Using Microsoft Excel Spreadsheets

Name:

Using Microsoft Excel Spreadsheets

FOR Learning Work SERIES

Booklet 19

CONTENTS

Introduction

Using Microsoft Excel Spreadsheets is one of a valuable and user-friendly new series of easy-to-read booklets created specially to help you develop at work. The materials have been created from actual experience in the workplace. Experts from Workbase Training and Campaign for Learning have pooled their knowledge and experience to involve you in learning new skills and building on those you already have. The booklet is divided into clear *sections*, containing specially devised *activities*. There are also *exercises* at the end of the *sections* to allow you to practise as you learn.

Before you begin using this booklet, it is assumed that:

- you will have already received an introduction to the computer
- you are familiar with the keyboard
- you can use a mouse to point, click, double-click and drag
- you are using Windows software.

Information and skills you will acquire

Using Microsoft Excel Spreadsheets will enable you to:

☐ Understand what a spreadsheet is and become familiar with the layout of a spreadsheet screen.

☐ Create a new spreadsheet , make corrections, save, close, open and print.

☐ Change the look of a spreadsheet.

☐ Perform calculations in a spreadsheet.

Getting the most out of this booklet

☐ You may want to work your way through the booklet from start to finish or focus on an area of interest.

☐ Once you have completed the questionnaire on page 4 you will be able to see clearly which topics you need most help with, and which areas you can safely leave out.

☐ You may want to ask your supervisor or another colleague for their views on the areas you could work on, or for help with the activities in the booklet.

☐ As you may want to use the booklet for future reference, you may want to write the answers out in rough first and then write them in the booklet.

Questionnaire

What do you need most help with?

This questionnaire is to enable you to think about which areas of spreadsheet skills you need most help with. *Tick boxes as appropriate.*

	1 I need a lot of help.	2 I need some help.	3 I can cope.
SECTION 1: What spreadsheets can be used for			
SECTION 2: Understanding the layout of a spreadsheet screen			
SECTION 3: Creating a new spreadsheet			
Making corrections to a spreadsheet			
SECTION 4: Changing the appearance of a spreadsheet			
Changing the way a spreadsheet is laid out on a page			
SECTION 5: Performing calculations in a spreadsheet			
SECTION 6: Opening a spreadsheet created earlier			
Saving a spreadsheet			
Closing a spreadsheet			

The most important areas for you to concentrate on are those which you have marked 1 or 2.

Create your own learning plan

Use the questionnaire above to create your own learning plan. You may wish to use a separate sheet of paper.

USING MICROSOFT EXCEL SPREADSHEETS. LEARNING FOR WORK Series. © Workbase Training

Section 1

What spreadsheets can be used for

UNDERSTANDING SPREADSHEETS

A spreadsheet is a large worksheet laid out in a grid format and used for working with numbers (see fig. 1 Spreadsheet grid layout). Spreadsheets were designed to make it easier for accountants to create accounts, and managers to record and analyse figures. Rather than writing information in a ledger book and performing calculations with a calculator, information can be typed into a spreadsheet using a computer.

There are many automatic features, like AutoSum for adding a list of numbers, that make it easier to use spreadsheets and work with numbers. A spreadsheet can be used to create worksheets from a simple personal budget to complex financial or even scientific information. Numeric data in a spreadsheet can also be presented in a graph format.

Spreadsheets are used for creating worksheets that you would normally handwrite in a ledger. Examples of what a spreadsheet can be used for are:

- accounts
- salaries/wages
- sales commission
- business/personal budgets
- invoices
- sales/purchase lists
- expenses lists

Using a spreadsheet program, you can process words and numbers by typing, correcting, making changes and performing calculations on the screen before printing it out. Spreadsheet computer packages include Microsoft Excel and Lotus 123.

Part of getting used to spreadsheets will be to understand some of the words that describe features that you will use. A list of terms has been included at the end of this booklet to explain these words.

Using a computer to produce spreadsheets is easier if you understand the different parts of the screen and what they are used for. You may never use all the features and functions but it is important to know the aspects you will need and not be confused by the rest! Learning a bit at a time is the best way to develop your skills when using a computer spreadsheet package. Improvement will come with practice.

Section2 UNDERSTANDING THE LAYOUT OF A SPREADSHEET SCREEN

What you may see on the screen

A spreadsheet is laid out in a grid format to make entering numbers into columns easier (see fig. 1). A spreadsheet page is very large and consists of over 200 columns and over 16,000 rows. You cannot therefore see the whole spreadsheet on the screen and you may not use all the columns and rows in a worksheet. As the worksheet is very large, column letters and row numbers are used to help you to navigate around a spreadsheet and know where you are on the large worksheet page.
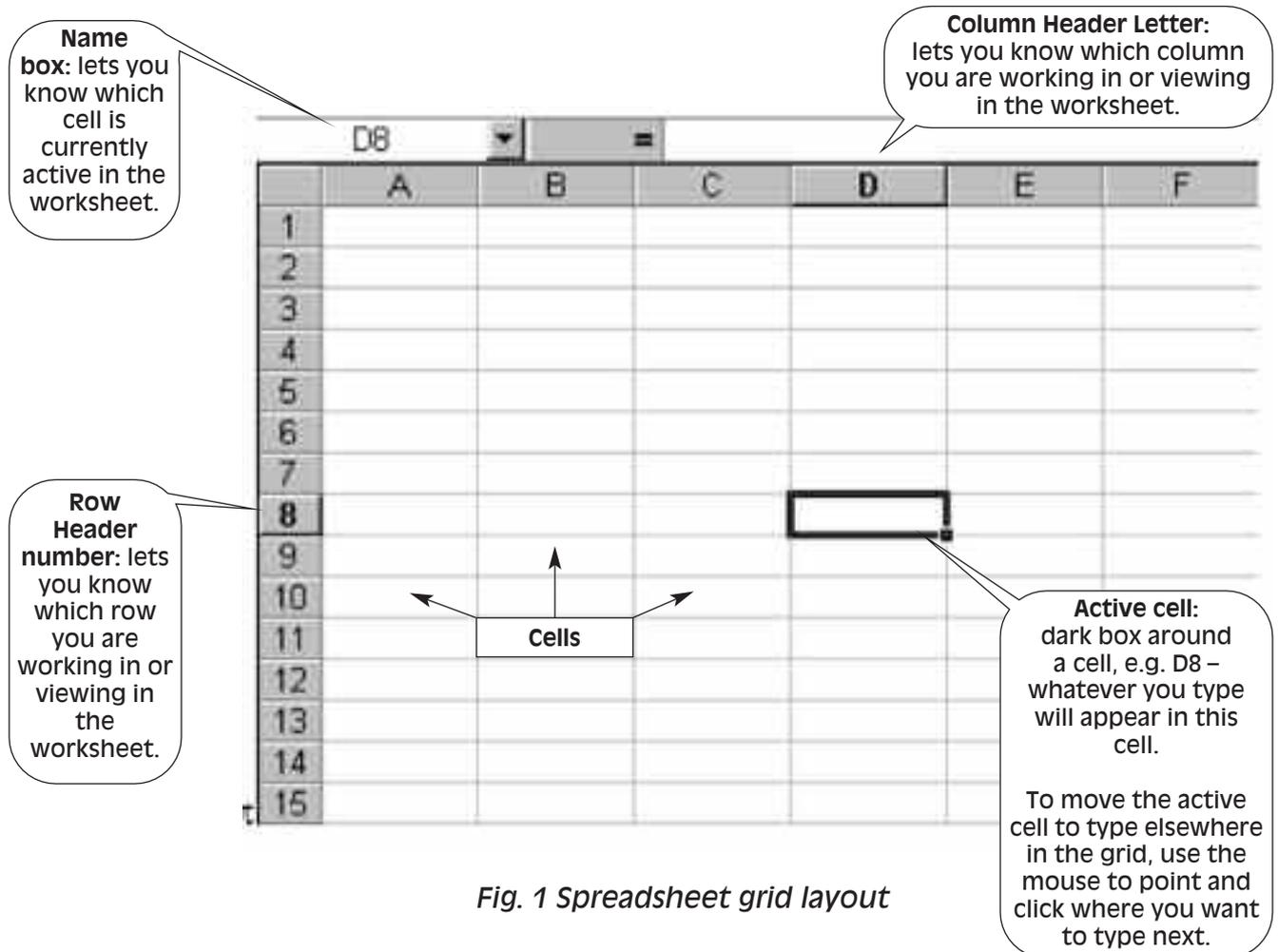
Name box: lets you know which cell is currently active in the worksheet.

Column Header Letter: lets you know which column you are working in or viewing in the worksheet.

Row Header number: lets you know which row you are working in or viewing in the worksheet.

Cells

Active cell: dark box around a cell, e.g. D8 – whatever you type will appear in this cell.

To move the active cell to type elsewhere in the grid, use the mouse to point and click where you want to type next.

Fig. 1 Spreadsheet grid layout

Navigating using cell references

Each rectangular boxed area on the grid is called a **cell**. The **active cell** is the cell with the dark box around it. Whatever you type will appear in the active cell. You can move the active cell to another cell in the grid by pointing and clicking with the mouse wherever you want to type data next, or by using the arrow keys on the keyboard. Each cell has a unique reference that makes it different from the next cell.

To identify which cell is active, look at which column the active cell is in, e.g. column D. Then look to see which row the active cell is in, e.g. row number 8. This gives you the unique cell reference for the active cell, which is cell D8. Being able to identify which cell you are in assists you with navigating around a spreadsheet and will also become important when you are working with calculations, which will be covered in Section 5.

Activity 1

Define a spreadsheet package.

1. What is a spreadsheet?
   ☐ a parcel of words
   ☐ a large grid for working with numbers and words
   ☐ a program for writing a book

2. List three things that you may use a spreadsheet package for:

   _____

   _____

   _____

You will find the feedback to this activity on page 30.

Activity 2

1. Identify the following cell references on fig. 1 or using your computer:
   • E9   • F12   • A1   • B5

2. Which one of the following statements is true?
   ☐ (a) The active cell is the whole worksheet on the screen.
   ☐ (b) The active cell is where anything typed will appear.

You will find the feedback to this activity on page 30.

Key Learning Points

☐ Spreadsheets are used for creating worksheets that include numbers and words. You can create accounts, budgets, invoices, sales and purchase lists

☐ Spreadsheets are laid out in a grid format to make entering numbers easier. You can find your way around a spreadsheet using the column and row headings as a guide.

☐ Understanding the different parts of the screen makes it easier to use spreadsheets.

☐ You do not need to know everything about spreadsheets – it is best to concentrate on a few areas that you will use at the beginning and learn all about them, before choosing to learn about other areas.

Section 3 CREATING AND MAKING CHANGES TO A SPREADSHEET

Creating a spreadsheet

Using spreadsheets enables you to create many different types of worksheets – for example, invoices, budgets, sales and purchase lists, numbers for analysis. Once it has been created, you can easily make changes to the worksheet without having to retype it.

Whenever you start your spreadsheet program, a new blank worksheet appears ready for you to start typing. What you type will appear in the active cell – the grid with the dark box around it (see fig. 2). To start another new worksheet, you can click on **File** menu option and select **New** from the list. When typing, bear the following points in mind:

- **Enter text and numbers** – typing will appear in the active cell with the dark box around it.
- **Move around grid** – use the mouse to point and click where you want the active cell positioned next or the arrow keys on the keyboard to move from cell to cell.
- **Data alignment** – numbers are automatically aligned with the right side of a cell so that numbers line up correctly under each other. Text or words are aligned with the left side of the cell.
- **Undo** – as soon as you make a mistake when typing, you can use the Undo picture icon to cancel your very last action.

Name box: displays the cell reference of the current active cell.

Column Header letter: lets you know where you are in the worksheet.

Row Header number: lets you know where you are in the worksheet.

Active cell: dark box around a cell, e.g. E2 – whatever you type will appear in this cell.

To move the active cell to type elsewhere in the grid, use the mouse to point and click where you want to type.

Numbers automatically align to the right of a cell.

	A	B	C	D	E	F
1	SALES					
2		JAN	FEB	MAR		
3	Product 1	100	50	85		
4	Product 2	350	275	325		
5	Product 3	200	180	150		
6	TOTAL	650	505	560		
7						
8						
9						
10						
11						

Fig. 2 Spreadsheet grid layout

USING MICROSOFT EXCEL SPREADSHEETS. LEARNING FOR WORK Series. © Workbase Training

Making changes to a spreadsheet

Spreadsheets make it easier to correct a worksheet without having to retype it. When correcting a worksheet, you will make use of the backspace and delete keys on the keyboard. You will also use the mouse to move the active cell from one part of the spreadsheet to another.

- If you make a **mistake** whilst typing in a cell, you can use the backspace and delete keys to make alterations – the **backspace** key deletes text on the left-hand side of the flashing cursor. It moves backwards through your text or numbers, deleting one digit at a time. Position the cursor at the end of the number or letter to be deleted and press the backspace key.
- To delete text using the **delete key**, position the cursor in front of the word or number to be deleted. Press the delete key and one digit at a time will be deleted from the right (see fig. 3).
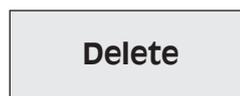
Backspace key   Delete key

$$\longleftarrow \qquad \textbf{Delete}$$

Fig. 3 Editing keys

- You can **overwrite** what is in a cell by simply making that cell active. Anything you type will replace what was in the current active cell.
- Take care when overwriting the contents of a cell, make sure you don't delete data that you wanted to keep.
- To make **changes** to a cell's contents without overwriting, double click with the mouse and the cursor will appear flashing within the active cell. You can then use the arrow keys to move the cursor within the cell to the required position to add or remove data.
- To **delete text or numbers**, make the required cell active and press the delete key on the keyboard to clear the contents of that cell.
- You can use the **undo** button on the toolbar immediately if you make a mistake.

See also booklet 17: Using Microsoft Word for Wordprocessing.

*A*ctivity *3*

Creating a spreadsheet

1. Create the following sales spreadsheet.

	A	B	C	D
1	SALES			
2		JAN	FEB	MAR
3	Product 1	100	50	85
4	Product 2	350	275	325
5	Product 3	200	180	150
6	TOTAL			

2. Edit the spreadsheet by spelling out the months of the year in full:

January – February – March

You will find the feedback to this activity on page 30.

Key **L**earning **P**oints

Using spreadsheets you can create many different types of worksheets – for example, invoices, budgets, sales and purchase lists, numbers for analysis.

Once it has been created, you can easily make cor rections to the worksheet without having to retype it.

Section4 CHANGING THE APPEARANCE OF A SPREADSHEET

Once you have created your spreadsheet and made any corrections required, you can then move on to change the appearance of the spreadsheet. You can achieve this by:

1. **Formatting** parts of the spreadsheet to change the style and appearance of text or numbers. For example, the spreadsheet column headings can be made bigger, smaller or bolder to stand out, or aligned to the right side of the cell to line up with the numbers. Numbers can also be formatted to, for example, currency, which automatically displays a £ sign before a selected number.
2. **Resizing** columns making them wider to fit long words or numbers and narrower if the contents of the cell are minimal.
3. **Moving and copying** information from one place on the spreadsheet to another without the need to retype the data.
4. **Inserting or deleting columns and/or rows** to add more information or space in your spreadsheet.

Formatting

Working on text

Applying formats to text
To change the look of the cell contents, e.g. to make the headings **bold**, simply make the cell active where you want bold to be applied and click once on the bold toolbar icon. You could also use the italic and underline toolbar buttons to make headings stand out. You can also position the headings on the right side of the cell to line up with the numbers (see fig. 5).

Working on numbers

Applying a format style to numbers
You can also change the look or style of numbers to represent the type of worksheet you are working on. If you are working with money, you can apply a currency style to numbers (see fig. 4). This places a £ sign in front of a number without you having to type it. You can also increase or decrease the number of decimal places of a number. If working with money, numbers can be displayed to two decimal places.

To change the format of numbers, make the relevant cell active and choose the number format required.
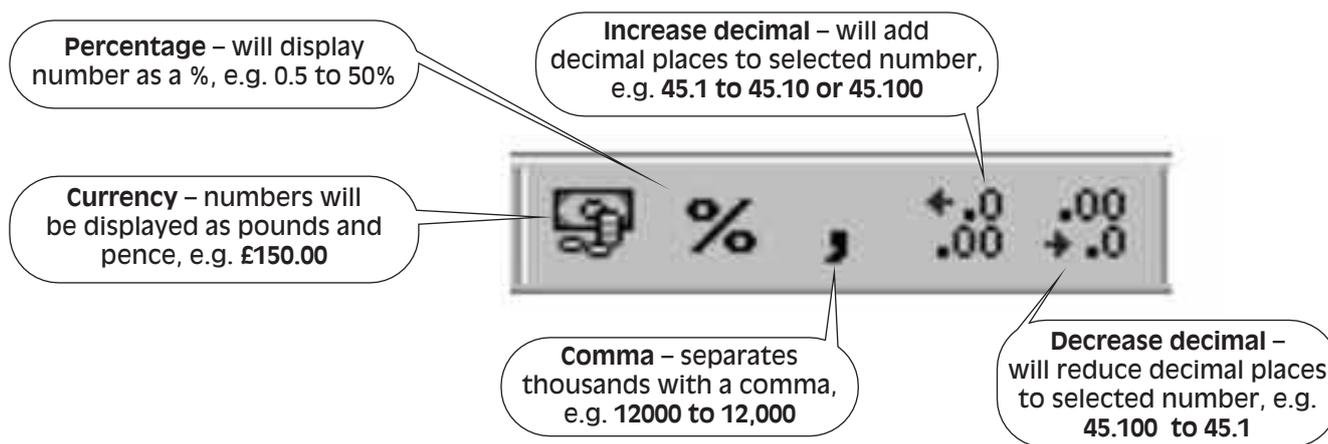
Percentage – will display number as a %, e.g. 0.5 to 50%

Increase decimal – will add decimal places to selected number, e.g. **45.1 to 45.10 or 45.100**

Currency – numbers will be displayed as pounds and pence, e.g. **£150.00**

Comma – separates thousands with a comma, e.g. **12000 to 12,000**

Decrease decimal – will reduce decimal places to selected number, e.g. **45.100 to 45.1**

Fig. 4 Number formatting toolbar icons

More number format options can be chosen from the **Format** menu. Selecting the **Format Cells** dialogue box (see fig. 5) displays other types of number formats available depending on the type of numbers you are working with. As spreadsheets can be used to create simple and complex worksheets, there are many different types of number formats available. (See table below.) You do not need to know how to use all of them. You may find that you only need to use one or a few formats.

Number Format	Description
General	Numbers have no specific formats
Number	Displays numbers with or without decimals
Currency	Formats number to display a £ sign and two decimal places
Accounting	Formats number to display a £ sign and two decimal places
Date	Choose a date format for your number, e.g. 01/08/00
Time	Choose a time format for your number, e.g. 1:30
Percentage	Multiplies the selected number by 100 and displays % sign at the end of number
Fraction	Displays selected number as a fraction, e.g. 0.5 to 1/2
Scientific	Used for scientific data
Text	Used when a number is not part of a calculation, e.g. a product number such as 17362
Special	For specific numbers like telephone numbers
Custom	To create your own number format

To use a number format type, select the style required from the Category section and make your choices from the options displayed.

Category – select the category of number style required.

Sample – displays the contents of the active cell and shows how the number will look if you choose this.

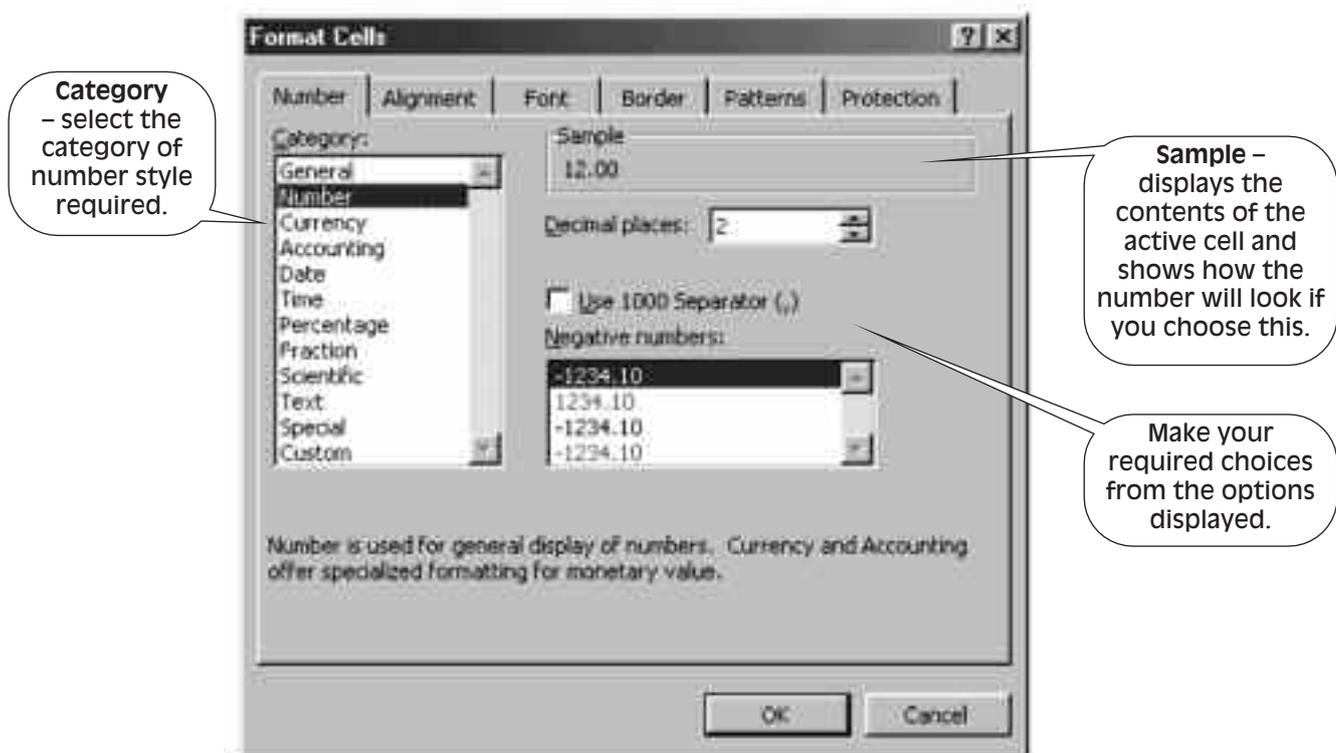Make your required choices from the options displayed.

Fig. 5 Format cells dialogue box

Formatting a range of cells

You can apply formats and make changes to a single cell. However, selecting a range of cells allows you to make changes to all the selected cells at the same time. You can use selecting and highlighting when you wish to:

• apply a number format
• make text stand out using bold or underlining
• move and copy text to another part of the document
• position text on the left, right or centre of the page.

Selecting a range of cells is best used when the selected cells require the same formats or options. You may want to make the headings bold and also place them to the right of their cells so that they line up on the same side as the numbers. You can select all the cells required, then apply bold and right align from the toolbar.

Quite often you may find that you wish to apply a number format to all numbers in a row, column or even all the numbers in your spreadsheet. Applying a format after selecting a range of cells is quicker than working with cells individually when they require the same format.

Fig. 6 Applying format to a selected range of cells

To select text or numbers:
- position the mouse pointer in the first cell you want to select, keep the left mouse button pressed in
- drag it along the cells until you have highlighted what you want to change, then release the left mouse button
- the selection should now be black – *note: the first cell in the highlighted range was the active cell and although it isn't highlighted like the other cells, it has still been included* (see fig. 6)
- apply your required format or enhancement, e.g. bold or a number format
- click anywhere on the spreadsheet to remove the highlighting from the selection.

If you do not highlight the whole section you require, you will need to click anywhere on the spreadsheet to remove the current highlighting on the screen and start the selecting process again.

Beware! Highlighting can be used for deleting text. Whilst text is highlighted, any key that is pressed on the keyboard will delete the selection – if this happens, click on undo straight away to bring the selection back.

Once you have finished working on a highlighted section, don't forget to click anywhere within the page to turn off the highlighting.

A*ctivity*4

You will find the feedback to this activity on page 31.

Changing the appearance of your spreadsheet

1. Select the headings, January, February and March and make them bold.
2. Select the numbers and apply currency format (£) to the range.
3. Select the headings and click on the align right icon on the toolbar.

Resizing columns

Whilst typing in a spreadsheet, text and numbers will overlap into adjacent cells. It is fine to allow this if you do not mind the overlap. However, columns can be resized to fit all your text or numbers into a particular cell or column (see fig. 7).

To resize column: position the cursor on the right edge of the column to be resized until you see the double black arrow shape of the mouse pointer. This must be done in the grey column header area.
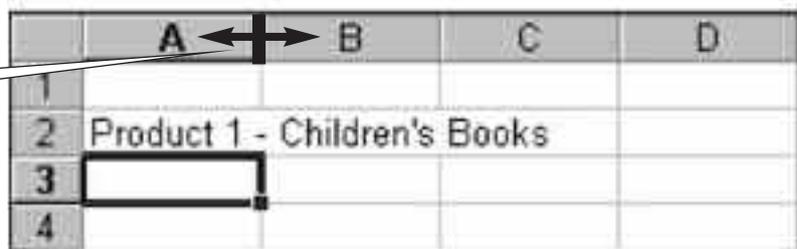
Drag the column edge with the mouse until the column is the desired size. You can also make columns smaller.
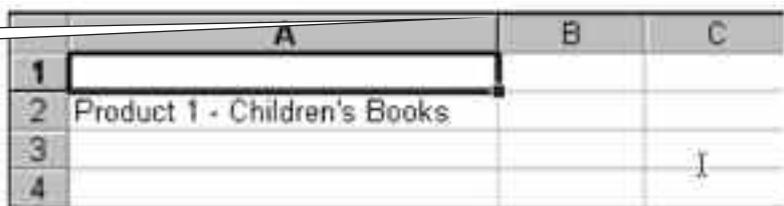
Fig. 7 Resizing columns

A*ctivity*5

You will find the feedback to this activity on page 31.

Resizing columns in your spreadsheet

Resize column A and enter the following additional text:
    Product 1 – Children's Books
    Product 2 – Fiction
    Product 3 – Non-fiction

Moving and copying text

Selected text can be moved or copied to another part of the spreadsheet. Select the cut or copy icons from the toolbar after highlighting the text to be moved or copied. Position the cursor where text is to be placed and click once on Paste icon on the toolbar.

*A*ctivity*6*

Moving and copying text

Select the word **TOTAL** from the bottom of column A and place a copy in cell **E2** to the right of **March**.

	A	B	C	D	E
1	SALES				
2		January	February	March	TOTAL
3	Product 1- Children's Books	£ 100.00	£ 50.00	£ 85.00	
4	Product 2 - Fiction	£ 350.00	£ 275.00	£ 325.00	
5	Product 3 - Non-Fiction	£ 200.00	£ 180.00	£ 150.00	
6	TOTAL				
7					

Inserting or deleting rows and columns

You may decide that you wish to add information to your spreadsheet and you may want to insert an additional column in your spreadsheet.

To insert a column – place the mouse in the column where you would like the additional column to be inserted. From the **Insert** menu, select **Columns**. A new column will be inserted where the mouse was placed.

To delete a column – place the mouse in the column to be deleted. From the **Edit** menu, select **Delete**. The delete dialogue box will appear. Select **Entire column** to delete entire column.

*A*ctivity*7*

Insert a new column

1. Insert a column between columns A and B. Make a cell active in column B and select **Insert** from the menu and **Insert, columns**.

	A	B	C	D	E
1	SALES				
2		January	February	March	TOTAL
3	Product 1- Children's Books	£ 100.00	£ 50.00	£ 85.00	
4	Product 2 - Fiction	£ 350.00	£ 275.00	£ 325.00	
5	Product 3 - Non-Fiction	£ 200.00	£ 180.00	£ 150.00	
6	TOTAL				

	A	B	C	D	E	F
1	SALES					
2			January	February	March	TOTAL
3	Product 1- Children's Books		£ 100.00	£ 50.00	£ 85.00	
4	Product 2 - Fiction		£ 350.00	£ 275.00	£ 325.00	
5	Product 3 - Non-Fiction		£ 200.00	£ 180.00	£ 150.00	
6	TOTAL					

2. Add the following heading and sales person's names in the new column:

	Sales person
Product 1	Jane Silby
Product 2	Bob Moss
Product 3	Peter Deane

There is no feedback to Activities 6 and 7.

	A	B	C	D	E	F
1	SALES					
2		Sales person	January	February	March	TOTAL
3	Product 1- Children's Books	Jane Silby	£ 100.00	£ 50.00	£ 85.00	
4	Product 2 - Fiction	Bob Moss	£ 350.00	£ 275.00	£ 325.00	
5	Product 3 - Non-Fiction	Peter Deane	£ 200.00	£ 180.00	£ 150.00	
6	TOTAL					

Key Learning Points

- Once you have created your spreadsheet, you can change its appearance in various ways.

- Formatting allows you to alter the spreadsheet, such as making the headings stand out using bold, or right aligning text to line up with the numbers.

- The width of columns can be resized to match the length of what you wish to place in a cell. Columns can also be inserted and deleted within the spreadsheet.

- You can move and copy text and numbers without having to retype them.

- Selecting more than one cell allows you to apply formatting to all selected cells in one action.

Section 5 PERFORMING CALCULATIONS IN A SPREADSHEET

How to perform calculations in a spreadsheet

Once you have created your spreadsheet, you may want to perform calculations on sets of numbers. You may want to add up a list of numbers and have the answer appear in the cell you specify. You can carry out calculations using the normal mathematical operators – addition, subtraction, multiplication or division. You can create your own formulas manually or you can use the many predefined functions that are available. When you carry out a calculation manually or use the predefined functions, the result of your calculation will appear in the cell where the calculation was carried out. A formula can be simple or very complex depending on what you are working on. Using formulas and functions saves time. Depending on how you construct your calculations, the spreadsheet can automatically be updated with a new result when a value changes in a cell that has been included in a calculation.

Functions

Functions are predefined formulas that perform calculations by using specific values, in a particular order or structure. For example, the SUM or AutoSum function adds values of ranges of cells.

Formulas

Formulas are calculations carried out manually and always start with an equals (=) sign in the cell where you want the answer to go, e.g. = 1 + 2

When working with formulas, the cell reference rather than the number contained in the cell is commonly used when constructing a calculation, e.g. = A1 + A2. When using cell references, if the number in the cell changes, the result will be recalculated and the answer/result updated. Calculations can also include constant values, meaning a number you type into your formula to be calculated if there is no reference to a cell, e.g. percentages = A1 x 20%. Using cell references, the answer will always be updated when a value changes. If you use a constant value in a calculation and change a value in a cell, the result may not be updated. You will need to check and modify the formula yourself.

Always check your formulas and functions to make sure they are including the cells or numbers you require. Always check your formula after making a change to numbers in your spreadsheet that are part of a calculation.

Using the AutoSum function

The most frequently used function is **SUM**, used to add up a list of specified numbers in a range. The SUM icon appears on the toolbar.

To add a list of numbers:

1. Highlight the cells in the column or row you wish to add, including a blank cell where you want the total to be placed.
2. Click once on the AutoSum icon on the toolbar.

Fig. 8 AutoSum toolbar icon

3. The answer, the total of the selected cells, will be placed in the last cell that was highlighted.

	A	B	C	D	E	F
1	SALES					
2		Sales person	January	February	March	TOTAL
3	Product 1- Children's Books	Jane Silby	£ 100.00	£ 50.00	£ 85.00	
4	Product 2 - Fiction	Bob Moss	£ 350.00	£ 275.00	£ 325.00	
5	Product 3 - Non-Fiction	Peter Deane	£ 200.00	£ 180.00	£ 150.00	
6	TOTAL		£ 650.00			

AutoSum: Highlight cells to be added. Click on AutoSum to display the result/answer.

The AutoSum function automatically writes the formula that will add up the list of highlighted cells. The formula is displayed in the formula bar, above the column headers, when the cell containing the answer is selected/active. If this number was not a formula, the actual number would be displayed in the formula bar, e.g. 650.

The **formula bar** shows that the active cell is a number that has been typed in and not the result of a formula.

C3	▼	= 100	

	A	B	C	D
1	SALES			
2		Sales person	January	February
3	Product 1- Children's Books	Jane Silby	£ 100.00	£ 50.00
4	Product 2 - Fiction	Bob Moss	£ 350.00	£ 275.00
5	Product 3 - Non-Fiction	Peter Deane	£ 200.00	£ 180.00
6	TOTAL			

The **formula bar** shows that the active cell number is a result of a formula and not a number that has been typed in.

Fig. 9 Formula/edit bar

The formula displayed begins with an equals sign (=) to show that a calculation was about to begin. The equals sign is followed by the word SUM which is the name of the function that is being used. The cells to be included in the addition appear within brackets. The first cell and the last cell in the range to be added are displayed and separated by a colon (:) to show that there is a range of cells in between the first and last cell to be included in the addition.

= SUM (C3 : C5)	= SUM (1st cell : last cell)
Example of AutoSum formula	AutoSum procedure for adding lists of numbers – type in cell references for first and last cell

The AutoSum formula can also be typed manually into the cell where you want the answer to go, e.g. C6. Position cursor in the active cell where the answer will appear and follow the above as a guide to typing your own formula for adding up a list of numbers manually.

AutoSum is used for adding a list of numbers only. A wide variety of other formulas and calculations can be carried out manually or using the predefined functions.

*A*ctivity*8*

Use AutoSum to add a list of numbers

1. Use **AutoSum** to add the numbers for January, February and March and place the answers in the TOTAL row.

	A	B	C	D	E	F
1	SALES					
2		Sales person	January	February	March	TOTAL
3	Product 1- Children's Books	Jane Silby	£ 100.00	£ 50.00	£ 85.00	
4	Product 2 - Fiction	Bob Moss	£ 350.00	£ 275.00	£ 325.00	
5	Product 3 - Non-Fiction	Peter Deane	£ 200.00	£ 180.00	£ 150.00	
6	TOTAL		£ 650.00	£ 505.00	£ 560.00	

AutoSum used to calculate TOTALS

You will find the feedback to this activity on page 31.

2. Delete the answers given by AutoSum and manually type the formulas to add the numbers for January, February and March.

Using mathematical operators

Mathematical operators can be used to perform calculations within a spreadsheet. The addition and subtraction signs are the same as for carrying out calculations manually using pen and paper. However, the multiplication and division signs are different. Multiplication uses the star sign (*) and division uses a forward slash (/) on the keyboard.

Order of Calculations

Formulas calculate values in a specific order. Constructing formulas requires that you follow a few simple rules in terms of how to lay out a calculation and bear in mind the order that calculations will be carried out. A formula begins with an equals (=) sign to inform the spreadsheet that a calculation is being constructed, followed by the first cell to be included in the calculation. Use an operator, then include the next cell to be included. Formulas/ calculations must not include any spaces. A formula can be simple or complex.

Mathematical Operator	Description
( )	Brackets
*	Multiplication
/	Division
+	Addition
-	Subtraction

Fig. 10 Order in which calculations will be carried out

When constructing a formula, any part of the formula within brackets will be calculated first. After calculating what is within brackets, multiplication will be calculated next, followed by division, addition and finally subtraction. You can control the order of operations by using brackets to enclose what you wish to be calculated first.

Formula	Order of Calculation	Answer
6*3+2	6*3 +2	20
6+3*2	3*2 +6	12
6/3+2	6/3 +2	4
2+6/3	6/3 +2	4
6+3+(2*4)	(2*4)+6+3	17

Fig. 11 Example of calculations and their results

Using cell references

To perform a calculation, the equals sign (=) must appear first, where you wish to start the calculation. The first cell to be included in the calculation follows the equals sign. Then enter the mathematical operator to be used, e.g. addition, multiplication, subtraction or division, followed by the last cell to be included in the formula. Pressing Enter on the keyboard will return the result of the formula.

= 1st cell +*-/last cell	**= B3 + C3 + D3**
Order for carrying out manual calculations	Example of manual formula

Using cell references in your formula rather than the numbers that appear in the cell makes your spreadsheet more efficient and will save you time. If you change a number within a cell that is included in the formula, the result will automatically be updated. If you use numbers/values in your calculation and then change the numbers in the spreadsheet cell, the result will not change and you will need to update your formula.

*A*ctivity 9

The mathematical order of operations

Bearing in mind the mathematical order of operations, work out the results of the following:

Formula	Order of Calculation	Answer
5*3+(2+4)		
(2*4)+3		
6-2+1		
4/2*(5-3)		
(5*3)/5		

You will find the feedback to this activity on page 31.

How to use formulas

Working with formulas using cell references and values.

Cell references are used as much as possible when carrying out calculations so that if a value in a cell changes, the result will automatically be updated. However, occasionally a number/value will be used where the value does not appear in a cell. For instance, when working with percentages, the cell reference is used for the main value and the required percentage is typed into the formula, e.g. cell reference multiplied by the percentage.

=C6*10% calculating a percentage	**=C6*110%** calculating a percentage increase

If the value in cell C6 changes, the result will automatically be recalculated.

Key Learning Points

- All formulas must start with an equals sign (=).

- There must be no spaces when writing formulas/calculations.

- Type cell reference and not the number in the cell when carrying out calculations where possible. Changes in the cell referred to will automatically be recalculated.

- You can tell what is a number and what is a formula only by making the relevant cell active and looking in the edit/formula bar to see if a number or formula appears.

- Functions are predefined and formulas are created manually.

- AutoSum is used to add a list of numbers.

- Brackets, multiplication, division, addition and subtraction is the order in which calculations are carried out.

- Formulas can be simple or complex.

Section6

SAVING, CLOSING, OPENING, AND PRINTING A SPREADSHEET

You can save a spreadsheet that you have created for future reference. Once you have completed and saved your spreadsheet, you can close it. The spreadsheet will be stored in the computer until you wish to open it again. You can store many spreadsheets on the computer.

Saving a spreadsheet

When you have entered all your data, the spreadsheet will not automatically be saved. If you close the spreadsheet without saving it, the spreadsheet will be deleted. If you wish to use your spreadsheet again, you must save it. The spreadsheet will be stored in the computer until you wish to use it again. To save a spreadsheet for the first time:

- click once on **File** from the menu options
- select **Save As** from the drop-down list of options. A dialogue box then appears
- type in the name you want to save the spreadsheet as. The name will appear in the filename box. Some computers are set up to save documents in a folder called **My Documents**. You can see this name in the **Save In** box below. To save into a different folder, click once on the list triangle to the right of the Save in box and select a folder
- click on **Save**.

TIP: When saving spreadsheets for the first time, always note what is in the Save In box. This will let you know which folder to find your work in when you wish to retrieve the file and open it again later.

To choose a different folder click once on the list triangle to select another area to store your work.

Always look at the **Save In:** box to check which folder your work will be saved into, e.g. My Documents.

Type in the file name for your spreadsheet.
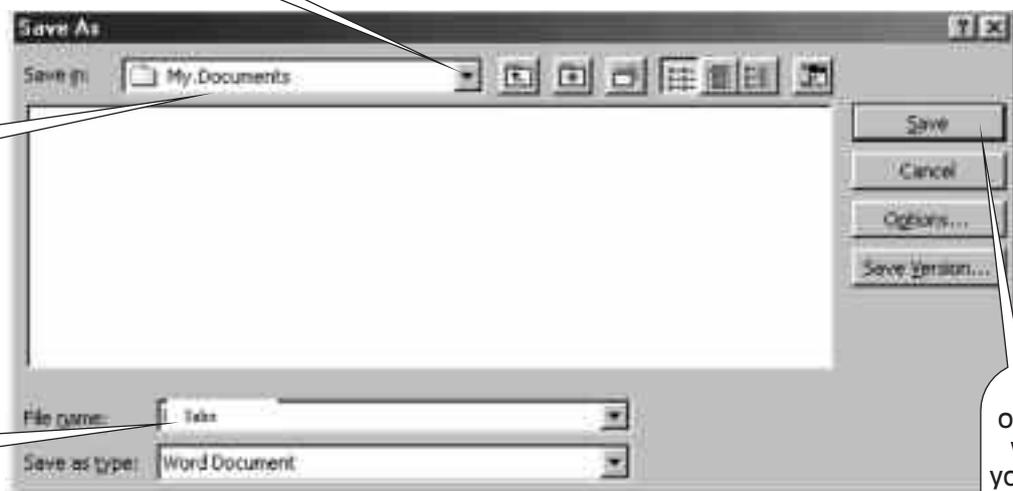
Click on Save when you have finished.

Fig. 12 Save As dialogue box

Activity 10

You will see the filename at the top of the screen. There is no feedback to this activity.

Saving your spreadsheet

1. Save your spreadsheet by clicking on the **File** menu option and select **Save As** from the drop-down list.
2. Name the spreadsheet *Sales* in the File name box (see fig. 12).
3. Some computers are set to save documents in a folder called **My Documents** – look at the **Save in** box to see where your spreadsheet will be saved so that you can find it later.
4. Click once on **Save** – observe the title bar now shows the name you have given to your spreadsheet.

Closing a spreadsheet

Before you close your spreadsheet, look at the blue title bar at the top of the screen to make sure you know what the spreadsheet is called. When you saved the spreadsheet, you noted the name of the folder the spreadsheet was saved in. To close your spreadsheet when you have finished working on it and you have saved it, click once on **File** and **Close** from the menu options.

Activity 11

There is no further feedback to this activity.

Close your spreadsheet.

Your document should no longer be on the screen.

Opening a spreadsheet

To **Open** a spreadsheet that has been saved and closed, click once on **File** from the menu option and select **Open**. You may need to select the folder where the spreadsheet was saved. Click once on the triangle for the Look in box and select the folder where your work is stored, e.g. My Documents. Click once on the spreadsheet you wish to open from the list of files and click on **Open**.
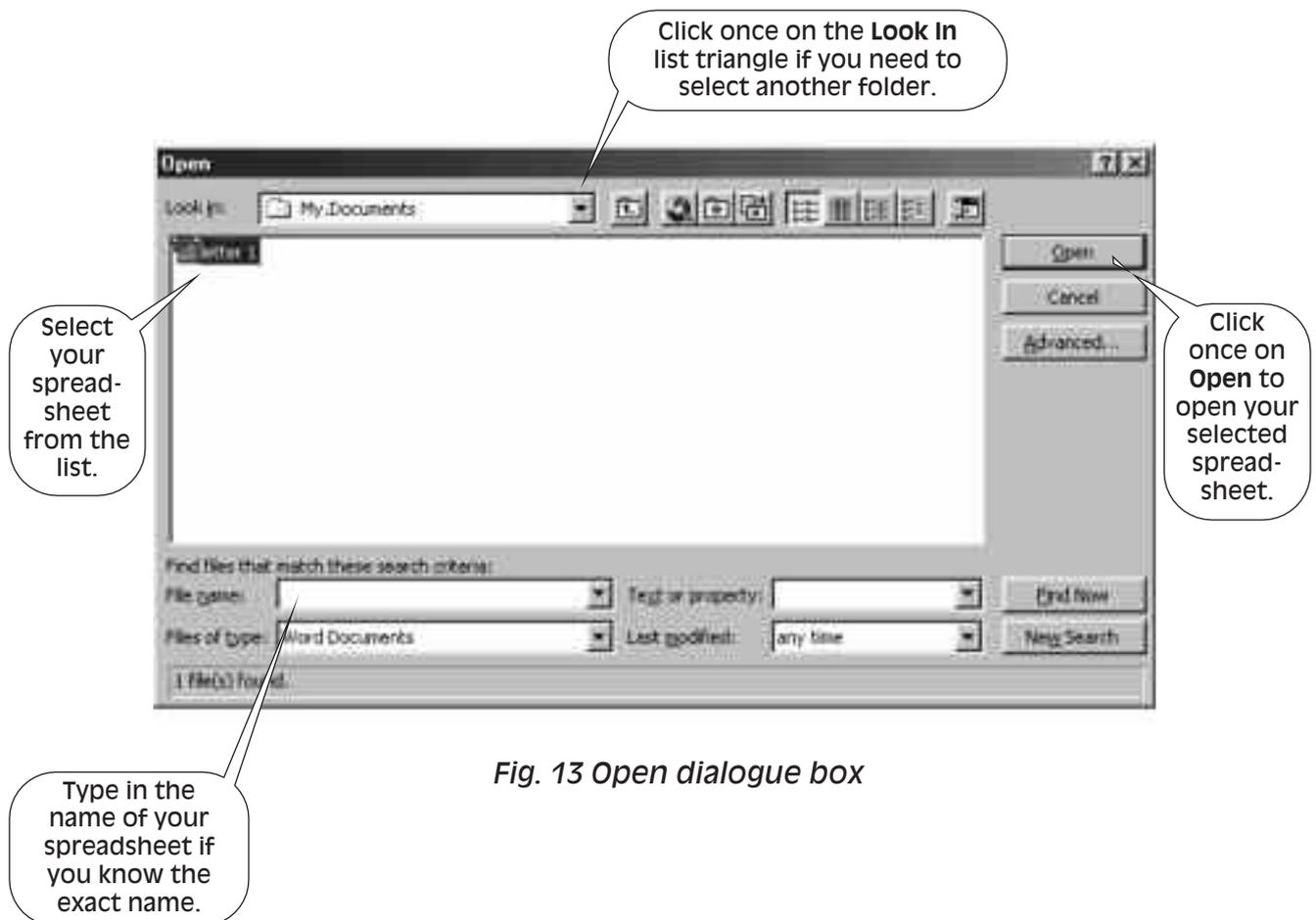
Click once on the **Look In** list triangle if you need to select another folder.

Select your spread-sheet from the list.

Click once on **Open** to open your selected spread-sheet.

Type in the name of your spreadsheet if you know the exact name.

Fig. 13 Open dialogue box

A*ctivity 12*

Open the spreadsheet you saved as **Sales**.

Your spreadsheet should now be on the screen.

There is no further feedback to this activity.

Printing a spreadsheet

There are different page layout options you can choose before printing spreadsheets. You can change the layout of the page and choose whether or not to have lines around your spreadsheet before printing.

You can print your spreadsheet by selecting **File** and **Print** from the menu options. Check that the number 1 is in the number of copies box and click on **OK**.

Changing the page layout of the spreadsheet for printing
You can change the layout of a spreadsheet page from portrait (longways) to landscape (widthways) to fit more of a spreadsheet on to one page. Select **Page Setup** from the **File** menu. Click on landscape to change the page layout.

Page layout – click on round button to change the spreadsheet layout to landscape if required.
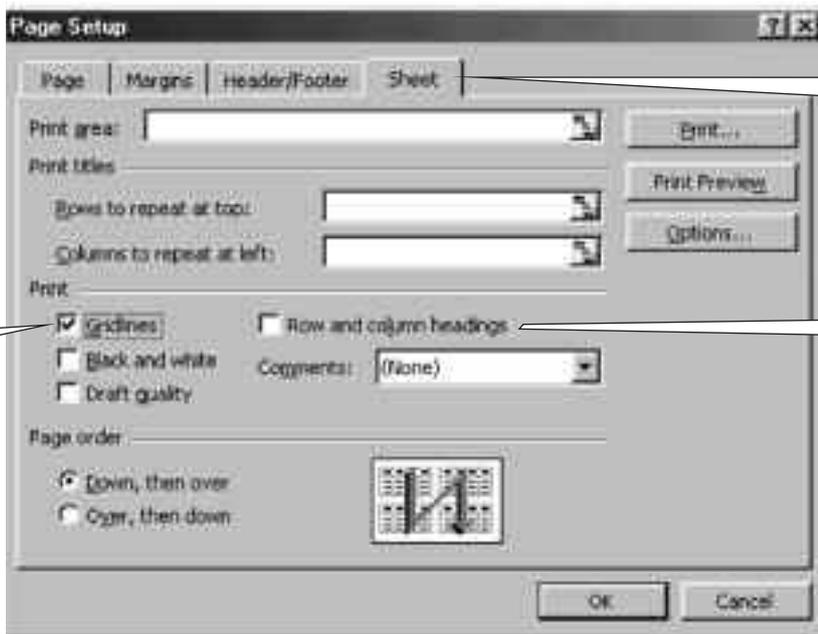
Fig. 14 Page Setup dialogue box – displaying page layout options

Printing with gridlines and row headings

You can choose whether to print your spreadsheet with gridlines or without. It is a matter of preference how you choose to view your spreadsheet. You can also choose to print the grey shaded row and column headings too. Printing with or without gridlines can be selected from the **Page Setup** under the **File** menu. Select the Sheet tab to make changes to the spreadsheet layout.

Sheet – select the sheet tab to apply gridlines and headings.

Gridlines – click a ✔ in the box to print lines around your spreadsheet – remove the tick if you don't want lines (see ❶ and ❷ **Spreadsheet layout printing options** on page 28).

Row/ column headings – click a ✔ in the box to show headings on your spreadsheet – remove the tick if you don't want headings (see ❸ **Spreadsheet layout printing options** on page 28).

Fig. 15 Page Setup dialogue box – displaying spreadsheet gridline options

Spreadsheet page layout printing options

❶ Spreadsheet without gridlines

SALES

	Sales person	January	February	March	TOTAL
Product 1- Children's Books	Jane Silby	£ 100.00	£ 50.00	£ 85.00	
Product 2 - Fiction	Bob Moss	£ 350.00	£ 275.00	£ 325.00	
Product 3 - Non-Fiction	Peter Deane	£ 200.00	£ 180.00	£ 150.00	
TOTAL					

❷ Spreadsheet with gridlines

SALES					
	Sales person	January	February	March	TOTAL
Product 1- Children's Books	Jane Silby	£ 100.00	£ 50.00	£ 85.00	
Product 2 - Fiction	Bob Moss	£ 350.00	£ 275.00	£ 325.00	
Product 3 - Non-Fiction	Peter Deane	£ 200.00	£ 180.00	£ 150.00	
TOTAL					

❸ Spreadsheet with row and column headings displayed

	A	B	C	D	E	F
1	SALES					
2		Sales person	January	February	March	TOTAL
3	Product 1- Children's Books	Jane Silby	£ 100.00	£ 50.00	£ 85.00	
4	Product 2 - Fiction	Bob Moss	£ 350.00	£ 275.00	£ 325.00	
5	Product 3 - Non-Fiction	Peter Deane	£ 200.00	£ 180.00	£ 150.00	
6	TOTAL					
7						

Activity 13

There is no further feedback to this activity.

Print one copy of your spreadsheet with gridlines and one without.

You will have two hard copies.

Key Learning Points

☐ You can save your spreadsheet for future reference. Click once on **File** and then **Save**.

☐ Before you close a spreadsheet, always make sure you know the name of the spreadsheet and the folder it will be saved in.

☐ To close a spreadsheet, select File from the menu options and **Close**.

☐ To open a new spreadsheet, click once on the New spreadsheet icon on the toolbar or choose **File** and **New** from the menu options.

☐ To open an existing spreadsheet, click once on **File** and then **Open** from the menu options. Select the folder where the file is saved and then select the file from the list.

☐ You can choose how to lay out your spreadsheet page before printing. You can print your spreadsheet with or without gridlines, with or without row and column headings and you can choose to print your spreadsheet portrait (longways) or landscape (widthways).

☐ To print your spreadsheet, select **File** and **Print** from the menu options.

FeedBack toActivities

1. (b) a large grid for working with numbers and words
2. Budgets
   Sales information
   Expenses list.

FEEDBACK TO ACTIVITY 2

1.

	A	B	C	D	E	F
1	A1					
2						
3						
4						
5		B5				
6						
7						
8						
9					E9	
10						
11						
12						F12

2. (b) The active cell is where anything typed will appear.

FEEDBACK TO ACTIVITY 3

2.

	A	B	C	D	E
1	SALES				
2		January	February	March	
3	Product 1	100	50	85	
4	Product 2	350	275	325	
5	Product 3	200	180	150	
6	TOTAL				
7					

FEEDBACK TO ACTIVITY 4

1.
January, **February** and **March** are bold.

3.
January, **February** and **March** are **right aligned**.

2.
Currency format applied to range of numbers.

FEEDBACK TO ACTIVITY 5

Double click on cell to edit data.

1.
Column A widened to accept the additional data.

FEEDBACK TO ACTIVITY 8

2.
Formula for adding list of numbers manually.

FEEDBACK TO ACTIVITY 9

Formula	Order of Calucation	Answer
5*3+(2+4)	(2+4)+5*3	21
(2*4)+3	(2*4)+3	11
6-2+1	6-2+1	5
4/2*(5-3)	(5-3) *4/2	4
(5*3)/5	(5*3)/5	3

Glossary
of terms used

Active cell	Cell with dark box around it where anything typed will be entered.
Alignment	How text is lined up within a cell, e.g. left, right or centred.
AutoSum	Used to automatically provide a total for a selected list of numbers.
Backspace	Removes letters that appear on the left-hand side of the flashing cursor.
Bold	Making selected text darker than the rest of the text so that it stands out.
Calculation	Starts with = and uses cell references and mathematical operators.
Cancel	Click on cancel if a dialogue box appears that you do not wish to use.
Cell	One boxed area on a spreadsheet grid.
Cell reference	The column letter and row number for a cell.
Centre	Text is placed in the middle of a line between the left and right edges of a cell.
Column	Headed by a letter along the top of a spreadsheet.
Close	Remove a spreadsheet from the screen display area by closing it.
Copy	Duplicate text by highlighting the text, clicking on copy icon, moving the cursor where text is to be copied to and choosing the paste icon to place the text where the cursor is positioned.
Cursor	Flashing symbol within a cell where typing will commence.

Cut	Move text from one place in a document to another by highlighting the text, clicking on the cut icon, positioning the cursor where text is to be placed and finally choosing the paste icon to place the text where the cursor is positioned.
Delete	Remove letters or words by using the backspace or delete keys.
Dialogue box	A box that appears when some tool-bar icons or menu options are used.
Document	The blank grid page that appears on the spreadsheet computer screen for you to type text into; sometimes also called a page or file.
Edit	Make changes to a typed spreadsheet. You can insert and delete letters, words or numbers and copy or move text to another part of the spreadsheet.
Enter	The enter key on the keyboard moves the cursor to the next active cell.
File	See **Document**.
Filename	The name given to a spreadsheet that you wish to save. You will look for the filename when you wish to go back and find the document later.
Folder	Storage area for a document. Usually yellow and is the computerised version of a paper folder that documents are stored in
Formatting	Changing the look of a spreadsheet, e.g. making some text stand out.
Formula	Calculation.
Function	Predefined calculation, e.g. SUM.
Grid	Worksheet area in a spreadsheet set up as a series of boxes on a page.

Gridlines	Lines around each cell.
Highlighting	See **Selecting**.
Icons	Picture symbols used to activate different functions, e.g. Print.
Insert	Add numbers or words anywhere in a spreadsheet by making the cell active where the insertion is to appear.
Layout	How a spreadsheet is presented on a page, e.g. spacing used, centring.
Mathematical operators	Brackets, multiplication, division, subtraction, addition.
Menu options	Grey bar near the top of the screen that starts with the word **File** and ends with **Help**. Clicking on any word brings down a list of different functions that can be used.
OK	After choosing options in a dialogue box, click on OK to accept the options.
Open	Retrieve a file stored in the computer and display it on the screen.
Options	Alternative word for functions, meaning things that you can do.
Page	Alternative word for a worksheet.
Paste	To place text that has been cut or copied. Ensure the cursor is in the position where text is to be placed before clicking on the paste icon.
Print	Produce a copy of a document on a sheet of paper (hard copy).
Row	Headed by a number on the left of a spreadsheet.
Save	To store a document on the computer for future reference.

Scroll bar	Grey bar with a black triangle at each end that allows you to move up and down or left to right to see the parts of the page that are hidden from view.
Selecting	Highlighting by dragging over a selection of words or letters until they are all black. Selecting is used when you wish to carry out a function on the selected area only.
Spell check	Spreadsheet packages contain a dictionary that checks words as you type them. Right clicking on a word underlined in red will provide a list of alternative spellings. You can left click on a word from the list to use that word instead.
Spreadsheet	Large grid for entering numbers and performing calculations on a computer.
Sum	Function for adding a list of numbers.
Text enhancements	Making text stand out by using bold, italic and underline.
Toolbar	A row of picture symbols along a grey bar that represent different functions that are available for your use.
Toolbar icons	Each picture on a toolbar is called an icon.
Undo	Used to cancel the last action – click on undo immediately after you make a mistake to cancel the last action.
Value	Number.
Worksheet	One page in a spreadsheet.

Do you:

Want to know what spreadsheets are and how they can be used?

Feel nervous when you are asked to produce information on a spreadsheet?

Want to know how to create a spreadsheet and make corrections?

Wish to learn how to present the information on spreadsheets in different ways?

Want to know what formula you would use to make calculations in a spreadsheet?

If you answered 'Yes' to one or more of these questions, you will find that the descriptions and activities in this booklet will help you with the following:

- understand the common words used
- create and correct a spreadsheet
- change the layout of spreadsheets to improve appearance and presentation
- use formulae to perform calculations.

Workbase Training is a national specialist organisation for workforce learning and development. These booklets are based on work with over 20,000 employees within 120 organisations since 1980. Workbase is a not-for-profit charitable company, limited by guarantee, and is supported by the Confederation of British Industry and the Trades Union Congress and other unions.

The Campaign for Learning is a national charity seeking to create an appetite for learning in everyone. Its four areas of work are Workplace Learning & Skills, Family Learning, Learning to Learn and influencing policy. It co-ordinates Learning at Work Day and a Family Learning Festival each year. The Campaign is supported by the government, a wide range of businesses, local authorities, voluntary sector organisations and individuals.