

# KS3+ - Spreadsheets topic knowledge organiser,



## What is a spreadsheet?

A type of **application software** where data is organised into rows and columns.

- Each **column** has a letter. E.g. **B**
- Each **row** has a number E.g. **4**
- A **cell** is a single space on the spreadsheet identified by a column letter and row number **B4**

	A	B	C
1			
2			
3			
4			
5			



## Spreadsheet cells

	A	B
1	First number	45
2	Second number	12
3	Numbers added	57

- **Labels** contain string data called text - A2 holds "Second number"
- **Values** are numbers-B2 holds the value 12
- **Calculated** what is displayed is computed by a formula - B3 is worked out by adding B1 and B2 together.

If a value in B1 or B2 changes the spreadsheet will change B3 using **automatic recalculation**.



## Formulas with basic arithmetic operators

= at the start of a cell tells the spreadsheet to use a **formula** to display the result of a calculation.

Arithmetic operators are symbols like + - \* and / used in a formula.

### Examples of arithmetic operators in formulas.

+ to **add** cells, *E11 will display 15.99 by computing 12.99 added to 3*

	C	D	E
10	Goods	Postage & Packing	Total
11	12.99	3	=C11+D11

- to **subtract** one cell value from another, *E14 will display 21 which is 23 minus 2.*

	C	D	E
13	Price	Discount	Amount
14	23	2	=C14-D14

\* to **multiply** two cells, *I11 will display 47.88 which is 3.99 multiplied by 12.*

	G	H	I
10	Cost per item	Number of items	Total value
11	3.99	12	=G11*H11

/ to **divide** one cell by another *I14 will display 17.50 which is 105 divided by 6.*

	G	H	I
13	Winnings	How many winners	Amount per person
14	105	6	=G14/H14



## Spreadsheet ranges

The first cell is separated from the last cell in a range by a colon :

	A	B	C
1			
2	4	10	1
3	8	15	16
4	7	1	12

- **A2:C2** 4, 10, 1.

- **A2:A4** 4, 8, 7.
- **A2:C4** 4, 10, 1, 8, 15, 6, 7, 1, 12.



## The SUM function

If more than one number is to be added it is good practice to use the **SUM()** function. In the spreadsheet below :

- **=SUM(B5:D5)** is 14 *i.e.* (7+4+3)
- **=SUM(C5:C7)** is 18 *i.e.* (4+9+5)
- **=SUM(B5:D7)** is 45 *i.e.* (7+4+5+8+9+6+2+5+1)

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



## The AVERAGE function

Works out the mean average, all the numbers added divided by the number of numbers.

In the spreadsheet below :

- **=AVERAGE(B5:D3)** is 2 (2+1+3)divided by 3.
- **=AVERAGE(C5:C7)** is 4 (1+9+2) divided by 3.
- **=AVERAGE(B5:D7)** is 4.111 (2+1+3+8+9+6+5+2+1) divided by 9.

	B	C	D
5	2	1	3
6	8	9	6
7	5	2	1



## Maximum value function

Will display the **largest** value in a spreadsheet range:

- A1 will display **15** the largest value in 4, 10, 8 and 15.
- A2 will display **10** the largest value between 4 and 10.

	A	B
1	=MAX(A4:B5)	
2	=MAX(A4:B4)	
3		
4	4	10
5	8	15



## Minimum value function

Displays the **lowest** value in a spreadsheet range:

- A1 will display -3 because it is the lowest value from 4, 10, -3 and 15.
- A2 will display 4 the lowest value from 4 and 10.

	A	B
1	=MIN(A4:B5)	
2	=MIN(A4:B4)	
3		
4	4	10
5	-3	15



## Cell sizes

In these two examples cells A2 and B2 are not big enough to display the data,

	A	B
2	Tot	##

	A	B
2	Tot	6E+06

**First solution : widen the column width.**

	A	B
2	Total earnings	6000000

**Second solution : increase the height of a row and use text wrapping**

	A	B
2	Total earnings	6000000

## Using Microsoft Excel - cell sizes

Column height and row widths can be changed using the **Home** tab, in the Cells group, click Format



Set a cell wrap from the **Home** tab, in the Alignment group, click the cell(s) then Wrap Text 

## Presenting information.

Information should be easy for the user to read by using colour, fills, merging cell, drawing cell borders, alignment, font sizes and styles.

	A	B	C	D	E	F	G	H	I
1	<b>Handy Discount Calculator</b>								
2			Number of items bought						
3			1	2	3	4	5	6+	
4	Amount spent	10	0	0	0	0	0	0.05	
5		50	0.1	0.15	0.2	0.25	0.3	0.35	
6		100	0.2	0.3	0.4	0.5	0.6	0.65	
7		200	0.3	0.45	0.6	0.75	0.9	0.95	
8									

Too many colours makes the information difficult to read.

## Using Microsoft Excel - colour.



Select the cells that you want to change the colour of:

Click Home > the arrow next to **Fill Color** Button image  or Font Color image 



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