



Bramcote Hills Primary School
'Make the future better for all'



Curriculum Depth Map - Computing

Intent:

At BHPS we aim to prepare our children for a rapidly changing world through the use of technology. Our computing curriculum is designed to enable them to use computational thinking and creativity to further understand our world. Our curriculum design has deep links with Mathematics, English, Science, and Design and Technology. At the core of our computing curriculum is computer science, in which pupils are taught the principles of information and computation; how digital systems work, and how to put this knowledge to use through programming. Building on this *knowledge* and understanding, we intend for our children to use information technology to create programs and systems, within a range of content. By the end of Key Stage 2, we want our children to become digitally literate - to be able to use, and express themselves and develop their ideas through, information and communication technology - at a level suitable for the future workplace and as active participants in a digital world.

Implementation:

Computing skills are taught both discretely and cross-curricular, supporting other areas of learning across the school. In Foundation and Key Stage 1, children are taught to use equipment and software confidently and purposefully, to communicate and handle information and to support their problem solving, recording and expressive skills. In Key Stage 2, our children extend their use of computing that they use for communication, investigation and programming and work to understand how to communicate safely. Our planned curriculum for digital literacy that includes online safety is broad in covering a range of issues.

Our Computing curriculum is designed to allow children time to think, discuss, practise, explore and embed. This allows time for teaching, practice and repetition - both in a year group and across both key stages. Curriculum coverage is mapped out carefully from Year 1 to Year 6, which allows some key concepts to be developed at a deeper level of learning, understanding and mastery. Fundamental *knowledge* and **skills** are covered at key points throughout the primary phase and repeated to allow pupils to build on what has been taught before. Where year groups are covering an area in more depth, this will be highlighted in green on the Curriculum Depth Map below. Lessons will be planned and a knowledge organiser provided for pupils, which outlines the area to be taught, where the new knowledge and skills fit in with their prior learning, any sticky knowledge they need to understand and key vocabulary they need to learn.

Impact:

Impact is evidenced through:

- Proficient users of technology who are able to work both independently and collaboratively
- Computing hardware and software being utilised to enhance the learning outcomes of our children, across the curriculum.
- Clear progression in technical skills
- Demonstrating *knowledge* when using tools or **skills** in other areas of the curriculum and in enrichment opportunities both in and out of school
- A learning buzz as children engage in programming, instruct floor robots, prepare online safety presentations and design body confidence video campaigns
- The use and outcomes of the varied activities
- Low-stakes tests/quizzes

Key Stage One

Year 1	Year 2
National Online Safety Microsoft Word 2Paint Microsoft Word Bee Bot	Microsoft PowerPoint Scratch Jnr National Online Safety PowerPoint Ipad camera BeeBot Chrome Music Lab I2Data Pictogram Scratch Jnr
Computing Systems and Networks	
Name the main parts of a computer	Recognise the uses and features of information technology?
Use a mouse to open a program and select objects on a screen.	Identify information technology in the home, school and beyond?
Use a keyboard for typing.	Explain how information technology benefits us?
Save work in their own folder.	
Creating Media	
Use tools, shapes and lines to create a digital painting.	Create, review and edit music digitally.
Compare computer art and painting.	Use a digital device to take a photograph and use software to edit and improve it?
Add and remove text in a program.	
Change the look of text on a computer.	
Compare writing on a computer with writing on paper.	
Programming & Algorithms	
Understand what algorithms are	Understand what algorithms are.
Plan a simple program to move a floor robot forwards, backwards, left and right.	Understand that algorithms are implemented as programs on digital devices.
Plan and debug simple routes.	Understand that programs execute by following precise and unambiguous instructions.
Predict where the robot will move to.	Create and debug simple programs.
Enter commands to move sprites.	Use logical reasoning to predict the behaviour of own programs.
Join commands together to make as simple program.	
Predict what will happen when changes are made to algorithms.	
Data & Information	
Label, group and compare objects on screen.	Use IT to enter data, present, sort and compare information.
Safe Use	
Use technology safely, responsibly and respectfully.	Use technology safely, responsibly and respectfully.
Identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.	Know how to keep personal information private.
	Identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.

Key Stage Two

Year 3	Year 4	Year 5	Year 6
<p>Computing systems and networks - Connecting computers.</p> <p>Creating media - Animation.</p> <p>Creating media - Desktop publishing.</p> <p>Data and information - Branching databases.</p> <p>Safer Internet Day</p> <p>Programming A - Sequence in music</p> <p>Programming B - Events and actions</p>	<p>Logo, Scratch,</p> <p>Impact of IT on society</p> <p>E-safety- Cyber café 1-4</p> <p>Photo Story</p> <p>Garage Band</p> <p>Excel, Paint</p>	<p>2Code (coding principles)</p> <p>2Investigate</p> <p>E Safety - 'Be Internet Legends' evaluating information, malicious contact</p> <p>Kodu</p> <p>Flowol</p> <p>Garage Band, Scratch</p> <p>C networks including the internet</p>	<p>Kodu, Scratch, 2Code Gorilla</p> <p>Word, Garageband, Audacity, Movie Maker</p> <p>Excel</p> <p>Impacts of inaccurate data</p> <p>E Safety - CEOP</p>
Create programs			
Solve problems by decomposing them into smaller parts	Solve problems by decomposing them into smaller parts	Solve problems by decomposing them into smaller parts	Solve problems by decomposing them into smaller parts
Plan and enter a sequence of instructions on a robot/sprite to achieve specific outcomes	Plan and enter a sequence of instructions on a robot/sprite to achieve specific outcomes	Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems	Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems
Use computational thinking to solve open ended problems	Use selection (if else) blocks to give different outcomes.	Explore/ refine procedures using repeat to achieve solutions to problems	Record in some detail the steps that are required to achieve an outcome
Explore instructions to control software or hardware with an input using 'if then' commands	Use an algorithm to sequence and order more complex programming.	Predict the outputs for the steps in an algorithm	Predict the outputs for the steps in an algorithm
	Use loops (repeat/forever) to achieve solutions to tasks	Use the process: plan, program, test and review	Use the process: plan, program, test and review a program
		Group commands as a procedure to achieve a specific outcome within a program	Group commands as a procedure to achieve a specific outcome within a program
		Understand how computers can generate random numbers and how these can be used in simulations	Understand how sensors can be used to measure input in order to activate a procedure or sequence and talk about applications in society
			Use variables to manipulate inputs to create useful outputs
			Use property values and parameters to store information about objects

Develop programs			
Test and improve/debug programmed sequences	Test and improve/debug programmed sequences	Use sequence, selection and repetition in programs	Use sequence, selection and repetition in programs
Detect and correct errors in algorithms and programs	Detect and correct errors in algorithms and programs	Work with variables	Work with variables
Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems	Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems	Work with various forms of input and output	Work with various forms of input and output
Use sequence, selection and repetition in programs	Use sequence, selection and repetition in programs	Develop an understanding of how values used in code affect the action of the object they relate to.	Use variables in more complex ways, and to manipulate inputs to create useful outputs.
Work with various forms of input and output	Work with variables	Write down the steps required to achieve the outcome that is wanted and refer to this when programming	Write a program which follows an algorithm to solve a problem and achieve a planned outcome
	Use repetition and loops	Write a program which follows an algorithm to solve a problem for a digital device	
	Work with various forms of input and output		
Reasoning			
Use logical reasoning to explain how some simple algorithms work	Use logical reasoning to explain how some simple algorithms work	Use logical reasoning to explain how some simple algorithms work	Use logical reasoning to explain how some simple algorithms work
Talk about algorithms planned by others and identify any problems and the expected outcome	Explain how algorithms work, predicting outcomes and debugging	Detect and correct errors in algorithms and programs	Detect and correct errors in algorithms and programs
Explain how algorithms work, predicting outcomes and debugging	Explain how computers use variables to store information	Identify problems and identify a solution for a program	
Networks			
		Explain in simple terms the differences between a network, the internet and the world wide web	Explain the differences between a network, the internet and the world wide web
		Lead with positivity in online communications.	Know that computers use IP addresses to identify each other

			Use specific vocabulary: server, digital data, binary code, URL
			Use range of sources to check validity and recognise different viewpoints.
			Describe possible impact of published content to an audience e.g. the use of advertising Know the meaning of some common website extensions -such as .org, .net, ac, .gov, .co.uk, .fr, .com
Search engines			
Use an age appropriate search engine independently	Use different search engines and their features, e.g. Google Image Search, video, sound etc	Use the internet as a tool for research	Explain how search engines work; finding and ranking pages in order
Understand that some information online may be untrue (revisit)	Know that web sites are not always accurate, and that information should be checked before it is used	Choose the most appropriate search engine for the task, refining as necessary	Decide which online communication tool to use to best suit the purpose
		Recognise reasons that people might publish inaccurate content and check validity.	
Using programs			
Explore and discuss the benefits of a range of online communication tools	Sort record cards by using field names and use a database to find the answer to simple questions	I can discuss the differences between an open blog and a forum for a closed community	Copy cells and formulae using copy & paste, and fill across and down
Create and insert music and sounds into presentations and documents	Use the search tool to find information and search for answers to simple questions	Use 'AND', 'OR', '=<' and '=>' to search a database	Display and interpret data selecting bar charts, pie charts, scatter graphs and line graphs appropriately
Create and manipulate digital artwork Reason about the quality and composition of images	Use a branching database to identify objects and add additional objects for an existing branching database	Design questions to search a large database	Match the information in a spreadsheet to the needs of the audience and present data, with appropriate ranges, labelling axes and title
Perform basic editing on images/video - crop, recolour, resize	Select colour, cell size and text appropriately	Check for accuracy by checking data, using different views, search tools and graphing	Create and amend a spreadsheet to solve a problem through a review of the rules and variables

Use numerous design features such as text boxes, borders and WordArt in different layouts and styles	Save and retrieve documents from shared areas using sensible names	Build and use databases to support my work	Use databases and branching databases to process, interpret, store, and present information for a specific audience, realising the need for accuracy and checking plausibility
Use a variety of presentation software to make a sequence of slides	Use data loggers to capture information to use over time.	Enter formulae into a spreadsheet and modify the data, (simple calculations + -/ x total)	Identify opportunities to use data logging to support my work
Add to, sort and search a database	Use spreadsheet cell references	Make predictions and changes and check results.	Use data logging devices to investigate changes in the environment over time
Interrogate a simple database to answer questions and create charts from the data	Format cells and text appropriately	Use 'SUM' to calculate the total of a set of numbers in a range of cells	
Use a data logger to capture measurements over time	Add information and use the 'field' function within a database.	Create graphs and charts from data in a spreadsheet	
Create simple bar charts and use them to answer questions		Change data in a spreadsheet to answer 'what if...?' questions and check predictions	
		Investigate changes in sound / light/temperature levels using data logging, using continuous logging, snapshot functions and logging over time.	Use graphical information to answer questions and solve simple problems
Safe use			
Know how to respond to unpleasant communications	Understand copyright issues - what images / videos / sounds are legal and safe to use	Identify whether a file has copyright or can be legally downloaded and whether these can be used in their own work	Select copyright free images and sounds from sources such as LGFL audio network and google searches
Understand the need to keep personal information private and am responsible in my online presence	Understand some of the risk and rewards involved in publishing online and know how to keep safe	Understand that you should not publish other peoples' material without their permission	Consider what options there are for being brave and why bringing adults into the conversation is important.
Know the difference between personal, private and public online spaces and the risks associated with these	Recognise the effect that my writing or images may have on others and to respect the ideas and communications of others encountered online		

Understand that there are rules about using public spaces online	Know that need to have appropriate permission for use of images of friends or those they have found online		
	Know why privacy matters, and how it relates to online security.		
	Review the tools and settings that protect against hackers and other threats.		
	Identify and ignore/cancel unwanted advertising and malicious downloads in the form of popups, video, banners, hyperlinked objects.		
	Know that https is used for secure transactions such as online banking and is identified with a padlock icon.		

Appendix - Key Knowledge and Vocabulary

COMPUTING - KS1				
Key Vocabulary				
<u>Safe Use</u> rules online private information email	<u>Programming</u> instructions buttons robots patterns program	<u>Creating Media</u> videos sounds image bank word bank space bar	<u>Computing Systems & Networks</u> purpose online tools communicate	<u>Data & Information</u> photographs video sound data pictogram digitally
Key Knowledge			Key Vocabulary	
Year 1 - Computing Systems and Networks				
<ul style="list-style-type: none"> <input type="checkbox"/> Technology is something that is made with a specific purpose to help people. <input type="checkbox"/> Technology can be found at home and at school, such as, interactive whiteboards, TV's, speakers, games consoles, mobile phones, Alexa <input type="checkbox"/> Typing is using a keyboard to write words, letters or numbers on a screen. <input type="checkbox"/> A mouse is used to control the small cursor on the screen. <input type="checkbox"/> Work can be saved in specifically named 'folders' so it is not lost. <input type="checkbox"/> Tapping on a keyboard allows you to write letters and words. <input type="checkbox"/> Text can be highlighted by clicking & dragging. 			Technology Turn on and off Logging on and off Keyboard Mouse Open Save Laptop Desktop Screen	Tablet Folder Icon Delete
Creating Media				
<ul style="list-style-type: none"> <input type="checkbox"/> 'Tools' can be used to edit and improve an image. 			Tools Line tool Fill tool Spray tool Pen tool Eraser Undo Shape tool Brush size Digital painting	Text Word processor Keys Keyboard Space bar Backspace Caps lock Bold Italic Underline Select Double click Font Drag & drop Toolbar
Programming				
<ul style="list-style-type: none"> <input type="checkbox"/> 'Bee-Bot' can be controlled by entering a series of instructions into its control panel. <input type="checkbox"/> We can change the way Bee-Bot moves by debugging it. 			Bee-Bot Floor robot Control panel Buttons Commands Instructions Memory Clear memory Run Route Debug Program	Sequence Steps Direction Right turn Left turn Predict Test Blocks Start command Background Sprite Algorithm Value
Data and Information				
<ul style="list-style-type: none"> <input type="checkbox"/> A property is used to describe an object. <input type="checkbox"/> Computers only do what humans tell them what to do. <input type="checkbox"/> You can use the mouse to drag objects to different places on a screen. 			Drag Drop Label Group	Count Input

	Sort Count
Internet Safety	
<input type="checkbox"/> There may be people online who could make someone feel sad, embarrassed or upset. <input type="checkbox"/> If something happens that makes me feel sad, worried, uncomfortable or frightened I can speak to a trusted adult. <input type="checkbox"/> I need to ask permission before going online. <input type="checkbox"/> I need to be kind online and respect people's choices. <input type="checkbox"/> Information can stay online and could be copied. <input type="checkbox"/> We need to behave online in ways that do not upset others. <input type="checkbox"/> The internet contains some great things but also some nasty things. <input type="checkbox"/> Passwords are used to protect information and should not be shared with others.	Internet Online Information Trusted adult Permission Responsible Upload Deleted Passwords

COMPUTING - KS1				
Key Vocabulary				
<u>Safe Use</u>	<u>Programming</u>	<u>Creating Media</u>	<u>Computing Systems & Networks</u>	<u>Data & Information</u>
appropriate/inappropriate sites cyber-bullying digital footprint keyword searching	forward backward turn algorithm sequence debug predict	paint effects templates animation documents index finger typing enter/return caps lock backspace	information sources communication purposes website content	questions data collection graphs charts save retrieve
Key Knowledge			Key Vocabulary	
Year 2 - Computing Systems and Networks				
<input type="checkbox"/> IT can be seen as computers, devices with computers inside, or things made to work with computers. <input type="checkbox"/> IT can be found all around us e.g barcodes, scanners, tills, chip & pin machines, crossing machines. <input type="checkbox"/> The Digital 5 a Day helps us to use technology in a healthy way.			Information technology Device Resize Connected	
Creating Media				
<input type="checkbox"/> Many devices can be used to take photographs. <input type="checkbox"/> Photographs can be taken in portrait or landscape format. <input type="checkbox"/> Photographs can be improved with good lighting and focus. <input type="checkbox"/> Photographs can be changed by editing.			Digital device Capture Portrait Landscape Retake Light source Unclear	
Programming & Algorithms				
<input type="checkbox"/> Algorithms are a set of clear, precise and ordered instructions. <input type="checkbox"/> A computer program carries out these instructions. <input type="checkbox"/> We can read 'code' and predict what a program will do. <input type="checkbox"/> More complicated tasks can be broken down into chunks and an algorithm written for each chunk. This is called 'decomposition'			Instruction Precise Order Commands Outcome Predict Code Routes Goal Chunks Decomposition Errors	
Data & Information				
<input type="checkbox"/> Computers can be used to create tally charts and pictograms quickly and easily. <input type="checkbox"/> Data can be changed quickly and easily. <input type="checkbox"/> Data can be presented in different ways to suit different purposes.			Compare Record Tally chart Pictogram Total	
Safe Use				
<input type="checkbox"/> Other people may look and act differently online. <input type="checkbox"/> I should not share personal details online e.g. age, address, phone number. <input type="checkbox"/> Online information can be seen by anyone and can last a long time. <input type="checkbox"/> Bullying can be done online and can upset others. <input type="checkbox"/> Keywords in search engines can be used to find information. <input type="checkbox"/> Anyone can put information online and some of it may not be true.			search engine keyword browser pop-ups password security safety online bullying bystanders PEGI age restrictions	

Some people may have devices in the home that are connected to the internet.

Alexa

COMPUTING - KS2

Key Vocabulary

<u>E-Safety</u>	<u>Programming</u>	<u>Multimedia</u>	<u>Technology</u>	<u>Data Handling</u>
appropriate/inappropriate sites	sequence instructions	multimedia	school network	questioning
cyber-bullying	sequence debugging	presentations	devices	database
digital footprint	test + improve	alignment	computer parts	construct
keyword searching	logo commands	brush size	collaborate	contribute
	sequence programming	repeats	appropriate online	recording data
		reflections	communication	data logger
		green screening	search tools	present data
		amend/copy/paste	website owner	

Key Knowledge

Year 3 - Programming

<ul style="list-style-type: none"> <input type="checkbox"/> Algorithms are a sequence of well-defined, computer-implementable instructions required in order to perform a computation. <input type="checkbox"/> Scratch is a game in which sprites (characters) can be programmed (controlled) to achieve specific outcomes. <input type="checkbox"/> Software are the programs that are run on computer hardware e.g. Microsoft PowerPoint or Scratch <input type="checkbox"/> Hardware are the parts that make up a computer e.g. the mouse, the screen, the keyboard. <input type="checkbox"/> Hardware needs software to tell it what to do. Think of software like the brain and vital organs and hardware as the body. <input type="checkbox"/> Sometimes computer programs do not work because they contain a 'bug'. Eliminating the 'bugs' is called debugging. <input type="checkbox"/> There are 2 types of bug: <input type="checkbox"/> A syntax bug is an error caused by something the programmer has typed - it could be a spelling mistake or a command that the computer doesn't understand. <input type="checkbox"/> A logical bug is an error which means that even though the computer is able to carry out its instructions, it doesn't act as the programmer intended or the user expects. <input type="checkbox"/> Computers follow code in order to complete a task. <input type="checkbox"/> This code is written in a programming language. There are many different types of programming languages. <input type="checkbox"/> Some that you may come across are Logo, Scratch, Blockly, Python and Kodu. Each of these languages are suited to different things. <input type="checkbox"/> A computer programmer is somebody that enters code into a computer to tell it what to do. <input type="checkbox"/> It is important to test out code to ensure it works. If it doesn't work you need to debug the code. <input type="checkbox"/> By studying code you can use logical reasoning to discover what it will do. 	<table border="0"> <tr> <td>algorithm</td> <td>syntax bug</td> </tr> <tr> <td>programming</td> <td>logical bug</td> </tr> <tr> <td>code</td> <td>scratch</td> </tr> <tr> <td>bug</td> <td>logical reasoning</td> </tr> <tr> <td>debugging</td> <td></td> </tr> </table>	algorithm	syntax bug	programming	logical bug	code	scratch	bug	logical reasoning	debugging	
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programming	logical bug										
code	scratch										
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Networks / Search engines / Using programs

<ul style="list-style-type: none"> <input type="checkbox"/> A computer network is a number of computers linked together to allow them to "talk" to each other and share resources. Networked computers can share hardware, software and data. <input type="checkbox"/> Search engines (browsers) are used to find information you want on the internet. Some well-known search engines include: Google Chrome, Mozilla Firefox, Microsoft Internet Explorer <input type="checkbox"/> The search engine 'Google Kiddle' is specifically designed for children and filters out any content that is not suitable. <input checked="" type="checkbox"/> It is important to remember that not everything you read on the internet is true. Wikipedia for example is populated with information from the general public. <input type="checkbox"/> Online tools are apps and software you can access with an internet connection that aid you with your work. For example you may use an online currency convertor to check the exchange rate before you go on holiday. <input type="checkbox"/> Music and sound clips can be inserted into presentations and documents such as Microsoft PowerPoint and Microsoft Word. <input type="checkbox"/> An image can be cropped (only a part of it is kept), recoloured (colour changed - brightness, contrast, colour) or resized (original image is made smaller). <input type="checkbox"/> Microsoft Word / PowerPoint contain many design features, such as, different layouts and styles. 	<table border="0"> <tr> <td>networks</td> <td>insert</td> </tr> <tr> <td>search engines</td> <td>crop</td> </tr> <tr> <td>internet</td> <td>recolour</td> </tr> <tr> <td>suitable</td> <td>resize</td> </tr> <tr> <td>online tools</td> <td>database</td> </tr> <tr> <td>presentations</td> <td>data-loggers</td> </tr> <tr> <td>word processors</td> <td></td> </tr> </table>	networks	insert	search engines	crop	internet	recolour	suitable	resize	online tools	database	presentations	data-loggers	word processors	
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<ul style="list-style-type: none"> <input type="checkbox"/> Microsoft PowerPoint is ideal to create presentations using a series of slides. <input type="checkbox"/> A database is a computerised system that makes it easy to search, select and store information. For example a library will have a database of all the books it owns. <input type="checkbox"/> Data-loggers can record temperature, light and sound levels and the information can be read directly off the screen, converted into pictograms or displayed as a graph over time. 			
<p>Internet Safety</p>			
<ul style="list-style-type: none"> <input type="checkbox"/> The most common way to communicate with somebody else over the internet is by using electronic mail or e-mail for short. <input type="checkbox"/> Social media and online gaming has also meant people can communicate with others very quickly. <input type="checkbox"/> Not all communication using the internet is pleasant. If someone sends you an upsetting message you must report it to a responsible adult immediately. <input type="checkbox"/> A forum is a place on the internet where people can chat about a specific subject. For example on the BBC Football webpage there is often a forum to discuss team performances. <input type="checkbox"/> Forum's usually have certain rules about what can and can't be posted. <input type="checkbox"/> Age restrictions sometimes apply on forums and inappropriate language is not allowed. <input type="checkbox"/> You need to think carefully about what you upload or post on the internet as it can be there for others to see for a long time. <input type="checkbox"/> Space on the internet can be either public or private. <input type="checkbox"/> Public space means anybody can see it. <input type="checkbox"/> Private space is only for those people you allow to see what you post. 	<table border="0" style="width: 100%;"> <tr> <td style="vertical-align: top; width: 50%;"> e-mail forum blog </td> <td style="vertical-align: top; width: 50%;"> online rules communication </td> </tr> </table>	e-mail forum blog	online rules communication
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COMPUTING - KS2																												
Key Vocabulary																												
<u>E-Safety</u> appropriate/inappropriate sites cyber-bullying digital footprint keyword searching	<u>Programming</u> type + edit logo commands sensors open-ended problems bugs in programs complex programming	<u>Multimedia</u> creating + modifying specific purpose photo modifying keyboard shortcuts bullet points spell check feedback	<u>Technology</u> different networks information collection reliability owners	<u>Data Handling</u> database creation database searches inaccurate data																								
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network	contrast																											
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online tools	data-loggers																											
inserted	spreadsheet																											
Microsoft office	formula																											
Microsoft word	cell																											

<ul style="list-style-type: none"> <input type="checkbox"/> Online tools are apps and software you can access with an internet connection that aid you with your work. For example you may use an online currency convertor to check the exchange rate before you go on holiday. <input type="checkbox"/> Music and sound clips can be inserted into presentations and documents such as Microsoft PowerPoint and Microsoft Word. <input type="checkbox"/> An image can be cropped (only a part of it is kept), recoloured (colour changed - brightness, contrast, colour) or resized (original image is made smaller). <input type="checkbox"/> Microsoft Word / PowerPoint contain many design features, such as, different layouts and styles. <input type="checkbox"/> The 'find' button on Microsoft Word is a useful tool if you are looking for a specific word or phrase within a piece of text. <input type="checkbox"/> Microsoft PowerPoint is ideal to create presentations using a series of slides. <input type="checkbox"/> The 'search' function in Windows is extremely useful if you are trying to pinpoint a document or file. <input type="checkbox"/> A database is a computerised system that makes it easy to search, select and store information. For example a library will have a database of all the books it owns. <input type="checkbox"/> Information within a database can be ordered and searched for within 'field names'. <input type="checkbox"/> Databases can be used to answer simple questions. <input type="checkbox"/> Data-loggers can record temperature, light and sound levels and the information can be read directly off the screen, converted into pictograms or displayed as a graph over time. <input type="checkbox"/> Microsoft Office Excel is a spreadsheet. <input type="checkbox"/> A spreadsheet consists of a grid of 'cells' arranged in rows and columns and information can be inserted into each cell. <input type="checkbox"/> Each cell can contain text, numbers and formulas. <input type="checkbox"/> A formula is a calculation based on the contents of cells or a total of a combination of cells. <input type="checkbox"/> The total in that formula can change if the content of the combination cells used is changed. <input type="checkbox"/> Information can also easily be sorted and filtered by a spreadsheet. 	<p>Microsoft PowerPoint MS excel cropping</p>	<p>filtered</p>
<p>Internet Safety</p>		
<ul style="list-style-type: none"> <input type="checkbox"/> If something has been copyrighted it can't not be used without the owner's permission. <input type="checkbox"/> Using something that has been copyrighted can lead to a fine being paid. <input type="checkbox"/> Posting blogs, images and work online can bring both rewards and risk. By putting something in the 'public eye' you are allowing others to make judgements. <input type="checkbox"/> Privacy settings on certain accounts can limit who can and can't see what you upload. <input type="checkbox"/> You should always ask permission to use somebody else's work in your own. <input type="checkbox"/> A computer hacker is somebody that tries to access private information on the internet without permission. Computer hacking is illegal and the consequences for being caught are extremely serious. <input type="checkbox"/> Unwanted advertising can appear on your screen when you are browsing the internet in the form of pop-ups. Pop-ups can be triggered when you open a specific webpage. <input type="checkbox"/> Pop-up blockers can be installed to eliminate them from occurring. <input type="checkbox"/> Banners are adverts that appear on some webpages. <input type="checkbox"/> Clicking on a banner can accidentally send you to an unwanted webpage. <input type="checkbox"/> A hyperlink is something that you click on that will send you directly to another part of the internet. Hyperlinks can be words or pictures. <input type="checkbox"/> The padlock icon that appears on a web browser bar indicates a secure website such as online banks like Santander. 	<p>copyright permission blogs privacy hackers pop-ups banners</p>	<p>illegal advertising triggered installed web browser padlock icon</p>

COMPUTING - KS2

Key Vocabulary

<u>E-Safety</u>	<u>Programming</u>	<u>Multimedia</u>	<u>Technology</u>	<u>Data Handling</u>
responsible online communication	explore procedures	online sharing	computing devices	spreadsheets
informed choices	refine procedures	multimedia effects	internet parts	complex searches (and/or: </>)
virus threats	variable	multimedia modification	collaboration	problem solving
blogs	hardware + software	transitions	responsibility	present answers
messaging	control	hyperlinks	searching strategies	analyse information
	change inputs	editing tools	webpages	question data
	different outputs	refining		interpret
	articulate solutions	online sharing		
	commands			

Key Knowledge

Key Vocabulary

Year 5 - Programming

- Algorithms are a sequence of well-defined, computer-implementable instructions required in order to perform a computation.
- Algorithms can be broken down (decomposing) into smaller parts in order to solve problems.
- Algorithm outputs can be predicted by studying them closely.
- Sometimes computer programs do not work because they contain a 'bug'. Eliminating the 'bugs' is called debugging.
- There are 2 types of bug:
- A syntax bug is an error caused by something the programmer has typed - it could be a spelling mistake or a command that the computer doesn't understand.
- A logical bug is an error which means that even though the computer is able to carry out its instructions, it doesn't act as the programmer intended or the user expects.
- Computers follow code in order to complete a task.
- This code is written in a programming language. There are many different types of programming languages.
- Some that you may come across are Logo, Scratch, Blockly, Python and Kodu. Each of these languages are suited to different things.
- A computer programmer is somebody that enters code into a computer to tell it what to do.
- It is important to test out code to ensure it works. If it doesn't work you need to debug the code.
- By studying code you can use logical reasoning to discover what it will do.
- Using loops in code repeats a particular function.
- Computer programs use variables to store information.
- Changing the values in code can affect the outcome.
- Variables could be used to store the score in a game, the number of cars in a car park or the cost of items on a till. They work in a similar way to algebra, where a letter in your code can stand for a number.
- Variables in code and computer games are the things that change, such as the health bar of a character or the colour of the sprite you've chosen.
- Computers are capable of generating random numbers which can be used in simulations.
- A simulation is something that imitates real life.
- Code can and should be refined in order to ensure the best possible outcome.

- | | |
|-------------|-------------------|
| algorithm | logical reasoning |
| decomposing | variables |
| programming | outcomes |
| code | input |
| bug | output |
| debugging | loop |
| syntax bug | refined |
| logical bug | simulations |
| scratch | |

Networks / Search engines / Using programs

- A computer network is a number of computers linked together to allow them to "talk" to each other and share resources. Networked computers can share hardware, software and data.
- The World Wide Web, or web for short, are the pages you see when you're at a device and you're online. But the internet is the network of connected computers that the web works on, as well as what emails and files travel across. Think of the internet as the roads that connect towns and cities together.
- Search engines (browsers) are used to find information you want on the internet. Some well-known search engines include: Google Chrome, Mozilla Firefox, Microsoft Internet Explorer
- Not all search engines are the same - they can have specialisms.

- | | |
|----------------|---------------|
| networks | MS excel |
| search engines | cropping |
| world wide web | contrast |
| hardware | resize |
| software | presentations |
| data | find |
| web browsers | search |
| google | database |
| Wikipedia | field name |
| online tools | data-loggers |
| inserted | spreadsheet |

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<p>Internet Safety</p>	
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COMPUTING - KS2

Key Vocabulary

<u>E-Safety</u>	<u>Programming</u>	<u>Multimedia</u>	<u>Technology</u>	<u>Data Handling</u>
responsible online communication	predicting outputs	appropriate online tools	information movement	generate
informed choices	plan, program, test & review a program	audience	connecting devices	process
virus threats	program writing	atmosphere	different audiences	interpret
blogs	control mimics + devices	structure	research strategies	store
messaging	sensors	copyright	search result rankings	present information
	measure input	information collection	acknowledge resources	plausibility
	create variables	html code		appropriate data tool
	link errors	storing		interrogate
				investigations

Key Knowledge

Key Vocabulary

Year 6 - Programming

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- Variables in code and computer games are the things that change, such as the health bar of a character or the colour of the sprite you've chosen.
- Computers are capable of generating random numbers which can be used in simulations.
- A simulation is something that imitates real life.
- Code should be refined in order to ensure the best possible outcome.
- Property values and parameters can be used to store information about objects.
- Sensors can be used to measure input in order to activate a procedure or sequence.
- Coding programs are used in applications across society. An example is the light sequence within traffic lights. Another is how a coffee machine fills up a cup once a button has been pressed.

- algorithm
- decomposing
- programming
- code
- bug
- debugging
- syntax bug
- logical bug
- scratch
- logical reasoning
- variables
- outcomes
- input
- output
- loop
- refined
- simulations
- repetition
- sensors

Networks / Search engines / Using programs

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- networks
- search engines
- world wide web
- Sir Tim Berners-Lee
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- resize
- presentations
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- database

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