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CHAPTER 1

CREATING WORKBOOKS

INFocus

ICA11_E500

In this session you will:

- ✓ gain an understanding of spreadsheets and how they work
- ✓ gain an overview of three functions of a spreadsheet - calculations, graphs, and lists
- ✓ learn how to start **Microsoft Excel 2010**
- ✓ gain an understanding of workbooks and their elements
- ✓ learn how to create a new blank workbook based on the default template
- ✓ learn how to type text into a worksheet
- ✓ learn how to save a new workbook file
- ✓ learn how to enter numbers into a worksheet
- ✓ learn how to type a simple formula into a worksheet
- ✓ learn how to enter formulas more quickly and easily
- ✓ learn how to type dates and perform simple calculations with them
- ✓ learn how to apply basic formatting to a worksheet
- ✓ learn how to check spelling in a worksheet
- ✓ learn how to make and save changes to an existing workbook
- ✓ learn how to safely close a workbook
- ✓ learn how to open an existing workbook
- ✓ gain an understanding of how formulas work and are written in **Excel**
- ✓ learn how to create formulas that add using the pointing method
- ✓ learn how to create formulas that subtract
- ✓ learn how to create formulas that multiply and divide
- ✓ gain an understanding of what functions are and how they work
- ✓ learn how to use the **SUM** function to add values
- ✓ gain an understanding of some of the more common formula error messages.

UNDERSTANDING HOW SPREADSHEETS WORK

Word processing packages are designed to process words – they let you write letters, compose faxes, prepare reports, write books, and much more. **Spreadsheet** packages on the other

hand, are designed to process numbers. While word processing applications are perfect for creating documents, spreadsheets are ideal for budgets, statistics, sales analyses, and the like.

What Is A Spreadsheet?

According to the *Oxford Dictionary of Computing* a spreadsheet is...

“A program that manipulates tables consisting of rows and columns of cells, and displays them on a screen; the cells contain numerical information and formulas, or text... The value in a numerical cell is either typed in or is calculated from a formula in the cell; this formula can involve other cells. Each time the value of a cell is changed by typing in a new value from the keyboard, the value of all other cells whose values depend on this one are recalculated.”

	A	B	C	D	E	F
1						
2						
3	Employee		Hourly Rate	Hours	Gross Pay	
4						
5	Adams	Margaret	15.50	24.0	\$372.00	
6	Brown	John	16.75	16.2	\$271.35	
7	Francis	Grace	12.50	12.0	\$150.00	
8	Simpson	Stephen	9.65	18.0	\$173.70	
9						
10			Total	70.2	\$967.05	
11			Average	17.6	\$241.76	
12			Maximum	24.0	\$372.00	
13			Minimum	12.0	\$150.00	
14						

1 Numerical Information: Hourly Rate and Hours worked are typed into the cells so that they can be used to calculate Gross Pay.

2 Formulas: Use the information in Hourly Rate and Hours worked to calculate Gross Pay and other statistical information.

3 Text: Text is typed into the cells and is normally used as labels. Here text is typed to identify the employees, the column headings and also the types of statistical calculations.

The screen above shows a spreadsheet application being used to calculate weekly pay for four employees. Spreadsheet applications are laid out as tables comprising **rows** and **columns** – notice how the columns have alphabetical headings and the rows are numbered (down the side) numerically. The intersection of a column and a row is known as a **cell**. Your data, comprised of text (referred to as **labels**), numbers (referred to as **values**), or **formulas** is typed into these cells.

In the example above, the gross pays, total, average, maximum, and minimum figures are formulas which are dependent upon what is typed into *Hourly Rate* and *Hours*. Each time a value in *Hourly Rate* or *Hours* is changed all of the formulas that are dependent on that value are recalculated – instantly. In the screen below the Hours worked by Margaret Adams have changed from 24 to 33, and the Hourly Rate for Grace Francis has increased from \$12.50 to \$13.75 – notice how the relevant Gross Pay information and statistics have changed...

	A	B	C	D	E	F
1						
2						
3	Employee		Hourly Rate	Hours	Gross Pay	
4						
5	Adams	Margaret	15.50	33.0	\$511.50	
6	Brown	John	16.75	16.2	\$271.35	
7	Francis	Grace	13.75	12.0	\$165.00	
8	Simpson	Stephen	9.65	18.0	\$173.70	
9						
10			Total	79.2	\$1,121.55	
11			Average	19.8	\$280.39	
12			Maximum	33.0	\$511.50	
13			Minimum	12.0	\$165.00	
14						

1 Changes in the Hourly Rate and Hours cells...

2 ...cause the formulas in these cells to instantly recalculate and reflect any changes.

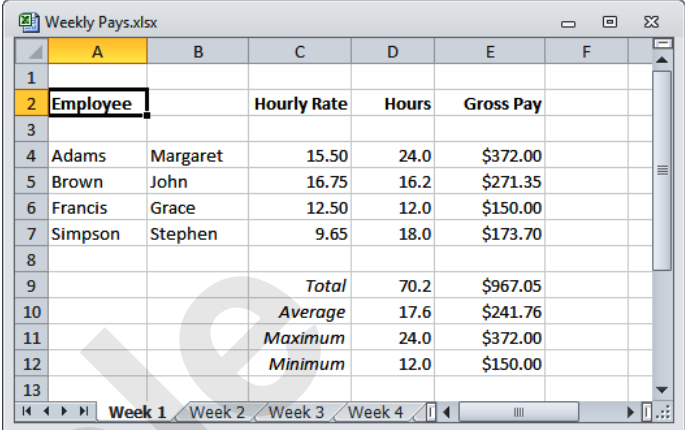
UNDERSTANDING SPREADSHEET FUNCTIONALITY

Over the years the functionality of spreadsheets has increased. Today spreadsheets provide three main functions. Primarily they allow you to type numbers to perform calculations. They also allow

you to display those numbers pictorially as graphs. Finally, spreadsheets allow you to enter data into lists and to perform rudimentary operations such as sorting, filtering, and summarising of those lists.

Performing Calculations

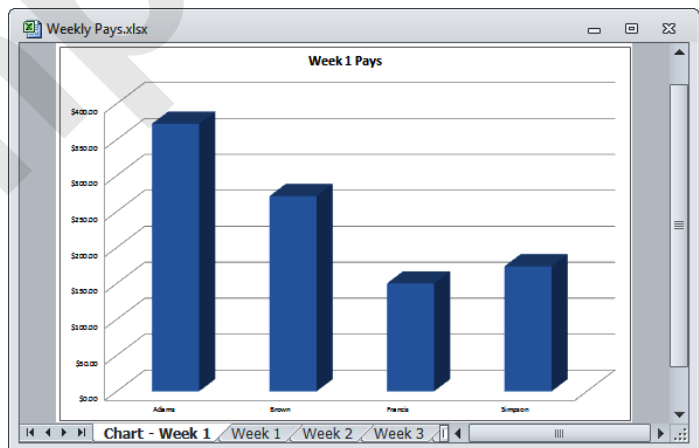
Spreadsheets are most commonly identified as applications that help you process numbers. Numbers are entered into cells and formulas that use these numbers are automatically and instantly recalculated. This is sometimes referred to as **numeric modelling**.



	A	B	C	D	E	F
1						
2	Employee		Hourly Rate	Hours	Gross Pay	
3						
4	Adams	Margaret	15.50	24.0	\$372.00	
5	Brown	John	16.75	16.2	\$271.35	
6	Francis	Grace	12.50	12.0	\$150.00	
7	Simpson	Stephen	9.65	18.0	\$173.70	
8						
9			Total	70.2	\$967.05	
10			Average	17.6	\$241.76	
11			Maximum	24.0	\$372.00	
12			Minimum	12.0	\$150.00	
13						

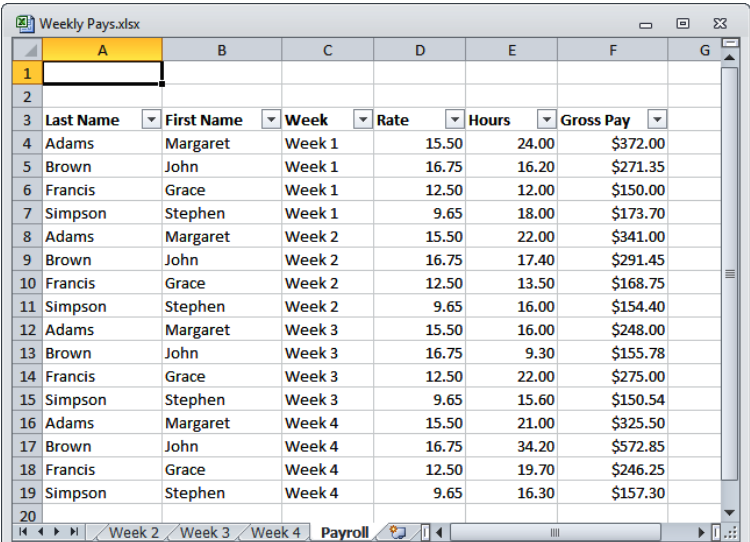
Creating Graphs

Graphs, or **charts** as they are known in Excel, allow you to pictorially view the data in a worksheet. Charts are created based on one or more series of numbers that are in the worksheet. These numbers may be ones that have been typed or ones that appear as the result of a calculation. Like formulas, charts are automatically updated when the data in the worksheet changes.



Working With Lists

A list is simply a collection of items organised into columns and rows – and since that is how a worksheet is organised it is only logical that list-type operations can be performed. These operations include the ability to filter (search and display) specific data, the ability to sort the data either numerically or alphabetically, and the ability to summarise the data such as displaying the total of a particular column.



	A	B	C	D	E	F	G
1							
2							
3	Last Name	First Name	Week	Rate	Hours	Gross Pay	
4	Adams	Margaret	Week 1	15.50	24.00	\$372.00	
5	Brown	John	Week 1	16.75	16.20	\$271.35	
6	Francis	Grace	Week 1	12.50	12.00	\$150.00	
7	Simpson	Stephen	Week 1	9.65	18.00	\$173.70	
8	Adams	Margaret	Week 2	15.50	22.00	\$341.00	
9	Brown	John	Week 2	16.75	17.40	\$291.45	
10	Francis	Grace	Week 2	12.50	13.50	\$168.75	
11	Simpson	Stephen	Week 2	9.65	16.00	\$154.40	
12	Adams	Margaret	Week 3	15.50	16.00	\$248.00	
13	Brown	John	Week 3	16.75	9.30	\$155.78	
14	Francis	Grace	Week 3	12.50	22.00	\$275.00	
15	Simpson	Stephen	Week 3	9.65	15.60	\$150.54	
16	Adams	Margaret	Week 4	15.50	21.00	\$325.50	
17	Brown	John	Week 4	16.75	34.20	\$572.85	
18	Francis	Grace	Week 4	12.50	19.70	\$246.25	
19	Simpson	Stephen	Week 4	9.65	16.30	\$157.30	
20							

STARTING MICROSOFT EXCEL 2010

To create a new spreadsheet, or edit an existing one, the first thing that you need to do is to start **Microsoft Excel**. As a standard software application, how **Microsoft Excel** is started is

largely determined by Windows. For example, it can be started from the Windows **Start menu**, from a **shortcut**, or even by opening a workbook that was created previously in Excel.

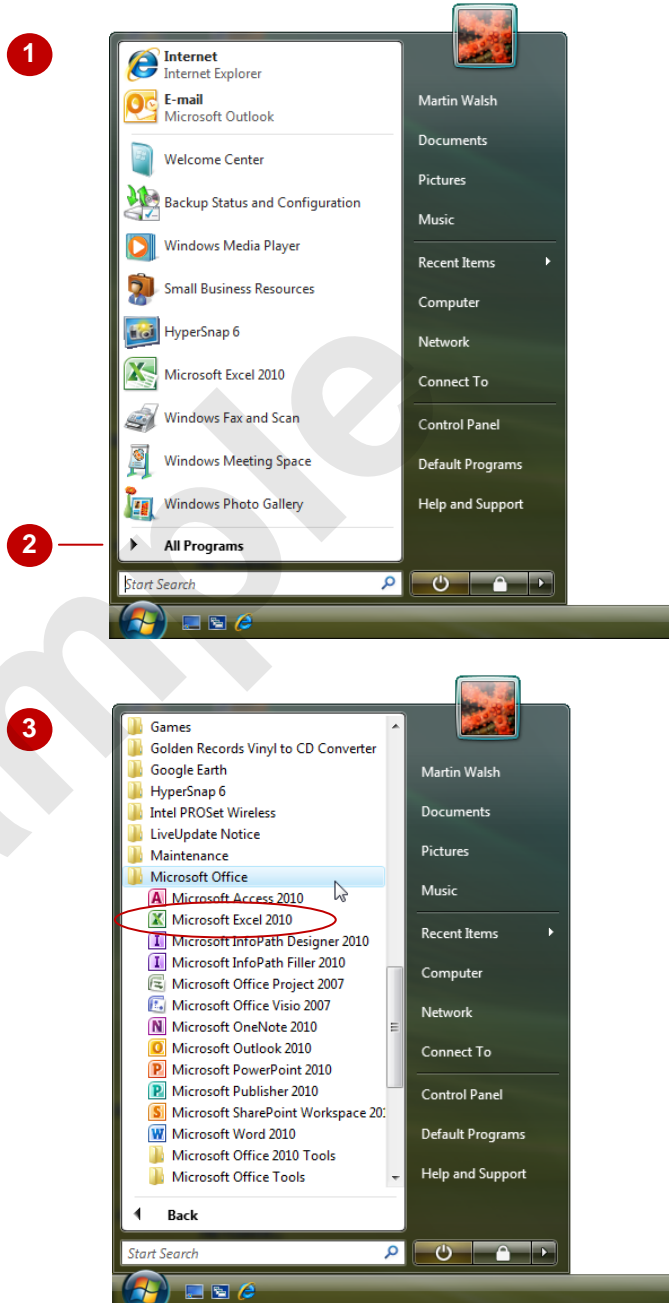
Try This Yourself:

Open
File

Before starting this exercise, ensure that your computer is on and that the Windows desktop is displayed...

- 1 Click on the Windows **Start** button (it's a round button with a Windows logo on it) at the bottom left-hand corner of the screen to display the menu
- 2 Click on **All Programs**
- 3 Click on **Microsoft Office**
- 4 Click on **Microsoft Excel 2010**

After a few moments of huffing and puffing Excel will start with a blank "workbook" on the screen – the workbook appears like an electronic sheet of paper ruled into columns and rows



For Your Reference...

To **start Microsoft Excel**:

1. Click on the Windows **Start** button
2. Click on **All Programs**
3. Click on **Microsoft Office**
4. Click on **Microsoft Excel 2010**

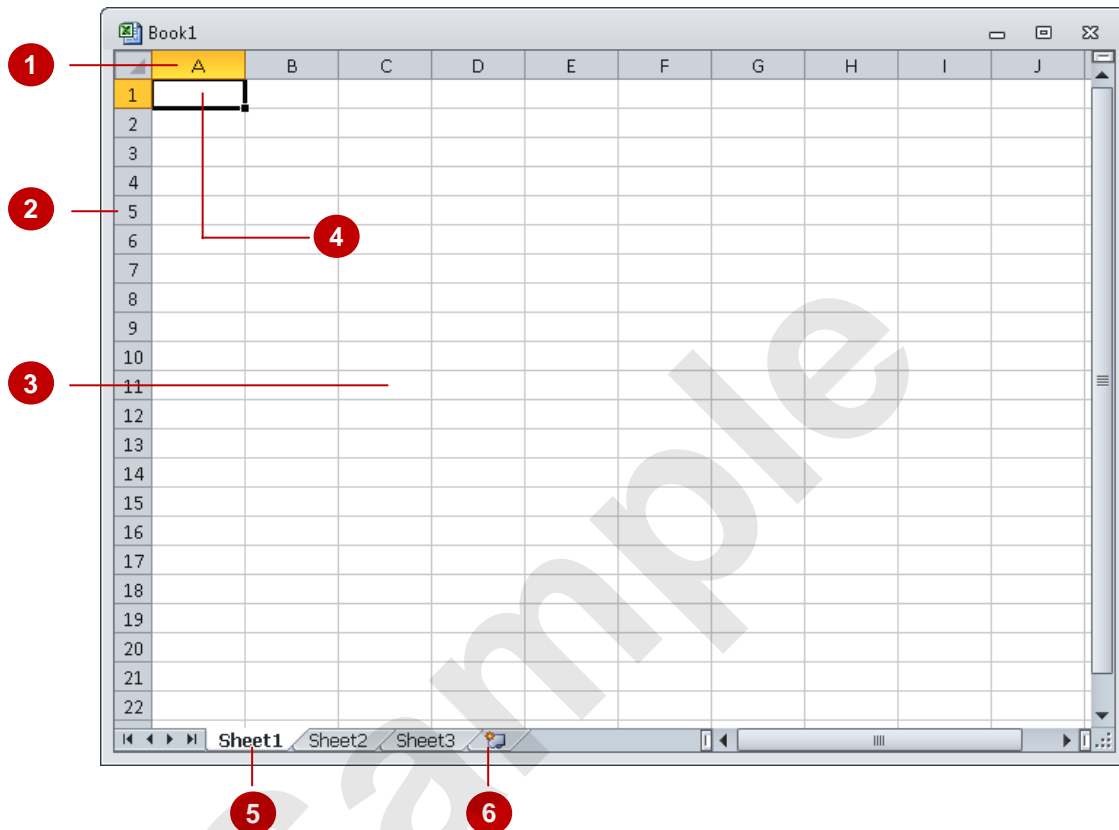
Handy to Know...

- If you have accessed Microsoft Excel previously, it should appear in the first part of the **Start** menu and you can start it from here – this means you don't need to continue to the **All Programs** menu.

UNDERSTANDING WORKBOOKS

In Microsoft Excel the data you enter, whether it consists of numbers, text, or formulas, is stored in a file known as a **workbook**. Workbooks are just like super-huge electronic books with pages

(or **sheets**) that have been ruled into columns and rows. Before using Excel it is helpful to know what the various parts and elements that make up a workbook are.



- 1 A worksheet (or page) in a workbook contains 16,384 **columns** that are labelled using letters of the alphabet. The first column in a worksheet is labelled column **A**, while the last is labelled **XFD**.
- 2 A worksheet (or page) in a workbook contains 1,048,576 **rows** that are labelled using numbers from 1 to 1,048,576.
- 3 Where a column and row intersect we get what is known as a **cell**. You enter your data into these cells. Each cell in a worksheet can hold up to 32,767 characters – although you'd be nuts to ever push it this far. Cells are referred to by their column and row labels. For example, in the screen above, the cell we are pointing to is **C11** – this reference is known as the **cell address** and is most important as it is frequently used in commands and formulas.
- 4 When you start typing something you want it to appear somewhere in the worksheet. As a consequence when the status bar shows **Ready** mode, at least one cell in the worksheet will be highlighted – this is known as the **active cell**. In the screen above the active cell is cell **A1** – notice that the column label and the row label also appear coloured to indicate the active cell. You can have more than one active cell – when this occurs you have what is known as a **range**.
- 5 A workbook (as you would expect) is made up of pages known as **worksheets**. You can have as many sheets in a workbook as your computer resources can accommodate. As a default, a new blank workbook normally has 3 worksheets labelled *Sheet1*, *Sheet2*, and *Sheet3*. Of course these labels are pretty boring and meaningless and can be changed to something more relevant.
- 6 The **Insert Worksheet** button will insert another worksheet into the current workbook should you need it.

USING THE BLANK WORKBOOK TEMPLATE

When you want to create a new spreadsheet project, you will normally first need to create a new **workbook**. All workbooks created in Excel are based on a template which defines the basic

layout of a workbook. Microsoft actually provides a number of task-specific templates for accounting, budgeting and the like. However the easiest to use is the **Blank Workbook** default template.

Try This Yourself:

Before you begin you should ensure that Excel has started...

- 1 Click on the **File** tab to display the **Backstage view**

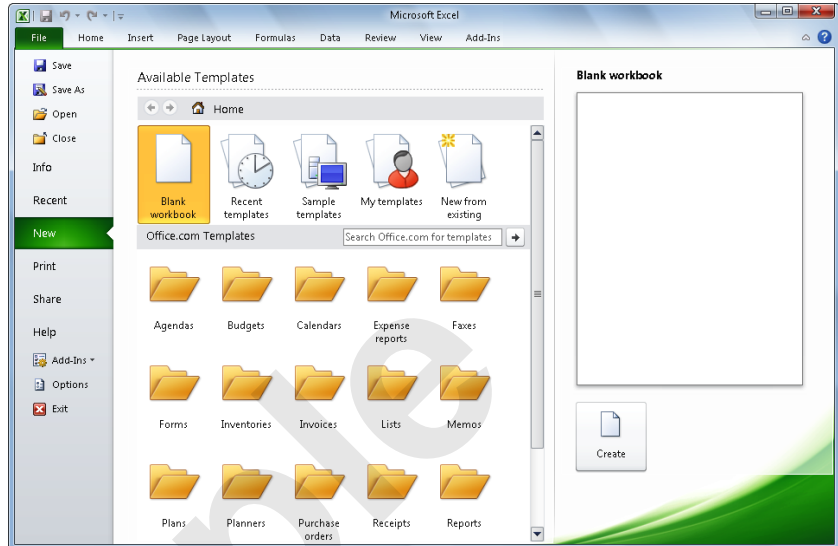
- 2 Select **New** to display the **Available Templates**

Here you can see the installed and online templates available to you...

- 3 Click on **Blank workbook** in **Available Templates**

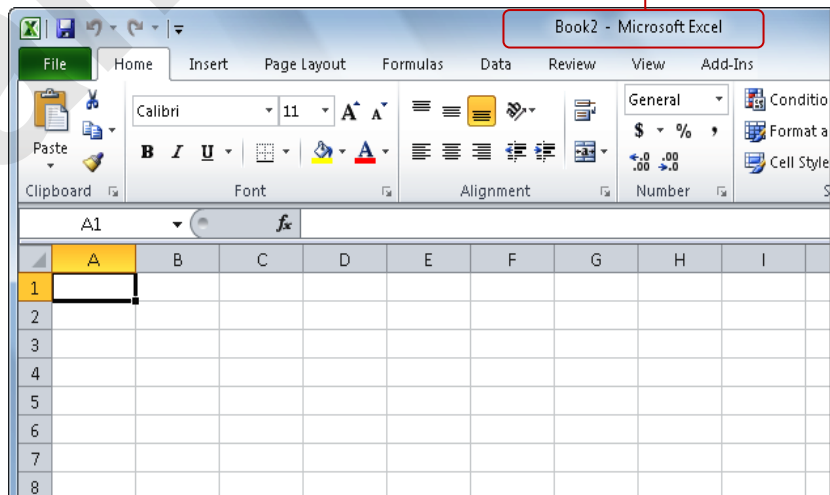
- 4 Click on **[Create]** to create a new blank workbook

Notice that the workbook is automatically assigned a sequentially numbered name commencing with the word "Book", which is displayed in the title bar



3

Book2 - Microsoft Excel



4

For Your Reference...

To **use** the **Blank workbook template**:

1. Click on the **File** tab
2. Select **New**
3. Click on **Blank workbook** in **Available Templates**
4. Click on **[Create]**

Handy to Know...

- You can also use the keyboard shortcut **Ctrl + N** to instantly open a new blank workbook based on the **Blank workbook** template, by-passing the **Backstage view**.

TYPING TEXT INTO A WORKSHEET

Generally when you start a new spreadsheet project the first task is to enter some headings into rows and columns. To **type** anything into a worksheet you need to make the cell into which

you wish to enter the data active. This can be done in a number of ways but the most common is to click in the cell first before typing.

Try This Yourself:

Before starting this exercise you must ensure that there is a blank workbook open...

- 1 Click in cell **A3** to make this the active cell, type **Hockey Sticks** and press **Enter**

*When you press **Enter** the next cell down automatically becomes the active cell. By the way, even though the text looks like it is in cells A3 and B3 it really only is in cell A3 – since there is nothing in B3 Excel allows the spill over to be displayed, giving the illusion it is in 2 cells...*

- 2 Type **Squash Rackets** and press **Enter**
- 3 Repeat the above steps and enter the remaining text in column **A** as shown

- 4 Click in cell **B2** to make this the active cell, type **AUS** and press **Tab**

*When you press **Tab** the cell to the right then becomes the active cell...*

- 5 Enter the remaining text in row **2** as shown

	A	B	C	D
1				
2				
3	Hockey Sticks			
4				
5				
6				
7				

	A	B	C	D
1				
2				
3	Hockey Sticks			
4	Squash Rackets			
5				
6				
7				

	A	B	C	D	E
1					
2					
3	Hockey Sticks				
4	Squash Rackets				
5	Tennis Rackets				
6	Golf Sets				
7	Footballs				
8					
9					

	A	B	C	D	E
1					
2		AUS			
3	Hockey Sticks				
4	Squash Rackets				
5	Tennis Rackets				
6	Golf Sets				
7	Footballs				
8					
9					

	A	B	C	D	E	F
1						
2		AUS	NZ	UK	Europe	
3	Hockey Sticks					
4	Squash Rackets					
5	Tennis Rackets					
6	Golf Sets					
7	Footballs					
8						

For Your Reference...

To **enter text**:

1. Click the cell pointer on the desired cell and type the required information
2. Press **Enter**, an arrow key or **Tab** to confirm the data entry and to move the cell pointer to another cell

Handy to Know...

- You don't have to use **Enter** or **Tab** to make adjacent cells active. You can simply use the mouse and click in the cells if you want or even press the arrow keys to move up, down, left, or right.

SAVING YOUR NEW WORKBOOK

Few things are more frustrating in the world of computers than doing an hour of work and then losing it all because the computer crashes. This is one reason why it is important to save your

work regularly. **Saving your work** moves the information from the computer's short-term memory (known as RAM), to its long-term memory (the hard disk drive) so that you can access it again later.

Try This Yourself:

Same File

Continue using the previous file with this exercise...

- 1 Click on the **File** tab and select **Save** (or **Save As**) to display the **Save As** dialog box – if it has not appeared as shown click on **Browse Folders**

Excel will propose the default book name as the new file name...

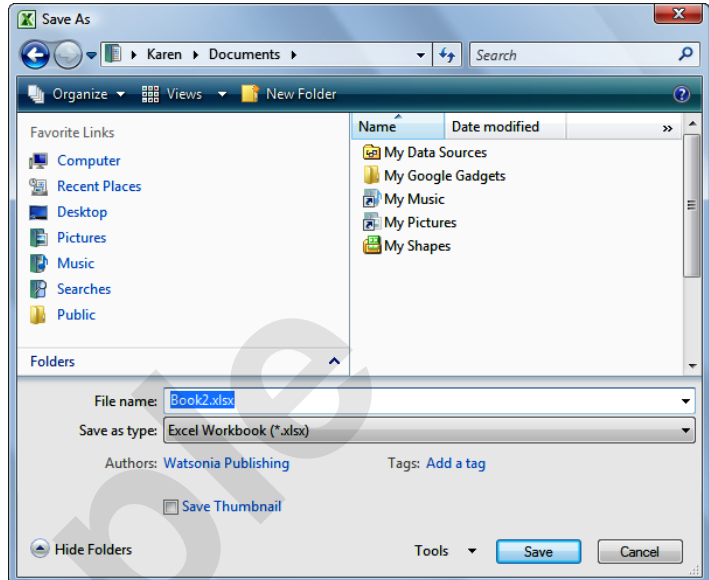
- 2 Type **Sports Department Sales** in **File name**

Now we need to choose the filing location...

- 3 Click on **[Save]** to save the document

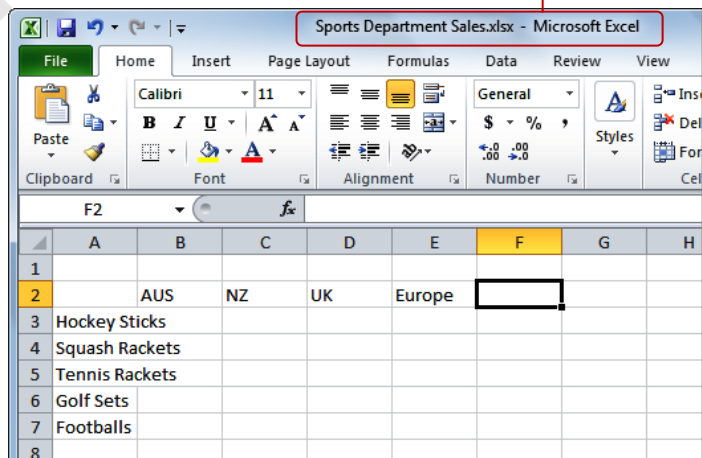
Notice that the new name now appears in the title bar at the top of the screen

1



Sports Department Sales.xlsx - Microsoft Excel

3



For Your Reference...

To **save a new document**:

1. Click on the **File** tab and select **Save**
2. Optionally, locate the storage folder in the **Navigation pane**
3. Type a **File name** and click on **[Save]**

Handy to Know...

- Each time you start Excel it will most likely assume you want to file your workbooks in a folder called **Documents** which is associated with the user name you use on the computer. You can nominate your own location for files. While you are learning, however, the **Documents** folder is as good as any.