrs Swift
Evans	Jonathon	Jonathon Evans	M	1	Mrs Swift
Masters	Julie	Julie Masters	F	1	Mrs Swift
Taylor	James	James Taylor	M	1	Mrs Swift
Turner	Heidi	Heidi Turner	F	1	Mrs Swift
Turner	Lawrence	Lawrence Turner	M	1	Mrs Swift
Tammi	Mona	Mona Tammi	M	1	Mrs Swift
Whiting	Lorna	Lorna Whiting	F	1	Mrs Swift

Print with gridlines

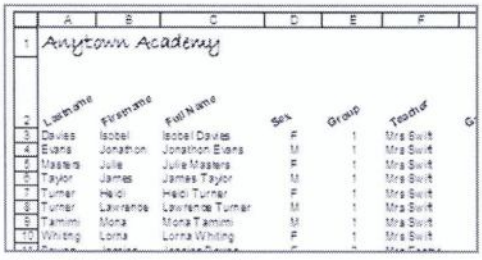
Anytown Academy

Lastname	Firstname	Full Name	Sex	Group	Teacher
Davies	Isobel	Isobel Davies	F	1	Mrs Swift
Evans	Jonathon	Jonathon Evans	M	1	Mrs Swift
Masters	Julie	Julie Masters	F	1	Mrs Swift
Taylor	James	James Taylor	M	1	Mrs Swift
Turner	Heidi	Heidi Turner	F	1	Mrs Swift
Turner	Lawrence	Lawrence Turner	M	1	Mrs Swift
Tammi	Mona	Mona Tammi	M	1	Mrs Swift
Whiting	Lorna	Lorna Whiting	F	1	Mrs Swift

Print without gridlines

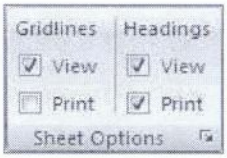
Turn on, off display of row and column headings for printing

- Ribbon [Page Layout] [Sheet Options] – click the [Print] button in the Headings section
  - To insert a tick in the Headings [Print] field
  - To include the row numbers and column letters when the worksheet is printed
- Click the [Print] button again
  - To remove the tick from the Headings [Print] field
  - To turn off printing of row numbers and column letters



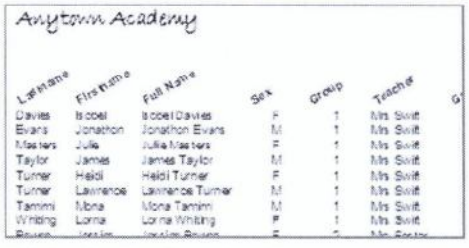
	A	B	C	D	E	F
1	Anytown Academy					
2	Lastname	Firstname	Full Name	Sex	Group	Teacher
3	Davies	Isobel	Isobel Davies	F	1	Mrs Swift
4	Evans	Jonathon	Jonathon Evans	M	1	Mrs Swift
5	Masters	Julie	Julie Masters	F	1	Mrs Swift
6	Taylor	James	James Taylor	M	1	Mrs Swift
7	Turner	Heidi	Heidi Turner	F	1	Mrs Swift
8	Turner	Lawrence	Lawrence Turner	M	1	Mrs Swift
9	Tammi	Mona	Mona Tammi	M	1	Mrs Swift
10	Whiting	Lorna	Lorna Whiting	F	1	Mrs Swift

Print with column headings



Gridlines	Headings
☑ View	☑ View
☐ Print	☑ Print

Sheet Options



Anytown Academy

Lastname	Firstname	Full Name	Sex	Group	Teacher
Davies	Isobel	Isobel Davies	F	1	Mrs Swift
Evans	Jonathon	Jonathon Evans	M	1	Mrs Swift
Masters	Julie	Julie Masters	F	1	Mrs Swift
Taylor	James	James Taylor	M	1	Mrs Swift
Turner	Heidi	Heidi Turner	F	1	Mrs Swift
Turner	Lawrence	Lawrence Turner	M	1	Mrs Swift
Tammi	Mona	Mona Tammi	M	1	Mrs Swift
Whiting	Lorna	Lorna Whiting	F	1	Mrs Swift

Print without column headings

You may like to know:

Viewing gridlines and headings on screen

You can turn off the viewing of gridlines and headings on screen, by removing the tick from the Gridlines and Headings [View] fields above the [Print] fields.

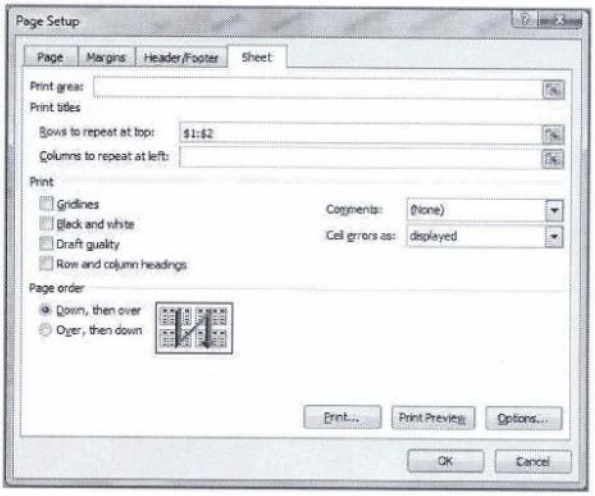
Apply automatic title row printing

When printing worksheets containing long lists, it is useful to repeat specific rows as titles at the top of each printed page.

You will change the setup for the Summer sheet, to repeat rows 1 and 2 on each printed page.

- Ribbon [Page Layout] [Page Setup] – click the [Print Titles] button

  - To view the Page Setup dialog box with the Sheet tab selected
- In the [Rows to repeat at top:] field of the Print Titles section, type "**$1:$2**"
  - To specify that you wish to repeat rows 1 and 2 on each printed page
- Click [OK]
  - To close the Page Setup dialog box



You may like to know:

The [Columns to repeat at left:] field will repeat columns on each page.

You may like to know:

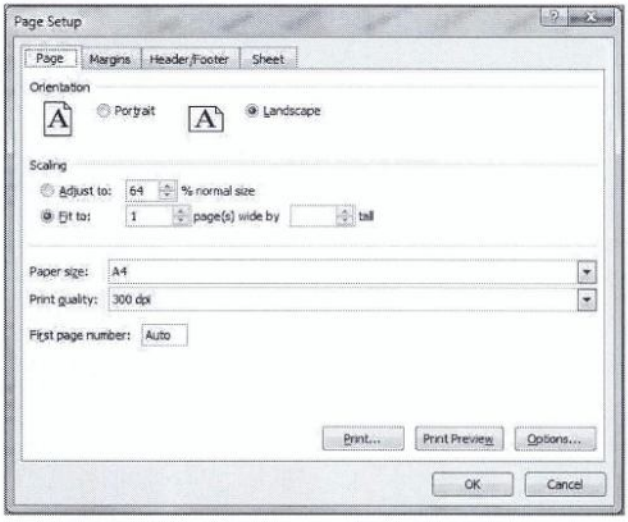
Click the [Collapse Dialog] button at the right of the title fields, to  *select from the worksheet the rows and columns you wish to repeat. Then, click the [Collapse Dialog] button again to return to the Page Setup dialog box.*

You may like to know:

Page Setup dialog box

- *Ribbon [Page Layout] - click the[Page Setup] dialog box launcher*
  - *To view the Page Setup dialog box at any time*

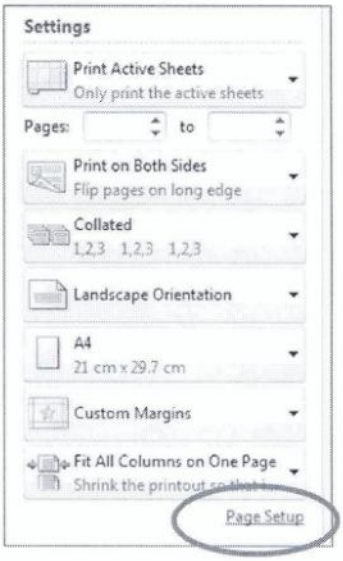
- *Move between the tabs of the Page Setup dialog box*
  - *To adjust the page setup options as required*



Page setup whilst previewing

The Page Setup dialog box can be opened from the Settings section of the Print dialog box:

- *Ribbon [File] click the [Print button]*
  - *To open the Print dialog box*
- *At the bottom of the Settings section of the Print dialog box, click [Page Setup]*
  - *To open the Page Setup dialog box*

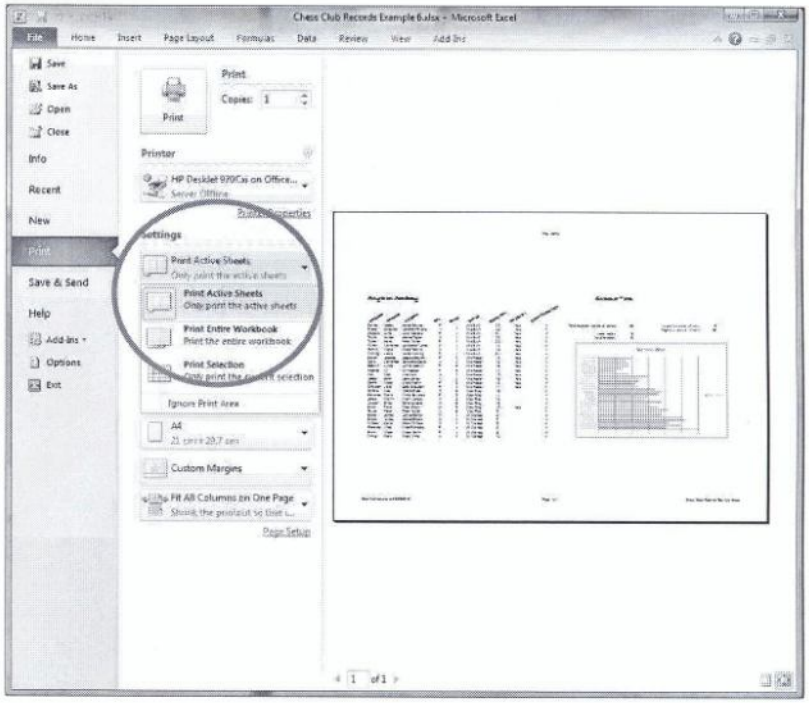


Print a selected cell range

You will now print the club member details from the Summer sheet.

- Select the range A1-I30
  - This is the range containing the details for each club member
- Ribbon [File] click the [Print] button
  - To view the Print dialog box
  - To preview the worksheet
- In the Settings section of the Print dialog box, click the drop down arrow to the right of [Print Active Sheets] and select [Print Selection]
  - To specify that you wish to print the currently selected range
- Click [OK]
  - To print the selected range to the default printer

> **Keyboard shortcut:**
> - [Ctrl] + P
> - To open the Print dialog box



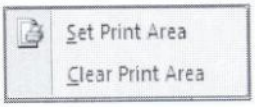
You may like to know:

Set the print area

It is possible to 'set' the print area, so that the range specified as the print area is automatically printed or previewed, without you selecting the range each time:

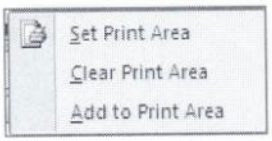
- *Select the range you wish to set as the print area*
- *Ribbon [Page Layout] [Page Setup] – click the [Print Area] button*
  - *To view the Print Area options*

- *Select [Set Print Area]*
  - *To set the specific range to use each time you print*



Clear the print area

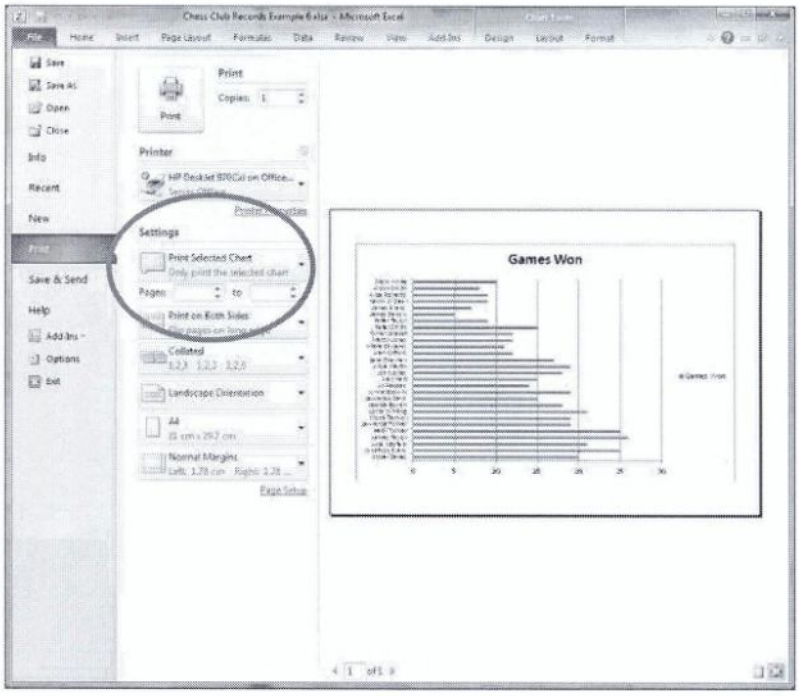
- *Ribbon [Page Layout] [Page Setup] – click the [Print Area] button*
  - *To view the Print Area options*
  - *To see that [Add to Print Area] has been added to the options, now that a print area is set*
- *Select [Clear Print Area]*
  - *To clear the print area that was set*



Print a selected chart

You will now print the Games Won chart from the Summer sheet.

- Select the Games Won chart
- Ribbon [File] click the [Print] button
  - To view the Print dialog box
  - To preview the worksheet
- In the Settings section of the Print Dialog box, ensure that [Print Selected Chart] is selected
  - *It should already be selected, because you selected the chart before opening the Print dialog box*
- Click the [Print] button
  - To print the selected chart to the default printer



You will need to know:

Print the entire worksheet

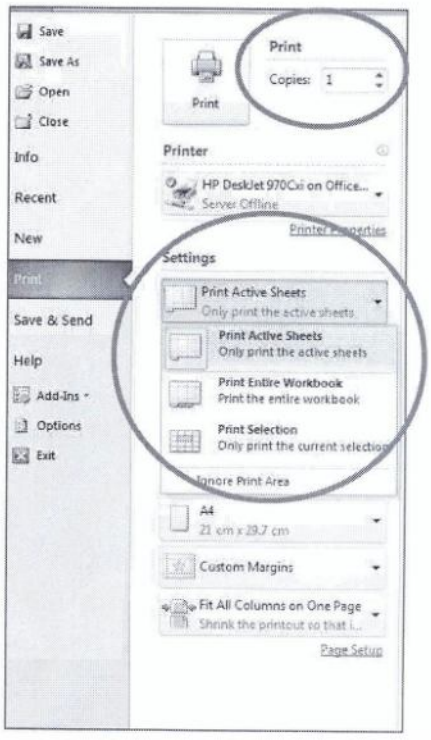
To print an entire worksheet:

- *Select the sheet you wish to print*
- *Ensure the page setup options have been set for the worksheet*
- *Ribbon [File] click the [Print] button*
  - *To view the Print dialog box*
- *In the Settings section, ensure [Print Active Sheets] is selected*
- *Click [OK]*
  - *To print the current sheet to the default printer*

Print the entire spreadsheet

To print the entire workbook:

- *Set the page setup options for all the worksheets in the workbook*
- *Ribbon [File] click the [Print] button*
  - *To view the Print dialog box*
- *In the Settings section, select [Print Entire Workbook]*
- *Click [OK]*
  - *To print the entire workbook to the default printer*



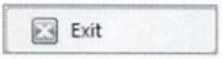
Print a number of copies of a worksheet

To print more than one copy of your print selection:

- *In the [Copies:] field of the Print dialog box, type the number of copies to print*
- *Click [OK]*

Exercise 5 Close Excel

- Ensure that you have saved your updated workbook
- Ribbon [File] click the [Exit] button



  - To close down Excel as well as any open workbooks
  - If you have any open workbooks that have not been saved since they were last updated, a warning box will open for each of these workbooks in turn, asking if you want to save the changes you made to the workbook.

Keyboard shortcut:
- [Alt] + [F4]