INTRODUCTION TO SPREADSHEETS

What is a Spreadsheet?

It is an *electronic* worksheet used to manage numbers and carry out calculations.

Microsoft Excel is the most commonly used spreadsheet.

In an organisation, who would use a spreadsheet?

Accounting and Finance Department
Administration

Spreadsheets Uses

Budgets – companies and departments have to plan for the year ahead and keep records of the year finishing. They have to keep budgets and financial records to monitor their performance and may compare it with previous years or expected years.

Wages – the weekly or monthly payroll of employees wages would be calculated on a spreadsheet. This would involve the number of hours worked and the hourly rate of pay for the employees.

Sales – spreadsheets can by used by the sales and marketing department to calculate projected figures or to use break even analysis to see what kind of sales figures have to be met in order to meet expenses.
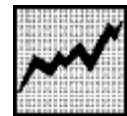
Stock records – spreadsheets may be used for inventory and to monitor levels of stock..

Estimates – spreadsheets have the ability to change information easily and let it alter results. This is helpful when looking at estimates. Estimates use scenarios, which are different situations that may occur. A best case scenario and a worst case scenario may be created, giving managers the chance to draw up contingency plans.

What do Spreadsheets look like?

A Spreadsheet is made up of boxes which we call **cells**.

Cells are boxes used for entering data.

A spreadsheet is a **Table** of cells.

Cells are arranged into **Columns** (A,B.C etc…) and **Rows** (1,2,3 etc…).

	A	B	C	D	E
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

The cell A1 is highlighted. This is called the **active cell**. In order to perform calculations we enter a formula into the active cell.

1. Formulas

Formulas can add, subtract, multiply, divide, and calculate averages.

For instance, in example 1.1 we want to work out Rodney Reid's **GROSS PAY**.

Gross Pay is the number of **HOURS** worked multiplied by the **RATE OF PAY**.

Key Terms

Hours – the amount of time an employee is contracted to work

Rate of Pay – the amount a worker gets paid for one hour

Gross Pay – the total pay for a worker

Example 1.1

	A	B	C	D	E
1	NAME	NUMBER OF HOURS	RATE OF PAY	GROSS PAY	
2	Rodney Reid	40	£5		
3					

This is 40 x £5. But in Excel we use a **formula.**

The formula is =**B2*C2.**

Formulas **must always** begin with an = sign. This is to let Excel know we are performing a calculation and not entering data.

The ***** is used to signify multiplication.

B2 and C2 are the reference cells where the numbers we want (40 & £5) are entered.

	A	B	C	D	E
1	NAME	HOURS	RATE OF PAY	GROSS PAY	
2	Rodney Reid	40	£5	=B2*C2	
3					

Once we have entered the correct formula, Excel performs the calculation for us.

	A	B	C	D	E
1	NAME	HOURS	RATE OF PAY	GROSS PAY	
2	Rodney Reid	40	£5	£200	
3					

Example 1.2

Debbie Cowan works 40 Hours. Her Rate of Pay is £5 also. Write in the box what formula you would need to work out her Gross Pay.

	A	B	C	D	E
1	NAME	HOURS	RATE OF PAY	GROSS PAY	
2	Rodney Reid	40	£5	=B2*C2	
3	Debbie Cowan	40	£5		

The Correct Answer is:

= B3*C3

	A	B	C	D	E
1	NAME	HOURS	RATE OF PAY	GROSS PAY	
2	Rodney Reid	40	£5	=B2*C2	
3	Debbie Cowan	40	£5	=B3*C3	

In numerical terms the figures would be shown as such:

	A	B	C	D	E
1	NAME	HOURS	RATE OF PAY	GROSS PAY	
2	Rodney Reid	40	£5	£200	
3	Debbie Cowan	40	£5	£200	

Example 1.3

A new Row heading has been added. It is **TOTAL GROSS PAY**.

	A	B	C	D	E
1	NAME	HOURS	RATE OF PAY	GROSS PAY	
2	Rodney Reid	40	£5	£200	
3	Debbie Cowan	40	£5	£200	
4					
5	TOTAL GROSS PAY				

This is to add up what Rodney and Debbie earn in a week. The calculation is £200 + £200. In Excel we use another formula.

It is: **=SUM(D2:D3).**

SUM is the command used for adding up.

(   ) lets Excel know there are cell references coming next. A bracket that is opened must always be closed.

The **:** shows Excel the range of cells to be calculated.

	A	B	C	D	E

1	**NAME**	**HOURS**	**RATE OF PAY**	**GROSS PAY**	
2	Rodney Reid	40	£5	£200	
3	Debbie Cowan	40	£5	£200	
4					
5	**TOTAL GROSS PAY**			=SUM(D2:D3)	

2. Other Formula

Difference or Subtraction

To **Subtract** we use the **–** command.

Example 2.1

Look at the data on the following Fast Food Firms. We want to calculate their Net Profit.

	A	B	C	D
1	**COMPANY**	**GROSS PROFIT**	**TAX**	**NET PROFIT**
2	McDonald's	£800,000	£120,000	
3	Burger King	£710,000	£130,000	
4	KFC	£780,000	£130,000	

If we want to calculate the Net Profit for the above Fast Food Firms we use the Subtract command.

If we worked out McDonald's Net Profit by hand it is £800,000 - £120,000

Written as a formula it is **=B2-C2**

	A	B	C	D
1	**COMPANY**	**SALES**	**EXPENSES**	**NET PROFIT**
2	McDonald's	£800,000	£120,000	=B2-C2
3	Burger King	£710,000	£130,000	
4	KFC	£780,000	£130,000	

What will the Net Profit (in Formula form) be for Burger King?

_____

And KFC?

_____

Division

To **Divide** we use the **/** command.

Example 2.2

Here is a family package holiday.

	A	B	C	D
1	**HOLIDAY**	**PRICE**	**No. PASSENGERS**	**COST PER PERSON**
2	Tenerife	£1,900	4	
3	Crete	£1,800	5	
4	Orlando	£3,000	5	

If we want to work out the Cost Per Person it is Price divided by the No. of Passengers.

The formula would therefore be: =B2/C2

	A	B	C	D
1	**HOLIDAY**	**PRICE**	**No. PASSENGERS**	**COST PER PERSON**
2	Tenerife	£1,900	4	=B2/C2
3	Crete	£1,800	5	
4	Orlando	£3,000	5	

Average

To find the Average using Excel is much easier than calculating by hand or using a calculator.

We use the command **=AVERAGE(A1:A4)**

Example 2.3

We want to work out the average sales for crisps in the tuckshop.

	A	B	C	D	D
1		**WEEK 1**	**WEEK 2**	**WEEK 3**	**AVERAGE WEEKLY SALES**
2	Crisps	£300	£280	£420	
3	Soft Drinks	£425	£400	£390	

		B	C	D	
4	Chocolate Bars	£320	£300	£310	
5	Milk	£180	£120	£100	

We know that the average will be (£300 + £280 + £420) / 3

The formula for this is **=AVERAGE(B2:D:2)**

	A	**B**	**C**	**D**	**D**
1		**WEEK 1**	**WEEK 2**	**WEEK 3**	**AVERAGE WEEKLY SALES**
2	Crisps	£300	£280	£420	=AVERAGE(B2:D:2)
3	Soft Drinks	£425	£400	£390	
4	Chocolate Bars	£320	£300	£310	
5	Milk	£180	£120	£100	

TASKS

1 a) What is a Spreadsheet?

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 b) Name two departments in an organisation that would use a spreadsheet.

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2 a) What is a Cell?

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 b) What is an activated cell?

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 3. What is a Table made up of?

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4. How do we calculate Gross Pay?

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5 a) Dormy Custom Products want you to work out their workers GROSS PAY.

Write in the correct formula for each cell.

	A	B	C	D
1	NAME	HOURS	RATE OF PAY	GROSS PAY
2	Debbie Cowan	40	£5	
3	Jenny Murphy	37.50	£7	
4	Robert Mackie	40	£9	
5	David Reid	40	£8.50	
6	Rodney Reid	40	£5	
7	Allan Rennie	35	£9.50	
8	Stuart Wilson	35	£8	

b) If we were to calculate the TOTAL GROSS PAY, what formula would we use?

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6. Write in the formula for individual cost per person.

	A	B	C	D
1	HOLIDAY	PRICE	No. PASSENGERS	COST PER PERSON
2	Paris	£800	3	
3	Toronto	£1,200	2	
4	Barcelona	£900	4	

7. Write the formula for the average weekly sales of each soft drink.

	A	B	C	D	D
1		WEEK 1	WEEK 2	WEEK 3	AVERAGE WEEKLY SALES
2	Coca Cola	£900	£850	£920	
3	Pepsi	£700	£750	£790	
4	Tango	£550	£600	£480	
5	Irn Bru	£400	£420	£410	

Advantages and Disadvantages of Spreadsheets

SPREADSHEETS	
Advantages	*Disadvantages*
Adding, subtracting, multiplying and dividing are carried out almost instantaneously	Need access to a computer system
Calculations are 100% accurate	
Formulae amended automatically	
Text, numbers and formulae can be copied easily	
Numeric data can be displayed as graphs and charts	

FORMULAE

To find the TOTAL	**=SUM(A1:A5)**
MULTIPLY	**=B5*C5**
DIVIDE	**=B5/C5**
DIFFERENCE	**=B5-B6**
To find the AVERAGE	**=AVERAGE(A1:A5)**
COPY DOWN FORMULA	**EDIT – FILL – DOWN**
COPY FORMULA ACROSS	**EDIT – FILL - RIGHT**
To show data as £	**FORMAT – CELLS - CURRENCY**
To show data as 2 decimal points	**FORMAT – CELLS – NUMBER**