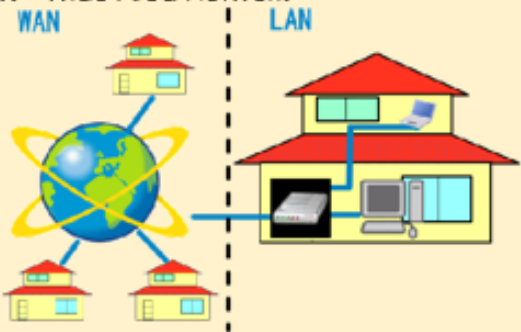


Term 1 - Knowledge Organiser (Y7)

Knowledge Organiser Digital Literacy



<p>Unit: Term 1 – Networking & Collaborative Working</p> <p>Year: 7</p>	
<p>Purpose of Unit:</p> <ul style="list-style-type: none"> • Be able to access and confidently use the school network, Office 365 software / Email to support learning and Teams (to support independent study access) • Understand how to communicate effectively online and collaborate with peers. • Explain the effects of cyberbullying. 	
<p>Key Learning/Knowledge:</p> <p>How to make a secure password:</p> <ul style="list-style-type: none"> • Length (longer the better) • Mix of upper and lower case • Numbers • Symbols <ul style="list-style-type: none"> • Understand what cloud storage is • Understand the benefits of using cloud storage / computing benefits to this? <ul style="list-style-type: none"> • Access from anywhere with internet • Back-ups • More space (memory) • Security • Support • Less physical space • Be able to use emails effectively (attachments) • Be considerate of netiquette rules • To understand the importance of e-safety • To recognise threats online and know how to deal with them • To able identify fake news • To explain why people create fake news • To understand where we may see fake news • To identify the positive and negative effects of social media • To understand how to stay safe online 	<p>Key Vocabulary and meanings:</p> <p>Cloud – Files saved on a server (remotely) and can be accessed by an internet connection.</p> <p>Server – Large storage computer (holds user files and apps) can be accessed remotely by internet connection.</p> <p>Network – Computer devices connected together to share data</p> <p>LAN – Local Area Network</p> <p>WAN – Wide Area Network</p>  <p>Router – Sends and receives packets of data</p> <p>Cloud Computing – Being able to use online software (accessed from a server normally hosted by 3rd party company)</p> <p>E-mail– Electronic mail using for online communication</p> <p>Attachment – (paper clip icon) used to attach files, pictures <i>etc</i> to an email.</p> <p>Cc – Carbon Copy (allows you to copy another person into the email to be able to view it)</p> <p>Netiquette – Manners online (when using email, social media <i>etc</i>)</p> <p>Malware = Malicious Software <i>"Bad software that can cause harm to you or your computer"</i></p>

Key Skills:

- to be able to select an appropriate password to meet criteria & strength
- Be able to access Teams (assignments)
- to be able to send /receive emails using attachments and 'contacts' address book to identify teachers / support staff
- Consider audience & purpose when designing presentation (content, images, design)
- Know how to report cyberbullying (DOL, Trusted adult, CEOP,
- To be able to spot a Phishing email
- To know how to prevent getting a virus (malware)
- To know how to report problems online
- To know tips for staying safe online
- To be able to give sensible advice when faced with a problem on social media

Virus = a form of Malicious Software

*Damage / destroy files on your computer
Slow your computer down*

Spyware = a form of Malicious Software

*Records activity on your computer
Records keys pressed (like usernames & passwords)
Could activate your webcam without you knowing
Could listen to your microphone*

Ransomware = a form of Malicious Software

*Locks computer or files
Activates a time limit to put you under pressure
Asks you to pay (sometimes bitcoin)*

Phishing = Email Scam

*Email pretending to a real company tricking you into handing over personal information
Often by clicking a link*

How to spot:

*Check their email address
Check for spelling and grammar errors
Do they try and put you under pressure?*

Clickbait = News headlines designed to attract attention (to get more clicks)

Protect yourself from Fake News:

*Check the source (Is it an official news site?)
Check the author (is there a name?)
Verify the story? (other websites)
Check for facts (quotes, data, statistics etc.)
Don't be bias*

Tips for staying safe online:

*Never share private contact information
Check Privacy settings
Location services (Geo-Location)
Could remain online permanently
Always Question Friend Requests
Consider privacy of others (before tagging / posting)*

Links to prior knowledge/learning:

Password security (setting and remembering suitable passwords)
No prior knowledge or learning needed for this unit

Cross Curricular link/ World Issues

Numeracy for password complexity (brute force hacking)
PSHE –social education on safe use of social media

Term 2 - Knowledge Organiser (Y7)

Knowledge Organiser Digital Literacy



Unit: Term 2 – Spreadsheets

Year: 7

Purpose of Unit:

- **To be able to** use spreadsheet models to enter and manipulate data (formatting)
- **Understand how to** interpret data in different formats (data sheets and charts)
- **Explain** how spreadsheets can be used in a variety of different industries.

Key Learning/Knowledge:

Understand what a spreadsheet is.
 Be able to open and save a spreadsheet.
 Be able to identify key parts of a spreadsheet

Be able to format a spreadsheet:

- Change font
- Colour (font and fill)
- Add and remove Borders
- Underline
- Bold

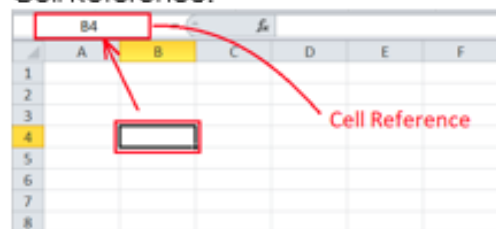
Be able to use formulas in a spreadsheet
 Understand why we use formulas

Be able to use 'functions' in a spreadsheet.
 Know the difference between a 'formula' and 'function'.

Understand what charts are used for
 Be able to create a chart and interpret the data

Key Skills:

Cell Reference:



Formulas and functions always start with = sign.

COUNTIF				
A	B	C	D	E
1	Product	Quantity	Price	Amount
2	bread	2	1.5	=B2*C2
3	butter	1	1.2	
4	cheese	3	2	
5	ham	3	1.8	
6				

Chart axis (X = Horizontal, Y = Vertical)

Key Vocabulary and meanings:

Spreadsheet – data sheet laid out in rows and columns that can be used to analyse data.

Understand what industries use spreadsheets:

- Accounting – Finance
- Teaching -Track grades
- Car Mechanics – track costs / car parts
- Medical – Health Data
- Hair Dressing – Tracking hair products
- Movie Industry – Budget film / TV shows

Row– horizontal line of data in a worksheet

Column – Vertical line of data in a worksheet

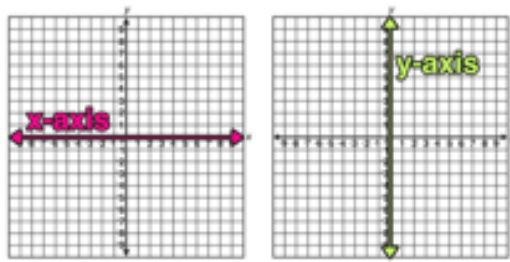
Cell – boxes you see in a grid on a spreadsheet

Cell reference – is a code (letter and number) to identify a cell on a worksheet. Like a grid reference. Example: C5

Border - is a line around a cell or a block of cells in Excel.

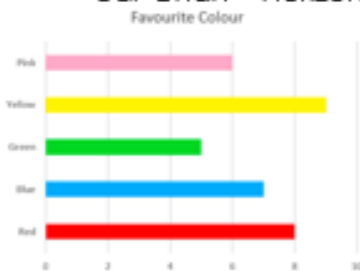
Formatting - is when we change the appearance of the data represented in the worksheet. To improve the way it looks and make the data easier to read. (Colour, font, bold, borders etc.)

Formula – is used to perform a mathematical calculation in a spreadsheet. (using cell

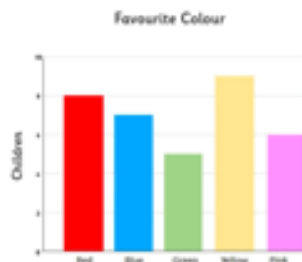


Different chart types:

- Bar Chart – Horizontal



- Column Chart – Vertical



- Pie Chart – Circular shape



- Line Chart – line used in tracking



references) NOTE: A formula always starts with equals.

Function – is an automatic calculation built into the software already 'a built in function'. Example: $=\text{MIN}(D1:D5)$ will find the smallest number in a cell range. Functions always have a word in them: Examples:

- $=\text{SUM}$ (adds up total)
- $=\text{MIN}$ (find the smallest number)
- $=\text{MAX}$ (find the largest number)
- $=\text{AVERAGE}$ (finds the average from a list of numbers)

Alignment – how your data is positioned in the cell (left, right, centre etc.)

Data Type – what type of data is written in the cells (text, number, percentage, date, time etc.)

Chart – a graphical representation of data in a visual format. (bar chart, column chart, line chart, pie chart)

Axis – horizontal and vertical lines on the chart used to help measure data (horizontal = X Axis and the Vertical = Y Axis)

Data Labels – used to give the exact measurement of data on a chart (making it clearer to read.

Links to prior knowledge/learning:

Basic calculations (some areas of algebra but this will help support)
Some basic formatting knowledge or changing font, colour etc. would help.































Cross Curricular link/ World Issues

PSHE – Use of data in other careers
Geography world data used
Numeracy with calculations
Numeracy for using basic mathematical operators

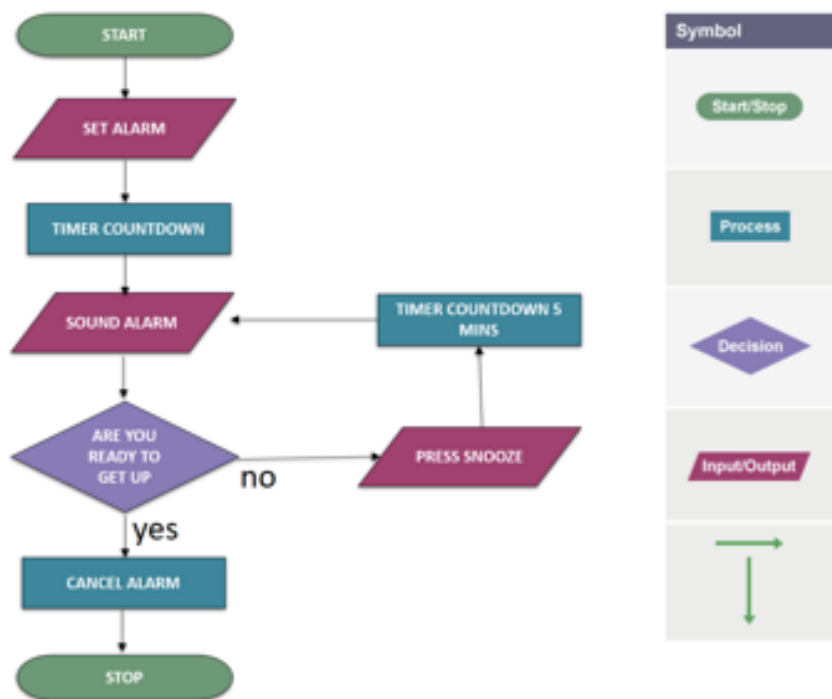
Term 4 - Knowledge Organiser (Y7)

Knowledge Organiser Digital Literacy



<p>Unit: Term 4 – Algorithms Year: 7</p>																										
<p>Purpose of Unit:</p> <ul style="list-style-type: none"> • To be able to Create algorithms to provide solutions to solve real world problems • Understand why problem solving is important in computer science • Explain some of the history behind algorithms (Alan Turing) 																										
<p>Key Learning/Knowledge: Understand what cryptography is and why it is used? Know some facts about Alan Turing and the Enigma machine (code)</p>																										
<p>Enigma Machine: (Germans used to write code)</p> 	<p>Colossus: (One of the world's 1st Computers)</p> 																									
<p>Alan Turing: (helped designed the Colossus) After all the hard work cracking the enigma code He was thrown in <u>prison</u> for being gay It was <u>illegal</u> back then to be gay Died from <u>cyanide poisoning</u> (in an Apple)</p> 																										
<p>Determine the order of a sequence to correctly solve a problem Demonstrate the use of pseudocode to solve a problem</p>																										
<table border="1" data-bbox="225 1637 651 1957"> <thead> <tr> <th></th> <th>A</th> <th>B</th> <th>C</th> <th>D</th> </tr> </thead> <tbody> <tr> <th>1</th> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <th>2</th> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <th>3</th> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <th>4</th> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		A	B	C	D	1					2					3					4					<ol style="list-style-type: none"> 1. Move right 3 squares 2. IF Minion reaches a banana <ol style="list-style-type: none"> a. THEN pick it up 3. IF Minion reaches an apple <ol style="list-style-type: none"> a. THEN leave it
	A	B	C	D																						
1																										
2																										
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<p>Key Vocabulary and meanings:</p> <p>Enigma Code – Special secret code used by the Germans to send secret messages in World War 2.</p> <p>Enigma Machine – Special machine used by the Germans to write secret messages in World War 2.</p> <p>Cryptography - The art of writing or solving codes.</p> <p>Cipher - A secret or disguised way of writing a code.</p> <p>Encrypt – converting information into code</p> <p>Decipher - To convert a written text in code into normal language.</p> <p>Colossus – One of the world's first electronic computers, had a single purpose.</p> <p>Algorithm – step by step instructions to solve a problem</p> <p>Decomposition – breaking down a problem (usually done before creating your steps of instructions)</p> <p>Pseudocode -Means false code Used for planning instructions using key command words.</p>																										

Example flowchart (an alarm clock):



Flowcharts – a visual way of showing steps of instructions

Sequence code – instructions / code that follows in order

Selection Code – (IF Code) that only runs if a condition is met.

Iteration Code – Code that loop / repeats

Examples of embedded systems include:

- central heating systems
- engine management systems in vehicles
- domestic appliances, such as dishwashers, TVs and digital phones
- digital watches
- electronic calculators
- GPS systems
- fitness trackers



Embedded computer systems – a computer built into an everyday system (designed to perform a specific task)

Control Feedback Loop – receives input from a sensor (Temperature, Light, Pressure etc.) and automatically adjusts the program.

Links to prior knowledge/learning:

Some basic understanding of algorithms (steps coding Scratch)

Some previous knowledge of programming constructs (sequence, selection, iteration)

Cross Curricular link/ World Issues

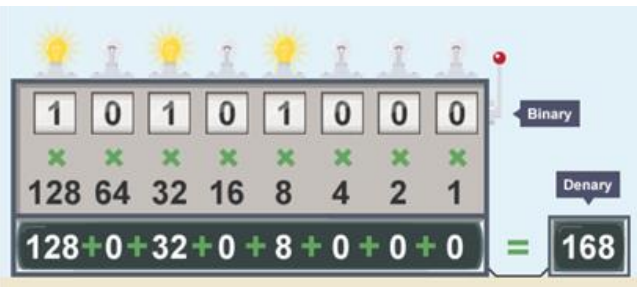
History – WW2, Enigma code.



Numeracy with calculations on odds for decrypting code


Design Technology – flowcharts / systems and control units.

Term 5 - Knowledge Organiser

How Computers Work

Key Terms	Definition	Examples	RAG									
Binary	<p>Binary is a number system that only uses two digits: 1 and 0. All information that is processed by a computer is in the form of a sequence of 1s and 0s.</p> <p>The binary system is known as a 'base 2' system. This is because:</p> <ul style="list-style-type: none"> there are only two digits to select from (1 and 0) 											
Denary / Decimal	<p>Denary is a number system most used by people. This system has 10 digits that we can use: 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9. Also known as 'decimal' or 'base 10' system.</p>	<p>Working out the value of 1024</p> <table border="1" data-bbox="742 757 1380 891"> <thead> <tr> <th>Thousands (1000s)</th> <th>Hundreds (100s)</th> <th>Tens (10s)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0</td> <td>2</td> </tr> <tr> <td>$1 \times 1000 +$</td> <td>$0 \times 100 +$</td> <td>$2 \times 10 +$</td> </tr> </tbody> </table>	Thousands (1000s)	Hundreds (100s)	Tens (10s)	1	0	2	$1 \times 1000 +$	$0 \times 100 +$	$2 \times 10 +$	
Thousands (1000s)	Hundreds (100s)	Tens (10s)										
1	0	2										
$1 \times 1000 +$	$0 \times 100 +$	$2 \times 10 +$										
Bit	<p>Bit is (short for "binary digit") is the smallest unit of data and the basic building block of digital data. It can have one of two possible values: 0 or 1</p>											
Nibble	<p>Groups of bits are organised into larger units of data. 4 bits make up a nibble.</p>											
Byte	<p>8 bits make up a byte, which is the most common unit of storage in computer systems.</p>											
Kilobyte												
Megabyte												
Gigabyte												
Circuits												
Pixel												
PPI(Pixels Per Inch)												
Resolution												

ASCII	American Standard Code for Information Interchange (ASCII) – A 7-bit character set used for representing English keyboard characters.	<table border="1"> <thead> <tr> <th>Character</th> <th>Denary</th> <th>Binary</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>65</td> <td>1000001</td> </tr> <tr> <td>Z</td> <td>90</td> <td>1011010</td> </tr> <tr> <td>a</td> <td>97</td> <td>1100001</td> </tr> <tr> <td>z</td> <td>122</td> <td>1111010</td> </tr> <tr> <td>0</td> <td>48</td> <td>0110000</td> </tr> <tr> <td>9</td> <td>57</td> <td>0111001</td> </tr> <tr> <td>Space</td> <td>32</td> <td>0100000</td> </tr> <tr> <td>!</td> <td>33</td> <td>0100001</td> </tr> </tbody> </table>	Character	Denary	Binary	A	65	1000001	Z	90	1011010	a	97	1100001	z	122	1111010	0	48	0110000	9	57	0111001	Space	32	0100000	!	33	0100001	
Character	Denary	Binary																												
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0	48	0110000																												
9	57	0111001																												
Space	32	0100000																												
!	33	0100001																												
Boolean Logic	Programs use simple comparisons to help make decisions. Boolean logic is a form of algebra where all values are either True or False . These values of true and false are used to test the conditions that selection and iteration are based around.																													
Logic Gates	Computers are made up of digital circuits . A logic gate is the building blocks of these circuits and they work by using two binary conditions: Low voltage (0) and high voltage (1) . Logic gates have inputs and outputs. The voltage may change as it passes through the gate.																													
AND Gate	<p>An AND gate uses two inputs to generate one output.</p> <p>The output is 1 (TRUE) only if both of the inputs are 1 (TRUE).</p>	<p>AND gates are represented diagrammatically as:</p>  <p>A represents the first input. B represents the second input. Q represents the output.</p> <p>An AND gate is represented in the truth table below.</p> <table border="1"> <thead> <tr> <th>A</th> <th>B</th> <th>Q</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>0</td> <td>1</td> <td>0</td> </tr> <tr> <td>1</td> <td>0</td> <td>0</td> </tr> <tr> <td>1</td> <td>1</td> <td>1</td> </tr> </tbody> </table>	A	B	Q	0	0	0	0	1	0	1	0	0	1	1	1													
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OR Gate	<p>An OR gate uses two inputs to generate one output.</p> <p>The output is 1 (TRUE) only if either or both of the inputs are 1 (TRUE).</p>	<p>OR gates are represented diagrammatically as:</p>  <p>A represents the first input. B represents the second input. Q represents the output.</p>																												

		<p>An OR gate is represented in the truth table as below.</p> <table border="1" data-bbox="730 152 1374 322"> <thead> <tr> <th>A</th> <th>B</th> <th>Q</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>0</td> <td>1</td> <td>1</td> </tr> <tr> <td>1</td> <td>0</td> <td>1</td> </tr> <tr> <td>1</td> <td>1</td> <td>1</td> </tr> </tbody> </table>	A	B	Q	0	0	0	0	1	1	1	0	1	1	1	1	
A	B	Q																
0	0	0																
0	1	1																
1	0	1																
1	1	1																
<p>NOT Gate</p>	<p>A NOT gate uses just one input to generate one output. A NOT gate inverts the input.</p> <p>The output is 1 (TRUE) if the input is 0 (FALSE), and the output is 0 (FALSE) if the input is 1 (TRUE).</p>	<p>NOT gates are represented diagrammatically as:</p>  <p>The NOT gate has what appears to be a nose at the front. When using more complex gates, this nose is added to other gates to show they have been combined with the NOT gate.</p> <p>A NOT gate is represented in the truth table below.</p> <table border="1" data-bbox="730 674 1374 779"> <thead> <tr> <th>A</th> <th>Q</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>1</td> </tr> <tr> <td>1</td> <td>0</td> </tr> </tbody> </table>	A	Q	0	1	1	0										
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