



Year 8 Computing Knowledge Organiser

Year 8 Computing Half Term 1

Spreadsheets

Functions

What is a Function?	A function is a standard routine used to perform common tasks. It represents a complex formula that uses reserved words e.g. VLOOKUP, IF. A function performs a specific set of operations on its input values to produce a single output value.
What is a Formula?	Using formulas in spreadsheets can allow you to quickly make calculations and get totals of multiple cells, rows, or columns in a spreadsheet .
Conditional Formatting	is a tool that allows you to apply formats to a cell or range of cells, and have that formatting change depending on the value of the cell or the value of a formula. For example, you can have a cell appear bold only when the value of the cell is greater than 100.

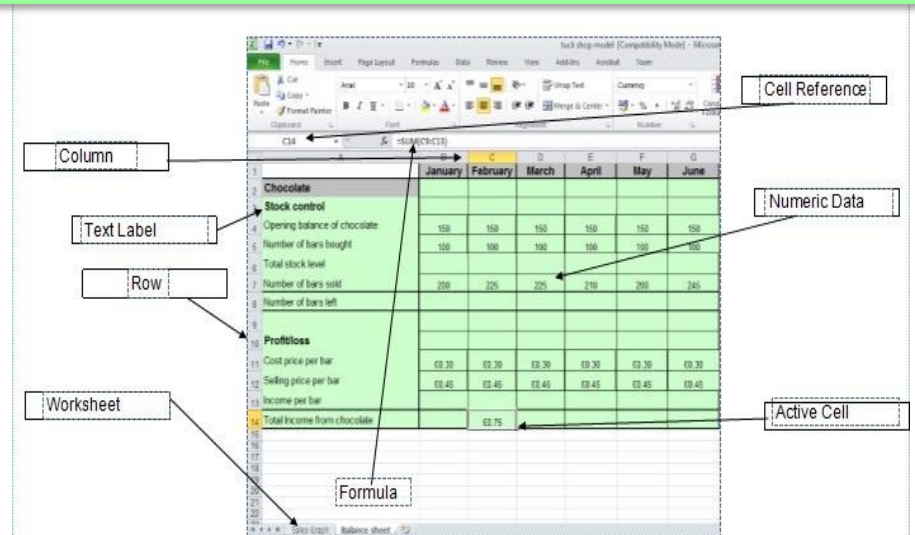
Common Functions

If	one of the logical functions , to return one value if a condition is true and another value if it's false. For example: =IF(A2>B2, "Over Budget", "OK") =IF(A2=B2, B4-A4, "")
Count IF	=COUNTIF (Where do you want to look?, What do you want to look for?)
Auto SUM	Excel automatically enters a formula (that uses the SUM function) to sum the numbers
COUNT	Counts cells if they meet a condition

Key Terms

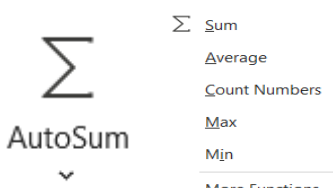
Term	Definition
Cell reference	How you refer to a single "box" on a spreadsheet.
Row	All cells in a horizontal line.
Column	All cells in a vertical line.
= SUM	Adds a range of cells together
= AVERAGE	Finds an average for a range of cells.
= MIN	Returns the smallest value in a range.
= MAX	Returns the highest value in a range.
= COUNT	Counts cells if they meet a condition.

Spreadsheet Layout



Year 8 Computing Half Term 2

Spreadsheets

= SUM	Adds a range of cells together	Functions	
= AVERAGE	Finds an average for a range of cells.	What is a Function?	A function is a standard routine used to perform common tasks. It represents a complex formula that uses reserved words e.g.VLOOKUP, IF.A function performs a specific set of operations on its input values to produce a single output value.
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Formulas

fx

Insert Function

Σ

AutoSum

★

Recently Used

📊

Financial

?

Logical

A

Text

🕒

Date & Time

🔍

Lookup & Reference

📐

Math & Trig

⋮

More Functions

Function Library

Advanced spreadsheets – you will need to familiarise yourself with the *Function Wizard* and the use of *Logical* functions.

Extra Reading
<http://www.bbc.co.uk/education/guides/zdydmp3/revision>

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Spreadsheets

Key Vocabulary

Active Cell	The cell you have selected and are currently on.
Cell	A rectangular box in a worksheet that can contain data.
Cell Range	A collection of selected cells . For example (B2:D2).
Cell Reference	A name given to each cell made up of the column letter and row number of that cell.
Chart	A graph - used to show data in a visual way.
Column	A vertical collection of cells . Each column has a letter to represent it.
Data Type	The type of value being stored in a cell .
Formatting Tools	A set of tools that allow the style of a cell to be changed.
Formula	A set of instructions to be carried out.
Function	A named formula built into a spreadsheet to perform a task.
Row	A horizontal collection of cells . Each row has a number to represent it.

CALCULATIONS USING BASIC FORMULAE

	A	B	C	D
2		6	3	
3				
4	Add	+	=B2+C2	9
5	Subtract	-	=B2-C2	3
6	Divide	/	=B2/C2	2
7	Multiply	*	=B2*C2	18

EXAMPLE FUNCTIONS IN EXCEL

	A	B	C	D	E	F	G
1							
2		10					
3		20					
4		30					
5		40					
6		50					
7		10					
8		20					
9		30					

Function	Description	Example Use	Answer
SUM()	Adds all the numbers in a range of cells.	=SUM(B2:B9)	=SUM(B2:B9)
AVERAGE()	Works out the average of the numbers in a range of cells.	=AVERAGE(B2:B9)	=AVERAGE(B2:B9)
MAX()	Shows the largest number in a range of cells.	=MAX(B2:B9)	=MAX(B2:B9)
MIN()	Shows the smallest number in a range of cells.	=MIN(B2:B9)	=MIN(B2:B9)
COUNT()	Counts the number of cells in a range that contain numbers.	=COUNT(B2:B9)	=COUNT(B2:B9)
COUNTIF()	Counts the number of cells in a range that meet a given condition.	=COUNTIF(B2:B9,10)	=COUNTIF(B2:B9,10)
IF()	Checks if a condition is met and returns one value if TRUE and another value if FALSE.	=IF(B9>50,"Yes","No")	=IF(B9>50,"Yes","No")

EXCEL DATA TYPES

 123	General No specific format	 Short Date	1/2	Fraction
12	Number	 Long Date	10 ²	Scientific
	Currency	 Time	ab	Text
	Accounting	%		Percentage

Year 8 Computing Half Term 3

Website Design

World Wide Web

The World Wide Web is a huge collection of websites that we can access using the Internet. Each website contains web pages which are navigated to via hyperlinks. Web pages contain different types of information including images, text and multimedia.

Term	Definition
WWW	Stands for World Wide Web and is the collection of all the web sites we can access.
HTML	Stands for Hypertext Markup Language and describe the content of a web page using tags.
CSS	Stands for Cascading Style Sheets and is how the style of a webpage can be changed.
Tag	An individual element that makes up part of a web page. For example <code><H1> This is a heading </H1></code> .
Hyperlink	A way of moving from one web page to another – these are used to navigate around a website.
JavaScript	The programming language commonly used alongside HTML to make a website interactive.

HTML and CSS

HyperText Markup Language is the language of the web. It describes the **content** in web pages.

Cascading Style Sheets define the **style** and layout of web pages. Changing the Style means changing colours, layout, font style and font size.

COMMON TAGS		
Tag	Use	Example
<code><H1></code>	One of a few tags that can be used to create a heading – this is the largest heading you can make.	<code><H1> This is a heading </H1></code>
<code><p></code>	The tag which is used to create a paragraph of text.	<code><p> This is a paragraph of text </p></code>
<code></code>	The tag which is used to add an image to a web page.	<code></code>
<code><a href></code>	The tag which is used to create a hyperlink in a webpage.	<code> Visit W3Schools.com!</code>
<code><div></code>	The tag which is used to segment a web page into different sections to allow more sections to have different CSS added individually.	<code><div> <H1> This is a heading </> </div></code>
<code><head></code>	The tag which goes at the top of the page and usually only contains meta data, the webpage title and style tags.	<code><head> <title> This is the page name </> </head></code>
<code><body></code>	The tag which contains all the contents of an HTML document, such as headings, paragraphs, images, hyperlinks, tables, lists, etc.	<code><body> <h1>This is a heading</h1> <p>This is a paragraph.</p> </body></code>

What is HTML?

Hypertext Markup Language is the standard markup language for documents designed to be displayed in a web browser.

Key words

HTML

TAG

CSS

<P>

<H1>

<HEAD>

<BODY>

<HTML>

<TITLE>

<A REF>

HTML Document Structure

Tags

HTML uses **tags** in order to structure web pages. These are created using the < and > symbols. Each tag has a specific job for example **<p> </p>** creates a paragraph and **<h1> </h1>** creates a heading.

```
<html>

  <head>
    <title>Page title</title>
  </head>

  <body>
    <h1>This is a heading</h1>
    <p>This is a paragraph.</p>
    <p>This is another paragraph.</p>
  </body>
</html>
```

What is CSS?

Cascading Style Sheets

is a style sheet language used for describing the presentation of a document written in a markup language such as **HTML**.

For example:

```
Body {
  background-color:
    lightblue;
}
```

Year 8 Computing Half Term 5

Animation

What is animation?

When we show a series of images, each slightly different from the previous one, the brain is fooled into thinking the image is moving

Frame

Each image in the series of images that creates the animation.

Key frame

Each key frame defines a change on the stage and when the movie is played.

Timeline

Where you can add, remove and reorder the frames.

Onion Skinning

Allows you to view the image on multiple frames at once.

Frame rate

How quickly the animation plays through the frames, FPS means frames per second.

Tweening

Stands for inbetweening and is when the computer adds in extra frames between your key frames to make the animation smooth.

Actionscript

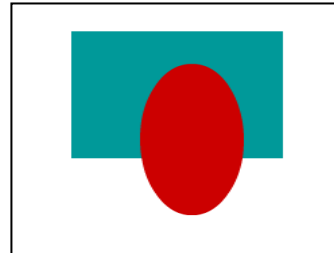
A programming language used to make an animation interactive.

What can animate do?

- Animate, or Flash as it was formerly known, is used to create animations
- These can be anything from simple web banners to cartoons – The Mr Men TV series is drawn completely in Animate, for example.

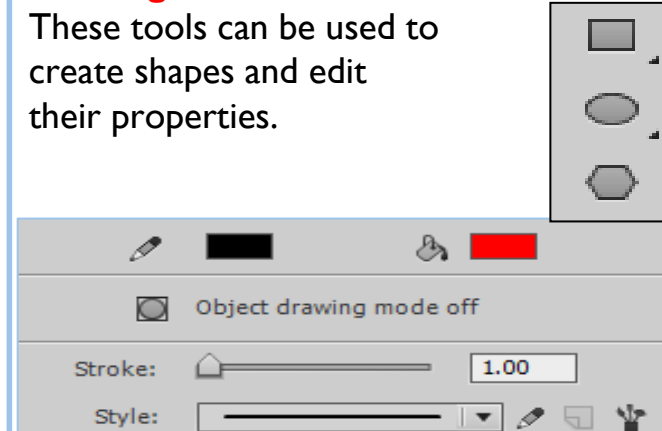
Vector Graphics

- When you draw in Animate, you create vector art.
- You can combine and subtract shapes from one and other.



Drawing Tools

These tools can be used to create shapes and edit their properties.



Motion Tweening

- Moving a graphic from one position to another
- Must use graphics converted to symbols
- Adding a motion tween lets you design a path for the symbol to travel on

Shape Tweening

- You can “morph” from one shape to another
- Shape tweening can be used to gradually alter the form of any editable shape
- You can change the shape, colour and position of the shape

Year 8 Computing Half Term 6

App Development & Micro:bit

What is an app?

An application is software that a user can interact with; they come in lots of different formats – like Snapchat and BBC News!

What can Appshed do?

In Appshed you can design an app that informs the user about an area of interest using links, image galleries and mapping features

The Home Screen

This is the first place users will arrive after they have opened the app and is the most important screen



Types of menu screen

The basic screen layouts can be either a Standard Screen with a list or an Icons Screen



What is the micro:bit?

The BBC micro:bit is a pocket-sized computer that introduces you to how software and hardware work together. It has an LED light display, buttons, sensors and many input/output features that, when programmed, let it interact with you and your world.

