Unit 3 – Spreadsheets

Summary

In computing, modelling is used to look at large amounts of data to help with scientific or engineering projects. A computer model is a representation of a real-life system or situation, such as the workings of a nuclear reactor or the evacuation of a football stadium.

Simple models can be built in a spreadsheet. A spreadsheet model could be used to plan a school prom. To make sure it came in on budget the spending on food, drinks, entertainment, and the price of tickets could be varied.

A spreadsheet can be used as a modelling tool. The model is controlled by a set of rules introduced by formulae. These rules can be changed easily to vary the model and, for example, provide information about running costs and profit margins.

Spreadsheets are used to store information and data. Once you have your information in a spreadsheet you can run powerful calculations and make charts.

Key Words	
Axis labels	A label for a graph's horizontal or vertical axis that explains what the value relates to.
Cell	An individual spreadsheet box where you enter data.
Cell reference	Names of individual cells (A5 for example).
Chart	A graphical way of displaying data.
Column	Cells that go down the spreadsheet page.

Key Words continued	
Computer model	Predicts and investigates how real-life devices or processes might behave in different situations.
Data	Values, typically letters or numbers.
Field	A Collection of one data type across multiple records.
Format	The appearance of a document, including the fonts, colours, size and rotation.
Formula	Makes automatic calculations that update when the data does.
Function	Makes more complex calculations.
Label	Text used to identify cell contents.
Range	Set of cells next to each other.
Record	A collection of data on one person or item.
Row	Cells that go across the spreadsheet page.
Spreadsheet	A piece of software used to manipulate data, often used in modelling.
Workbook	A collection of worksheets

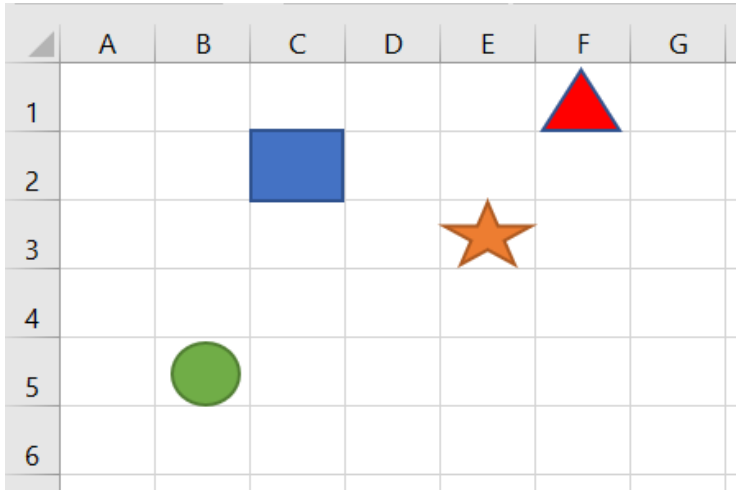
Unit 3 – Spreadsheets

Advantages of using Spreadsheets:

- They can simulate real life events safely.
- When actioned correctly, formula will automatically update the result of a calculation when data in amended.
- Data can be presented in the form of charts and graphs.
- You can carry out "what if?" investigations. For example, the grocer could increase his prices to see the effect on sales and the builder could increase his hourly charge to see the effect on his daily total.

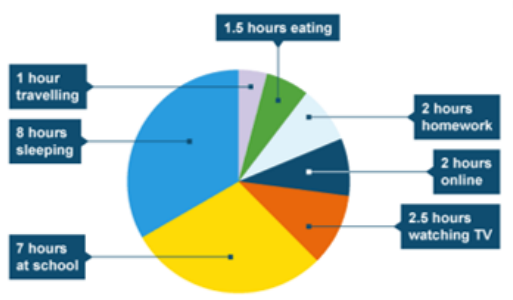
Knowing your Graphs	
Line Graph	To show a change over time.
Pie Chart	To show the individual parts that make up a whole.
Bar Chart	To compare things that aren't directly related.
Scatter Graph	To look for a pattern or link between two sets of data.

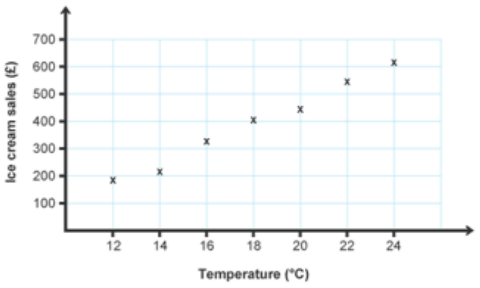
Cell Referencing



Identify the cells the following shapes are located:

- Square – C2
- Circle – B5
- Star – E3
- Triangle – F1





Unit 3 – Spreadsheets

Formula	Explanation
=A7+B7	This will add the data in cell A7 with the data in cell B7.
=D4-J1	This will subtract the data in cell J1 from the data in cell D4.
=C5*I9	This will multiply the data in cell C5 with the data in cell I9.
=E6/T7	This will divide the data in E6 with the data in T7.
=SUM(F4:F12)	This will add up all the data from cells F4 to F12.
=AVERAGE(H2:R2)	This will work out the average of the data between cells H2 and R2.
=MAX(A6:A34)	This will look at cells A6 to A34 and display the maximum value across the range.
=MIN(C4:K4)	This will look at cells C4 to K4 and display the minimum value across the range.

Operator	Explanation
=	Equal to.
>	Greater than.
<	Less than.
>=	Greater than or equal to.
<=	Less than or equal to.
<>	Less than or greater than.

IF Functions

	A	B	C	D
1	School Tests			
2				
3	Surname	Forename	Test result	pass/fail
4	Black	Emma	45	
5	Brown	Simon	55	
6	Green	Louise	66	
7	Lilac	Maddy	86	
8	Orange	Daniel	21	
9	Tan	Tom	100	
10	White	Jack	37	
11		Average	59	

=IF(C4>=50, ”Pass”,”Fail”)

IF the value in cell C4 is greater than, or equal to the value of 50. “Pass” will be displayed in cell D4. Otherwise it will display “Fail”.

Re-write the formula for D5. This time the pupil will only pass if the match or get higher than the class average.

=IF(C5>=C11, “Pass”,”Fail”)