

Designing a Workbook

The information on this page describes the basics of designing a simple workbook. Before creating a workbook you need to organise and gather data. Data can be grouped into several areas.

Employee	Hourly Rate	Hours	Gross Pay	Tax	Net Pay
Clarkson, Julie	\$10.50	20	\$210.00	\$69.30	\$140.70
Craig, Janine	\$8.50	30	\$255.00	\$84.15	\$170.85
Hirst, Wayne	\$10.50	40	\$420.00	\$138.60	\$281.40
James, Susan	\$12.00	30	\$360.00	\$118.80	\$241.20
Peale, Irene	\$12.00	20	\$240.00	\$79.20	\$160.80
Pearce, John	\$8.50	30	\$255.00	\$84.15	\$170.85
Roberts, Daniel	\$10.50	30	\$315.00	\$103.95	\$211.05
Totals		200	\$2,055.00	\$678.15	\$1,376.85

Output:

Average Hours Worked	29
Highest Net Pay	\$281.40

Documentation

Definitions for each area, and questions you can ask when planning your worksheet, are described below.

Identification

The Identification area displays information on the identity purpose of the spreadsheet.

- Who is this spreadsheet for?
- What type of spreadsheet is this?
- What is the purpose of the spreadsheet?

Input

Data displayed in this area are references used for formulas within the spreadsheet, eg TAX rate, commission rate, etc.

Work

The work area displays the data and calculations made within a spreadsheet. The data displayed in this area must be laid out logically so formulas can be calculated easily.

- What is my data?
- Can my data be grouped into columns or rows?

In this area you need to ensure data is laid out correctly so the correct data is calculated, eg if you wanted all the January sales totalled they would be placed either in the same row or column.

Output

The output is the result of calculated formulas. This area can also display scenario and statistical information, eg what is the average sales over the last quarter.

Documentation

Information about the spreadsheet. This information describes the workings of the spreadsheet to a user that has not seen or used this spreadsheet before. This includes information on macros, complex calculations, data contained on each worksheet, etc.

Sometimes when creating simple spreadsheets you will not need an Input area and the Output area will appear as the totals displayed at the bottom of your spreadsheet.

Problem Solving

The idea behind the use of a spreadsheet is to solve a problem. An example of a problem for The Foreign Explorer (a camping equipment company) is shown below. On the next page you will see a sketched solution using a spreadsheet.

Hi Robin
Could you put together a spreadsheet for me. I need to know the total sales for each month. The information sent in by each branch is attached.

The Foreign Explorer - Birkdale Facsimile
To: Frank
From: Claire
Date: 15 August
Subject: Sales for January-April
No. of pages: 1

Month	Sales
January	14589
February	15584
March	16752
April	17522

The Foreign Explorer - Balmoral Facsimile
To: Frank
From: Max
Date: 15 August
Subject: Sales
No. of pages: 1

January 17859
February 21659
March 19542
April 13750

The Foreign Explorer - Devonport Facsimile
To: Frank
From: Kevin
Date: 12 August
Subject: Sales Figures
No. of pages: 1

January 23599
February 24499
March 25789
April 28942

The Foreign Explorer - Victoria Park Facsimile
To: Frank
From: Jennifer
Date: 10 August
Subject: Jan-April Sales
No. of pages: 1

January 21654; February 23774;
March 26874; April 23456

Regards
Jen


It is a good idea to sketch out on a piece of paper how the spreadsheet will be created. This allows you to quickly work out whether data will appear logically and can be calculated.

The Foreign Explorer					
Sales for 1st Quarter					
	January	February	March	April	Total
Devonport	Data inserted into each column				
Balmoral					
Birkdale					
Victoria Park					
Total					

Creating a Workbook

Exercise 16

In the following exercise you will create the above spreadsheet in an Excel 2002 workbook.

Ctrl N ➤ Click on the New button  located on the Standard toolbar. A new workbook will appear on screen.

Tip You can also choose [File] New. From the Task Pane, click on Blank Workbook.

Entering Cell Contents

Values can be entered into any cell in a worksheet. A value consists of text, numbers or a formula based on selected cells, functions and operators. Remember a formula always begins with the = sign. Values can be entered into a worksheet when the mode indicator at the bottom left of the screen displays *Ready*. If this is not displayed press the Esc key on the keyboard until *Ready* appears.

Text

Excel recognises *text* as you type it into the cells. Text is automatically aligned at the left of the cell. Each cell displays up to 8.43 characters. If the text extends beyond this width, it will continue over to the next cell.



	D
May	



Exercise 17

In the exercises that follow you will learn how to enter data and then edit to display the worksheet as in the sketch above.

- 1 Ensure the cursor is in cell A1.
- 2 Type: **Sales Figures**.

	A	B	C	D
1	Sales Figures			

When data is entered into a cell, two buttons appear to the left on the Formula Bar, ie the Enter button  and Cancel button .

- Clicking on  will enter the contents of the Formula Bar into the cell and keep the cursor active in that cell.
- Pressing the Enter key will enter the data and move the cursor down to the next cell in the worksheet.
- Pressing Ctrl Enter will enter the data and leave the cursor in that cell.
- Pressing Shift Enter will enter the data and move the cursor to the previous cell.
- Clicking on the Cancel button  will cancel the entry.
- Pressing the Esc key will cancel your entry.

- 3 Press the Enter key.
- 4 Type: **1st Quarter**
- 5 Press the Enter key.

Numbers

Numbers are automatically aligned at the right side of the cell, eg

D	
	56

Exercise 18

- 1 Type: **2002**
- 2 Press the Enter key.

Pressing the Enter key will enter the contents of the Formula Bar and move the cursor downwards to the next cell. This is a particularly useful feature when entering large amounts of data.


Editing Cell Entries

Cell entries can be altered by re-typing data within a cell or by editing the cell contents and making changes to the data on the Formula Bar.

Replace an Existing Entry

Exercise 19

- 1 In this exercise you will replace the text *Sales Figures* in cell A1 with *The Foreign Explorer*.
- 2 Click on cell A1.
- 3 Type: **The Foreign Explorer**
- 4 Press Enter which will replace the entry.

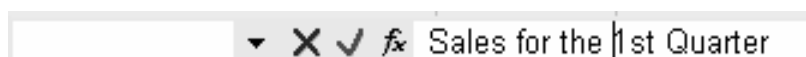
Tip Click on  OR press Ctrl Enter to replace an entry and stay in that cell.


Editing with the Formula Bar

Exercise 20

Existing cell entries can be altered in the Formula Bar. In this exercise you will change the entry in cell A2 to *Sales for the 1st Quarter*.

- 1 With the cursor in cell A2, click at the beginning of *1st Quarter* in the Formula Bar.
- 2 Type: **Sales for the**




- 3 Press the End key to move to the text at the end of the cell. Press the Spacebar. Type: **2001**
Click on  OR press Ctrl Enter.

Editing Within a Cell

Exercise 21

Cell entries can also be altered directly within the cell. You will now change the entry in cell A2 to read *Sales for the 1st Quarter 2002*.

- 1 Position the mouse pointer over cell A2 and double click (OR with cell A2 selected press F2). Press the End key to move to the end of the text.
- 2 Press the Backspace key once, then type: **2**
- 3 Click on  OR press Ctrl Enter.

When you double click in a cell the insertion point will be positioned at the point where you double clicked. If using this method, remember to position the mouse pointer directly over the character in the cell that you want to change, and double click with the left mouse button.

Deleting

Deleted cell entries or ranges can be cleared within a worksheet by pressing the Delete key on the keyboard OR by choosing [Edit] Clear, Contents.

To remove the contents of one cell, click on the cell and press the Delete key on the keyboard. To remove the contents of a range of cells, select the cells then press the Delete key.

Exercise 22

- 1 Click on cell A3.
- 2 Press the Delete key.

The Delete key will remove only the *contents* of the cell.
For special clear options choose [Edit] Clear and select:


<i>All</i>	clears all formats, cell contents and notes
<i>Formats</i>	clears format settings, ie cell alignments, font styles
<i>Contents</i>	clears only the cell entry
<i>Comments</i>	clears any comments that may be attached to a cell

Undo


If you make an error when editing, the Undo feature allows you to cancel your last action.

Exercise 23

- Ctrl Z ➤ Click on Undo  OR choose [Edit] Undo Clear.

Click on the drop-down list arrow  to the right of the Undo button to display a list of previous actions. To undo several actions, click on the action you want to undo, or drag to select a list of actions.

Redo

The Redo feature will “redo” the action you have taken with the Undo feature. (By clicking on the down arrow  you can see a list of “redo” features, used in the same way as for Undo.)

Exercise 24

Ctrl Y ➤ Click on Redo  OR choose [Edit] Redo.

Entering Data

Exercise 25

- 1 Click and drag from cell A5 down to cell A9.
- 2 Type: **Devonport** Press Enter.
- 3 Type: **Balmoral** Press Enter.

(Notice that when you type B for Birkdale, *Balmoral* appears in the cell. Excel remembers text that you have previously typed within the selection area - you can press Enter to accept the text displayed if appropriate or continue typing.)

- 4 Type: **Birkdale** Press Enter.
- 5 Type: **Victoria Park** Press Enter.
- 6 Type: **Total** Press Enter.
- 7 Click on cell A1 OR press Ctrl Home.

Cell selection is turned off by clicking in another cell or moving to another cell with the cursor keys.

If you have made an error select the incorrect cell and amend using the Editing Cell Contents Summary shown below.

Editing Cell Contents Summary

Action	Instruction
Replace an entire cell entry	Click on the cell and retype the entry.
Edit a cell entry in the Formula Bar	Click on the cell to edit. Move the mouse pointer to the required position within the Formula Bar then click with the left mouse button.
Editing within a cell	Double click on the cell and alter as required. OR With the cell selected press F2 and alter as required.
Directional arrow keys (← →)	In the Formula Bar, cursor keys will move the insertion point in the direction of the arrow key pressed.
End	In the Formula Bar, pressing End will move the cursor to the end of the text.
Home	In the Formula Bar, pressing Home will move the cursor to the beginning of the text.
Backspace key	In the Formula Bar, the Backspace key will remove characters to the left of the cursor.
Delete key	In the Formula Bar, the Delete key will remove characters to the right of the cursor.

Widening Columns

When data is inserted into a cell it may extend beyond the width of the cell.

- Text that is wider than the column width may be displayed across several cells - the data is still contained within the one cell - it just covers other cells.
- Numbers entered that exceed the column width will display an exponential figure or will display ##### within the cell. The column will widen slightly.

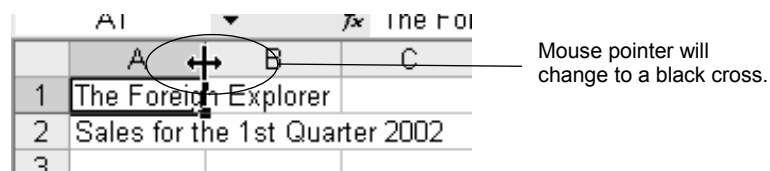
Changing the Width of a Single Column

Mouse

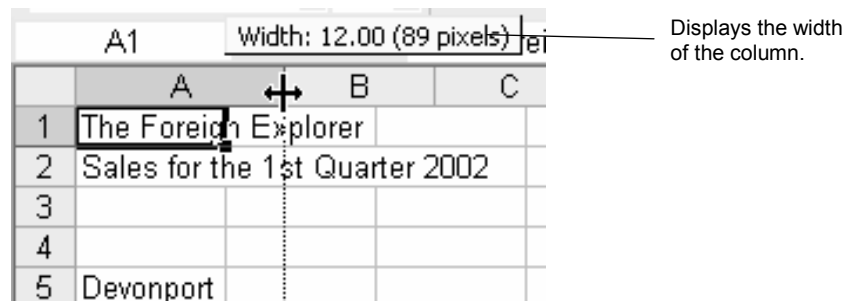
The default column width for all new worksheets is set to 8.43 characters.

Exercise 26

- 1 With the cursor in cell A1, position the mouse pointer between the column A and column B header as shown below.



- 2 Click and hold down the left mouse button. Drag to the right to increase the column width. A box will indicate the width of the column. Drag to the right until 12.00 appears as displayed below, then release the left mouse button.



Menu Option

Exercise 27

- 1 Ensure you are in a cell anywhere in column A.
- 2 Choose [Format] Column, Width. The figure 12 will appear in the Column width: box.
- 3 Type: **15**
- 4 Click on OK.



Column Headings

Exercise 28

- 1 Click and drag from cell B4 across to cell F4.

Data can be entered into selected cells. Pressing Enter after typing text moves the cursor from cell to cell. Shift Enter moves back to the previous cell.

	A	B	C	D	E	F
1	The Foreign Explorer					
2	Sales for the 1st Quarter 2002					
3						
4						
5	Devonport					
6	Balmoral					
7	Birkdale					
8	Victoria Park					
9	Total					
10						

- 2 Type: **January** Press Enter - this will move you to the next selected cell.
- 3 Type: **February** Press Enter.
- 4 Type: **March** Press Enter.
- 5 Type: **April** Press Enter.
- 6 Type: **Total** Press Enter.
- 7 Press the ↓ to deselect cells.

Changing the Width of a Range of Columns

AutoFit Selection

The AutoFit feature automatically finds the longest cell entry in a column and adjusts the width accordingly.

Exercise 29

- 1 Move the mouse pointer over the column B header **B**. Hold down the left mouse button and drag across to the column F header which will select columns B to F.
- 2 Move the mouse pointer to the right of the column B header until it displays a black cross (as displayed below), then double click.

OR choose [Format] Column, AutoFit Selection.

	B	C	D	E	F
1	lojer				
2	Quarter 2002				
3	January	February	March	April	Total
4					
5					

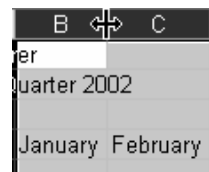
Column widths are now resized to accommodate the longest entry within each column.

	A	B	C	D	E	F
1	The Foreign Explorer					
2	Sales for the 1st Quarter 2002					
3						
4		January	February	March	April	Total
5	Devonport					
6	Balmoral					
7	Birkdale					
8	Victoria Park					
9	Total					
10						

Mouse

Exercise 30

- 1 With columns B to F selected, move the mouse pointer to the vertical line that separates the column B and column C header. *The mouse pointer will change to a black cross.*
- 2 Hold down the left mouse button and drag to the right and release when the columns are 13.00 characters wide. (All selected columns will now be 13 characters wide.)



Menu

Exercise 31

- 1 With the columns still selected choose [Format] Column, Width.
- 2 Type: **10**
- 3 Click on OK.

Entering Numeric Data


Exercise 32

- 1 Click and drag from cell B5 across and down to cell E8.

	A	B	C	D	E	F
1	The Foreign Explorer					
2	Sales for the 1st Quarter 2002					
3						
4		January	February	March	April	Total
5	Devonport					
6	Balmoral					
7	Birkdale					
8	Victoria Park					
9	Total					
10						

- 2 Type: **23599** Press Enter.
- 3 Type: **17859** Press Enter.
- 4 Type: **14589** Press Enter.
- 5 Type: **21654** Press Enter - your cursor will move to the next column ready to enter data.
- 6 Enter the rest of the data as shown on the next page, pressing Enter to move to each selected cell. Remember you can press Shift Enter to move back a cell and F2 to edit the cell.
- 7 Press ↓ when finished to deselect cells.

	A	B	C	D	E	F
1	The Foreign Explorer					
2	Sales for the 1st Quarter 2002					
3						
4		January	February	March	April	Total
5	Devonport	23599	24499	25789	28942	
6	Balmoral	17859	21659	19542	13750	
7	Birkdale	14589	15584	16752	17522	
8	Victoria Park	21654	23774	26874	23456	
9	Total					

- Check that the figures you have entered are correct.
- Click in cell B5 and drag diagonally to cell F9 to select these cells.
- Click on the AutoSum button Σ which will add across and down.
- Click on the Undo button .

Another way is to calculate one formula and use the Fill Handle to copy that formula across a row or down a column.

- Click on cell B9 and click on the AutoSum button Σ .
- Click on the AutoSum button Σ again OR press Enter.
- Click on cell F5 and click on the AutoSum button Σ .

	January	February	March
	23599	24499	25789
	17859	21659	19542
	14589	15584	16752
	21654	23774	26874
	=SUM(B5:B8)		
	SUM(number1, [number2], ...)		

Excel will automatically determine that the figures shown to the left are to be calculated.

	January	February	March	April	Total
5	23599	24499	25789	28942	=SUM(B5:E5)
6	17859	21659	19542	13750	SUM(number1, [number2], ...)
7	14589	15584	16752	17522	
8	21654	23774	26874	23456	
9	77701				

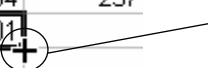
- Click on the AutoSum button Σ again OR press Enter.

Copying Formulas

Exercise 33

- Click on cell B9. Position your mouse pointer on the Fill Handle of the cell, as shown below.

7	Birkdale	14589	15584
8	Victoria Park	21654	23774
9	Total	77701	
10			

Fill Handle 

- Click and hold down the left mouse button and drag to the right to cell E9. Release the left mouse button.

The formula from cell B9 has been copied to the cells you selected with the Fill Handle (C9, D9 and E9).

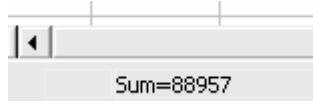
- Click on cell F5. Click and drag the Fill Handle down to cell F9. The formula from cell F5 has now been copied down to cell F9.

AutoCalculate

The AutoCalculate feature displays the sum of selected cells on the Status Bar. This is useful in checking formulas to ensure the correct amount is shown.

Exercise 34

- 1 Select cells D5 to D8.
- 2 Sum= is displayed at the bottom right of the Status Bar. The figure 88957 is the total of the selected cells. Check this figure against the figure shown in cell D9.



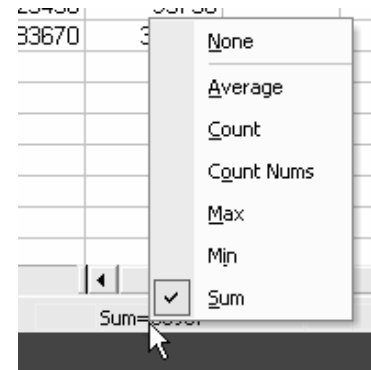
Using the Right Mouse Button

Exercise 35

- 1 Click with your right mouse button over Sum= on the Status Bar. The following menu will appear.

From the menu you can select different options to view calculations of selected cells (eg if you selected Average, the average of the selected cells will be displayed on the Status Bar).

- 2 Click in your worksheet to turn off the menu.



Altering Data

When data is altered in a worksheet, cells that are linked to a formula will automatically adjust to reflect that change.

Exercise 36

- 1 Frank has just received a fax from Kevin at the Devonport branch. The January sales figure is incorrect.
- 2 Click on cell B5.
- 3 Type: **458977**
- 4 Press Ctrl Enter.

Altering the data within cells will change the formulas within the worksheet automatically. Notice the increase is shown in cells B9, F5 and F9.

Exercise 37

Frank has also received a message from Birkdale that the April sales figures are incorrect.

- 1 Click on cell E7.
- 2 Type: **550**
- 3 Press Ctrl Enter. The formulas in cells F8, E9 and F9 will change.

The Foreign Explorer - Devonport Facsimile

To: Frank
From: Kevin
Date: 20 August
Subject: Sales Figures
No. of pages: 1

Hi Frank,

Made an error on the January sales figures, it should be - \$458977

Regards

Kevin

Hi Frank,

Claire from Birkdale called and said she had given you the wrong sales figure for April.

It should be \$550.