



Bure Park Primary School

Computing

- **Overview & Rationale**
- **Scheme of Work**
- **Progression of Skills & Year Group End Points**

Computing Rationale and Statement:

At Bure Park we intend to provide a curriculum which supports pupils to become **digitally literate, think logically and solve problems** to ensure that they can understand and participate **creatively and safely** in our ever-changing digital world. **E-safety is paramount** at Bure Park and is to be taught regularly and reactively where needed.

Computing is taught in discreet Computing lessons. The skills taught are applied across the wider curriculum. We block the subject, meaning that year groups deliver a sequence of the subject. We follow our own scheme of work, which has been closely referenced against the 2014 National Curriculum attainment targets, in order to ensure coverage and progression allowing depth in the knowledge and skills. Pupils have access to a range of digital hardware and will use a variety of software to develop the skills of information technology skills, digital literacy, computer science and e-safety.

Early Years Foundation Stage

The EYFS framework is structured very differently to the national curriculum as it is organised across seven areas of learning rather than subject areas. This document is to show how the skills taught across EYFS feed into national curriculum subjects. This document demonstrates which early years outcomes are prerequisite skills for computing within the national curriculum. The table below outlines the most relevant early years outcomes from 30-50 months to ELG, brought together from different areas of the Early Years Foundation Stage, to match the programme of study for computing.

The most relevant early years outcomes for computing are taken from the following areas of learning: • Understanding the World.


Computing 30-50 Months:

- Understanding the World Technology
- To know how to operate simple equipment.
- To show an interest in technological toys with knobs or pulleys, or real objects.
- To show skill in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or new images.
- To know that information can be retrieved from computers. 40-60 Months Understanding the World Technology
- To complete a simple program on a computer.
- To interact with age-appropriate computer software. ELG Understanding the World Technology
- To recognise that a range of technology is used in places such as homes and schools. To select and use technology for particular purposes.

Computing in the Early Years curriculum is based around the basic skills that the children need to operate a simple programme on a computer or tablet. This may be a drawing programme or a programme linked to maths, literacy or topics. Simple mouse skills and operation skills are learnt during foundation stage. The children in EYFS have access to 6 computers and these are available during continuous provision for the children to access. At times the staff may ask children to complete a specific task or game, as part of a challenge, for example; draw a picture of a gingerbread man linked to a Literacy unit on Traditional tales or play a maths game to consolidate something done in a maths lesson. We also have a number of programmable toys (Roamers & Beebots) for the

children to use. We also use cameras or iPad to take photographs on as well as having electrical items in role play areas such as non-working telephones, mobile phones and cameras.

Continuous provision to listen to stories / songs. We use 'Talking Tins' to deliver messages and for children to record their own speech or messages.

 <h2>End points for EYFS</h2> <p>Through our EAD provision, all pupils will have:</p>	<p>Pupil outcomes / Year 1 readiness Computing knowledge and understanding:</p> <ul style="list-style-type: none">- I can operate simple equipment (e.g. using a remote control, turning on a CD player)- I can complete a simple program (e.g. playing a simple game on an iPad)- I can take photographs of my work using a school camera or iPad
<p>ELG: Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes.</p>	<p>Other opportunities to develop computing understanding:</p> <ul style="list-style-type: none">- A range of programmable toys (e.g. Bee-bots)- Recording their voices using talking tins- Use of MiniMash

Key Stages 1 & 2

Digital Literacy	Computer Sciences	Information Technology
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Year 1

Purple = Substantive Knowledge		Green = Implicit Knowledge / Skills			
<p>understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions</p> <p>create and debug simple programs</p> <p>use logical reasoning to predict the behaviour of simple programmes.</p>	<p>Multimedia: use technology purposefully to create, organise, store, manipulate and retrieve digital content</p>			<p>recognise common uses of information technology beyond school</p>	<p>use technology safely and respectfully, keeping personal information private;</p> <p>identify where to go for help and support when they have concerns about content or contact on the internet or other online technology</p>
<p><u>Algorithms and programmes (computer sciences)</u></p>	<p><u>Word Processing and Multimedia</u></p>	<p><u>Digital imagery</u></p>	<p><u>Music and Sound</u></p>	<p><u>Communicating, Collaborating and Publishing</u></p>	<p><u>E-safety</u></p>
<p>I know what an algorithm is.</p> <p>I know that digital devices use algorithms.</p> <p>I understand the need for correct and precise language.</p> <p>I can create a simple program using</p>	<p>I can use the space bar, find full stop and use the shift key for a capital letter.</p> <p>I can save a document with some support.</p>	<p>I can use a camera to take a video or photo.</p> <p>I can find a photo on photo roll.</p> <p>I can insert a photo into another app.</p>	<p>I can record and playback a sound or a voice using an iPad app.</p>	<p>I can log on/off the school network with support.</p> <p>I can suggest examples of technology in my home.</p> <p>I can discuss the positives and negatives of technology.</p>	<p>I understand and follow the school's e-Safety SMART Rules.</p> <p>I know to ask permission from a trusted adult before using technology and going online.</p> <p>I know that if I find anything inappropriate online or something that</p>

<p>directional language – forward, backwards, up, down etc) I can test and debug a simple beebot program.</p>					<p>makes me uncomfortable to tell a trusted adult. I know that some information (full name, address, birthday etc...) is 'special' and shouldn't be shared with others online, unless I have permission from my trusted adult. I know that passwords help to keep information safe and secure and I should keep them safe. I know it is important to talk to a trusted adult about my online experiences. I know to be kind online as I would in the real world.</p>
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End points for Year 1

Pupils can:

<p>Information Technology:</p> <ul style="list-style-type: none"> - Use of subject specific vocabulary. - Use and access digital technology of different forms i.e. iPads, Chromebooks and laptops. - I can name my work. - I can find my work. - I can save my work. - I can keep my login information safe. - I can save my work in a safe place such as 'My Work' folder. 	<p>Computer Science: Understand what algorithms are; how they are implemented as programs on digital devices; and those programs execute by following precise and unambiguous instructions. Create and debug simple programs. Use logical reasoning to predict the behaviour of simple programs.</p> <ul style="list-style-type: none"> - Use of subject specific vocabulary. - Use and access digital technology of different forms i.e. iPads, Chromebooks and laptops. 	<p>Digital Literacy: Use technology safely and respectfully, keeping 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.</p> <ul style="list-style-type: none"> - Use of subject specific vocabulary. - Use and access digital technology of different forms i.e. iPads, Chromebooks and laptops. - Ask relevant questions about the use of digital technology
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<ul style="list-style-type: none"> - I can say that if something does not work how it should it is because my code is incorrect. - I can change content on a file such as text, sound and images. - I can add sound, pictures and text to a program such as 2Create a Story. - I can change content on a file such as text, sound and images. - I can make good guesses of what is going to happen in a program. For example, where the turtle might go. - I can try and fix my code if it isn't working properly. 	<ul style="list-style-type: none"> - Ask relevant questions about the use of digital technology - Recall instructions using the correct sequence and vocabulary <p>Recognise common uses of information technology beyond school:</p> <ul style="list-style-type: none"> - I can say what technology is. - I can say what examples of technology are in school. - I can say what examples of technology are at home. <p>I know that a chair uses old technology and a smart phone uses new technology</p>	<ul style="list-style-type: none"> - Recall instructions using the correct sequence and vocabulary - Describe what I notice about the learning taking place. - Understand the importance of keeping information private and actively demonstrating this. <p>Taking ownership of their own private space to save work.</p>
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<u>Vocabulary:</u>		
Tool Fill Undo Brush/Shape/Line too Word processor Keyboard Microsoft Word Google Docs Toolbar Bold Italic Underline Font Cursor	ScratchJr Bee-Bot Command Sprite Programming Block Joining Run Delete Reset Algorithm Program	

Purple = Substantive Knowledge		Green = Implicit Knowledge / Skills			
<p>understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions</p> <p>create and debug simple programs</p> <p>use logical reasoning to predict the behaviour of simple programmes.</p>	<p>use technology purposefully to create, organise, store, manipulate and retrieve digital content</p>			<p>recognise common uses of information technology beyond school</p>	<p>use technology safely and respectfully, keeping personal information private;</p> <p>identify where to go for help and support when they have concerns about content or contact on the internet or other online technology</p>
<p><u>Algorithms and programmes (computer sciences)</u></p>	<p><u>Word Processing and Multimedia</u></p>	<p><u>Digital imagery</u></p>	<p><u>Music and Sound</u></p>	<p><u>Communicating, Collaborating and Publishing</u></p>	<p><u>E-safety</u></p>
<p>I can put instructions in the correct order.</p> <p>I can use precise and unambiguous language.</p> <p>I can create a simple program to make something move.</p> <p>I can predict what will happen in my programme.</p>	<p>I can save and open a document.</p> <p>I can print a document.</p> <p>I can highlight words or a line in a document.</p> <p>I can change font style, size and colour.</p> <p>I can add text into a powerpoint.</p> <p>I can insert a new slide.</p>	<p>I can save an image to photoroll.</p> <p>I can insert photos and videos into a variety of apps.</p> <p>I can insert a photo into a word document or powerpoint.</p> <p>I can manipulate and evaluate an image.</p>	<p>I can record and playback using a variety of apps or hardware (eg. compare iPad to easi speak microphone and compare advantages/disadvantages)</p>	<p>I can begin to use my user/password independently.</p> <p>I can suggest examples of technology outside of home and school.</p> <p>I can discuss the positives and negatives of technology.</p> <p>I can participate in the writing of a class blog.</p> <p>I can recognise the uses of the internet.</p>	<p>I know and follow the school's SMART rules.</p> <p>I know to ask permission before using technology and going online.</p> <p>I know that if I find anything inappropriate online or something that makes me uncomfortable to tell a trusted adult.</p> <p>I know to keep my password and personal information private.</p>

<p>I can debug a simple programme and amend it.</p> <p>I can control programmes on different devices (beebots, apps)</p>	<p>I can locate the backspace and return key.</p> <p>I can type with ease my name and some HFW.</p>				<p>I know that not everyone I meet online is automatically trustworthy.</p> <p>I know that I must be respectful and kind in the real and online world.</p>
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End points for Year 2

Pupils can:

Information Technology:

Use technology purposefully to create, organise, store, manipulate and retrieve digital content.

- Use of subject specific vocabulary.
- Use and access digital technology of different forms i.e. iPads, Chromebooks and laptops.
- Ask relevant questions about the use of digital technology
- Recall instructions using the correct sequence and vocabulary

Describe what I notice about the learning taking place.

Begin to explore editing code.

I can save and open a document.

I can print a document.

I can highlight words or a line in a document.

I can change font style, size and colour.

I can add text into a powerpoint.

I can insert a new slide.

I can locate the backspace and return key.

I can type with ease my name and some HFW.

I can record and playback using a variety of apps or hardware (eg. Compare iPad to easi speak microphone and compare advantages/disadvantages)

Computer Science:

Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. Create and debug simple programs Use logical reasoning to predict the behaviour of simple programs.

- Use of subject specific vocabulary.
- Use and access digital technology of different forms i.e. iPads, Chromebooks and laptops.
- Ask relevant questions about the use of digital technology
- Recall instructions using the correct sequence and vocabulary
- Describe what I notice about the learning taking place. Begin to explore editing code.

Digital literacy:

- I can see where technology is used at school such as in the office or classrooms.
- I can report unkind behaviour and things that upset me online, to a trusted adult.
- I can share work and communicate electronically.
- I know the consequences of not searching online safely

Vocabulary:

Information technology (IT)	Instructions	
Computer	Sequence	
Barcode	Clear	
Scan	Algorithm	
Device	Program	
Capture	Debugging	
Image	Sequence	
Digital	Command	
Landscape/Portrait	Program	
Format	Run	
Focus	Start	
Tools	Outcome	
Filter	Block	
	Sprite	
	Algorithm	
	Modify	
	Debug	

Purple = Substantive Knowledge				Green = Implicit Knowledge / Skills			
use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts use sequence, selection, and repetition in programs; work with variables and various forms of input and output	Multimedia - select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals.			including collecting, analysing, evaluating and presenting data and information	understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration	use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content	use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact
<u>Algorithms and programmes (computer sciences)</u>	<u>Word Processing and Multimedia</u>	<u>Digital imagery</u>	<u>Music and Sound</u>	<u>Communicating, Collaborating and Publishing</u>	<u>Handling information</u>	<u>Research</u>	<u>E-safety</u>
I know what an algorithm is. I know that digital devices use algorithms.	I create documents following templates use a variety of software (word,	I can insert an image into a specific place in a word document or powerpoint.	I can import sounds.	I can use my user/ password to logon to the school network. I can save work correctly into a		I know what a key word is in relation to searching. I know what skim reading is	I know and follow the school's 'SMART' rules and know that it contains rules that exist in order to

<p>I can put instructions in the correct order. I can use precise and unambiguous language I can design and write a programme to draw a shape on logo. I can solve simple problems by checking each step of my programme. I can select tools, use repeat function and put my commands in the right order.</p>	<p>powerpoint, publisher). I can save and retrieve a document using a shared space, manipulating it as a working document. I know how to use the shift key to reach other keys (eg. ! : () ? etc) I can copy and paste text. I can use a spell checker. I can alter page layouts. I can change fonts, use: bold, italics, underline. I can insert word art. I can change backgrounds, transitions and add animations on powerpoint.</p>	<p>I can animate using time lapse. I can evaluate the quality of an image, considering the frames, angles and need to keep the camera still.</p>		<p>specific shared space, evaluating the advantages and disadvantages. I can contribute to an online discussion (quizzes, surveys, video conference)</p>		<p>and that we use this to search for information in larger bodies of text. I understand that not everything found on the internet is true and to select reliable website. I understand that it is important to put my research into my own words.</p>	<p>keep children safe online. I know to tell a trusted adult if I see something that makes me uncomfortable or is inappropriate. I know how to deal with unpleasant forms of electronic communication (save the message and speak to a trusted adult). I understand what personal information should be kept private, including passwords. I understand that the Internet contains fact, fiction and opinions and begin to distinguish between them. I understand that adverts appear online and know</p>
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								<p>how to ignore them.</p> <p>I know to be kind and respectful online and have an awareness of relevant e-Safety issues, such as cyber bullying.</p>
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End points for Year 3

Pupils can:

Information Technology:

- I can consider what the most appropriate software to use when given a task by my teacher
- I can carry out searches to find digital content on a range of online systems, such as within Purple Mash or on an internet search engine.
- I can create purposeful (appropriate) content and attach this to emails.
- I can consider what the most appropriate software to use when given a task by my teacher
- I can carry out searches to find digital content on a range of online systems, such as within Purple Mash or on an internet search engine.
- I know that a computer simulation can represent real and imaginary situations.
- I can give suggestions of advantages and problems of simulations.
- I can begin to evaluate simulations by comparing them with real situations and considering their usefulness.

Computer Science:

- I can make a real-life situation into an algorithm for a program.
- I can design an algorithm carefully, thinking about what I want it to do and how I can turn it into code.
- I can identify an error in my program and fix it.
- I can experiment with timers in my programs. - I can identify the difference in using between the effect of a timer or repeat command in my code.
- I know that a variable stores information while a program is running (executing).
- I can identify 'If' statements, repetition and variables. - I can read programs with several steps and predict what it will do.
- I can consider what the most appropriate software to use when given a task by my teacher
- I can carry out searches to find digital content on a range of online systems, such as within Purple Mash or on an internet search engine.

Digital Literacy:

- I can consider what the most appropriate software to use when given a task by my teacher
- I can use communication tools such as Email respectfully and use good etiquette.
- I can explain the negative consequences of not keeping passwords safe and secure.
- I can explain the importance of having a secure password and not sharing it with others.
- I can list a range of different ways to communicate.
- I can read and respond to a series of email communications.
- I can create a secure password.
- I can explain the importance of having a secure password and not sharing it with others.
- I can explain the negative consequences of not keeping passwords safe and secure.
- I understand the importance of keeping safe online and behaving respectfully.

<ul style="list-style-type: none"> - I can identify the relationships and rules on which the simulations are based - I can create purposeful (appropriate) content and attach this to emails. - I can use two hands to type the letters on the keyboard. - I can touch type using both left and right hands. 		<ul style="list-style-type: none"> - I can report unacceptable content and contact online in more than one way to a trusted adult.
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Vocabulary:		
<p>Audio Record Playback Microphone Speaker Headphones Input Output Start/Pause/Stop Podcast Selection Open/Save/File Mixing Export MP3 Network Server Wireless Access Point (WAP)</p>	<p>Scratch Programming Blocks Commands Code Sprite Sequence Event Task Algorithm Bug Debug Motion Event Action Sprite Algorithm Resize Blocks Debugging Errors</p>	<p>Password Secure Insecure</p>

Purple = Substantive Knowledge				Green = Implicit Knowledge / Skills			
<p>use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts use sequence, selection, and repetition in programs; work with variables and various forms of input and output</p>				<p>Multimedia - select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals,</p>			
<p>including collecting, analysing, evaluating and presenting data and information</p>				<p>understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration</p>			
<p>use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content</p>				<p>use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact</p>			
<u>Algorithms and programmes (computer sciences)</u>	<u>Word Processing and Multimedia</u>	<u>Digital imagery</u>	<u>Music and Sound</u>	<u>Communicating, Collaborating and Publishing</u>	<u>Handling information</u>	<u>Research</u>	<u>E-safety</u>
I can write an algorithm using specific words and symbols.	I can use save as for different versions of a document.	I can alter the format and position of a picture to move it around the page.	Import or record a sound to match the purpose of the	I can open and send an email. I can explain how internet	I can create a table of information.	I can select specific and appropriate vocabulary for searching.	I understand and abide by the school's 'Being SMART Online' rules and aware of the implications of not following the rules.

<p>I can find an error in the language of an algorithm and fix it. (spelling errors, spaces, wrong words, imprecise language)</p> <p>I can design and write a programme to create an animation on scratch including a spirte and stage, movement, speech or thought & sound.</p> <p>I can solve simple problems by checking the language, order and necessary blocks in my programme.</p> <p>I can sequence my instructions</p>	<p>I can save and retrieve files from designated folders.</p> <p>I can align the text.</p>	<p>I can vary layouts and choice of publishing package to suit a purpose.</p> <p>I am starting to understand that some images on the internet cannot be used without permission.</p> <p>I can use imovie to combine images and video to create a short film.</p>	<p>motion in scratch.</p>	<p>pages load on our screen.</p> <p>I understand that the internet is a network.</p> <p>I can understand how a shared space works such as our school network, padlet, linoit, as well as the advantages and disadvantages.</p>	<p>I can highlight the data to make a graph.</p> <p>I can create a title for my graph.</p> <p>I can edit the size of the columns.</p> <p>I know the purpose of an Excel spreadsheet.</p>	<p>I can alter my search terms.</p> <p>I can select reliable websites from search results.</p> <p>I know of safe search engines to use.</p> <p>I understand the importance of citing sources.</p>	<p>I know how to report online concerns.</p> <p>I understand that I should play with real friends online and not everyone I see online is a real friend.</p> <p>I am aware that not everything I find online is accurate and that websites and information need to be selected carefully, checked and evaluated.</p> <p>I know that I should be a good friend online and use respectful and appropriate language.</p>
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using different keyboard keys, use repeat and wait functions, select the right blocks.

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End points for Year 4

Pupils can:

Information Technology:

- I understand that network and communication components can be found in many different devices which allow them to join the internet.
- I understand the purpose of a search engine and the main features within it.
- I can look at information on a webpage and make predictions about the accuracy of information contained within it.
- I can work collaboratively to create content and solutions.

Computer Science:

- I can read programs that contain several steps and predict the outcomes with increasing accuracy.
- I can turn a real-life situation to solve into an algorithm, using a design that shows how I can accomplish this in code.
- I recognise the main component parts of hardware which allow computers to join and form a network.
- I understand that network and communication components can be found in many different devices which allow them to join the internet.
- I can work collaboratively to create content and solutions.
- I can turn a real-life situation to solve into an algorithm, using a design that shows how I can accomplish this in code
- I can use repetition in my code. For example, using a loop that continues until a condition is met such as the correct answer being entered.
- I can use timers within my program designs more accurately to create repetition effects. For example, I can create a counting machine.
- I can use selection (decision) in my programming. For example, using an 'if

Digital Literacy:

- I have a good understanding of the online safety rules we learn at school
- I can demonstrate how to use different online technologies safely.
- I can demonstrate how to use a few different online services safely
- I know I have a right to privacy both on and offline.
- I recognise that my wellbeing can be affected by how I use technology.
- I can report with ease any concerns with content and contact online and know immediate strategies to keep safe.
- I can create and improve my solutions to a problem based on feedback. For example, create a program using scratch and Microbots.
- I can review solutions that others have created, using a checklist of criteria.
- I understand that network and communication components can be found in many different devices which allow them to join the internet

	<p>statement' for a question being asked and the program takes one of two paths.</p> <ul style="list-style-type: none"> • I can use variables within my program and know how to change the value of variables. • I can use the user inputs and output features within my program, such as 'Print to screen'. • I can identify errors in my code by using different methods, such as stepping through lines of code and fixing them. • I can read programs that contain several steps and predict the outcomes with increasing accuracy. • I can review solutions that others have created, using a checklist of criteria 	
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Vocabulary:		
<p>Animation Stop frame Frame Sequence Image Delete Media Search Copyright Pixels Rotate Flip Hue/Saturation Sepia Illustrator Retouch Clone Sharpen Cut/Copy/Paste Font style Layer Internet Network Router Route tracing Network security Wireless Access Point (WAP) Web page/address Browser World Wide Web Content Links Files Download Sharing Ownership Permission</p>	<p>Program Commands Code Snippet Algorithm Debug Repeat loop value Forever Infinite loop Animate Event Duplicate Modify Algorithm Debug</p>	

Year 5

Purple = Substantive Knowledge		Green = Implicit Knowledge / Skills			
<p>use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</p>	<p>Multimedia - select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals,</p>	<p>including collecting, analysing, evaluating and presenting data and information</p>	<p>understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the</p>	<p>use search technologies effectively, appreciate how results are selected and ranked, and be discerning in</p>	<p>use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact</p>

design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts use sequence, selection, and repetition in programs; work with variables and various forms of input and output					opportunities they offer for communication and collaboration	evaluating digital content	
<u>Algorithms and programmes (computer sciences)</u>	<u>Word Processing and Multimedia</u>	<u>Digital imagery</u>	<u>Music and Sound</u>	<u>Communicating, Collaborating and Publishing</u>	<u>Handling information</u>	<u>Research</u>	<u>E-safety</u>
I can write an algorithm with decisions and repeat functions. I can use logical reasoning to explain how algorithms work. I can identify where the error is in a	I can create new folders for saving. I can make corrections using a range of tools (eg spell check, find and replace). I can add appropriate timings onto a powerpoint	I can use different filming techniques and camera angles e.g. zoom, panning, wide shot etc to create different mood/perspective I can plan a video or animation by drawing a storyboard. I can evaluate and improve work	I can edit and manipulate music and sound and refine for a given audience or project. I can use a range of sound effects, music and voice-overs to create mood/atmosphere.	I can upload files to the internet (dropbox, export scratch etc). I understand what a cloud based technology is and that files have to be synced.	I can enter formulae for the four operations (+-x/) into a spreadsheet. I can use 'SUM' to calculate the total of a set of numbers in a range of cells. I can, using a simple layout demonstrated	I can use advanced search functions in Google, e.g. quotations. I can use strategies to check the reliability of information, e.g. cross checking with books.	I am confident applying the SMART rules. I understand that there are a range of ways to report concerns, including ceop, IWF, childline. I can develop strategies to ignore or cancel unsolicited advertising (pop-ups, banners, videos or audio). I have developed an understanding of when it is unsafe to open an email, email attachment or

<p>complex algorithm with decisions and repeat functions.</p> <p>I can design and write a programme to create a game on scratch.</p> <p>I can solve problems by breaking the problem down and checking through the algorithms (sets of blocks).</p> <p>I can use conditional tools to allow different outcomes in my game.</p>	<p>and present it using these.</p> <p>I can discuss and evaluate the presentations and give reasons for the chosen styles and techniques.</p>	<p>with a view to purpose and audience.</p>		<p>I can send an attachment in an email.</p> <p>I can compare blogs and wikis.</p> <p>I recognise domain names.</p> <p>I understand how search results are ranked.</p>	<p>by the teacher, create a simple spreadsheet model and use it to solve problems</p> <p>I can select a way to present data and explain why this choice is effective.</p>	<p>I can use my knowledge of domain names to aid my judgment of the validity of websites.</p>	<p>download a document or video.</p> <p>I recognise my right to be protected from the inappropriate use of technology by others and the need to respect the rights of other users.</p> <p>I understand the impact on others of sending or uploading unkind or inappropriate content.</p>
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End points for Year 5

Pupils can:

Information Technology:

- I can make appropriate improvements to digital work I have created.
- I can comment on how successful a digital solution is that I have created. For example, a

Computer Sciences:

- I can test and debug my programs as I work.
- I can make appropriate improvements to digital work I have created.
- I can comment on how successful a digital solution is that I have created. For example, a

Digital Literacy:

- I know the importance of computer networks and how they help solve problems and enhance communications.
- I recognise the main dangers that can be perpetuated via computer networks.

<p>program built in scratch that sorts decimals numbers.</p> <ul style="list-style-type: none"> I can work collaboratively with others creating solutions to problems using appropriate software such as scratch or Micro bits. 	<p>program built in 2Code that sorts decimals numbers.</p> <ul style="list-style-type: none"> I can work collaboratively with others creating solutions to problems using appropriate software such as Scratch. I can make more complex real-life problems into algorithms for a program. I can test and debug my programs as I work. – I can convert (translate) algorithms that contain sequence, selection and repetition into code that works. I can use sequence, selection, repetition, and some other coding structures in my code. I can organise my code carefully for example, naming variables and using tabs. I know this will help me debug more efficiently. I can use logical methods to identify the cause of any bug with support to identify the specific line of code. 	<ul style="list-style-type: none"> I can explain what personal information is and know strategies for keeping this safe. – I can use the most appropriate form of online communication according to the digital content. For example, use 2Email, 2Blog and Display Boards. I can search precisely when using a search engine. For example, I know I can add additional words or removes words to help find better results. I can explain in detail how accurate, safe and reliable the content is on a webpage. I have a secure knowledge of online safety rules taught at school. I can demonstrate the safe and respectful use of different online technologies and online services. I always relate appropriate online behaviour to my right to have personal privacy. I know how to not let my mental wellbeing or others be affected by use of online technologies and services
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<p><u>Vocabulary:</u></p>		
<p>System Connection Digital Input Output Process Protocol Address Packet Vector Draw/Shape/Select/Undo/Resize tools Toolbar Icons Duplicate Select Alignment Grid Handles Modify Layers Group/Ungroup Reuse Database Data Sort/Order/Group Field Search Value Criteria Filter Storage AV (audio visual) Save Pan Tilt Youtuber Content Export Split Trim/Clip Credits Transitions Soundtrack</p>	<p>Microcontroller Components LED Program Repetition Loop Infinite loop Count-controlled loop Condition True/False Input Output Algorithm Debug</p>	

Purple = Substantive Knowledge				Green = Implicit Knowledge / Skills			
<p>use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts use sequence, selection, and repetition in programs; work with variables and various forms of input and output</p>				<p>Multimedia - select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals,</p>			
<p>including collecting, analysing, evaluating and presenting data and information</p>				<p>understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration</p>			
<p>use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content</p>				<p>use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact</p>			
<u>Algorithms and programmes (computer sciences)</u>	<u>Word Processing and Multimedia</u>	<u>Digital imagery</u>	<u>Music and Sound</u>	<u>Communicating, Collaborating and Publishing</u>	<u>Handling information</u>	<u>Research</u>	<u>E-safety</u>
<p>I can confidently write an algorithm with decisions and repeat functions.</p>	<p>I can create a multimedia non-linear presentation with hyperlinks.</p>	<p>Digital imagery I can explore all the features of a given video editing or animation package- editing</p>	<p>I can create sounds using a variety of hardware and software (for example on scratch,</p>	<p>I can explain how to use a browser and search engines. I can understand and describe the use</p>		<p>I can critically evaluate information found online, including checking sources and</p>	<p>I am confident applying the SMART rules. I know how to report abuse using “real life’ and ‘online’ systems. I recognise that different viewpoints can be found</p>

<p>I can evaluate the strengths and weaknesses of different algorithms to decide which is most effective. I can solve problems independently by breaking the problem down and checking through the algorithms. I can allow for things to change and have different inputs and outputs. I can design and write a programme using both hardware and software (Sam's Lab)</p>	<p>I can confidently create presentations on a variety of software and hardware for a purpose. (powerpoint, explain everything, key note)</p>	<p>existing video clips for a purpose. I can plan a storyboard for a video or animation to suit a purpose. I can film, create, edit and refine to ensure quality; present to an audience.</p>	<p>easispeak microphones, audacity, isle of tune, Sam's Lab) for a purpose or audience.</p>	<p>of web 2.0 tools (interactive between users eg. Youtube, facebook etc) and the advantage as disadvantages.</p>		<p>recognising different viewpoints, and understand some of the potential dangers of not doing so. I am aware of the issues of plagiarism, copyright and data protection in relation to my work.</p>	<p>on the web and can critically evaluate the information I use, and understand some of the potential dangers of not doing so. I can discuss issues to do with Social Networking. E.g. giving too much information, location settings people using information online, not knowing who is at the other end of the conversation. I know that malicious adults use the Internet and social media, and attempt to make contact with children. I am aware of the issues surrounding cyberbullying and understanding the impact on an individual of sending or uploading unkind or inappropriate content and know that I am responsible for my online content.</p>
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End points for Year 6

Pupils can:

Information Technology

- I can use criteria to evaluate the quality of my own and others digital solutions, suggesting refinements.
- I can consider the intended audience carefully when I design and make digital content.
- I can compare a range of digital content sources and rate them in terms of content quality and accuracy.
- I can use filters when searching for digital content.
- I can design and create my own online blogs

Computer Science:

- I can use inputs and outputs within my coded programs such as sound, movement and buttons and represent the state of an object.
- I can explain how binary relates to computer memory.
- I can write the numbers 0 to 10 using binary.
- I know Machine code is the code that signals to a computer which transistors should be on or off.
- I know machine code is written in binary.
- I can explain what a WAN and LAN is and describe the process of how access to the internet in school is possible.
- I can explain the difference between the internet and the World Wide Web.
- I can turn a complex programming task into an algorithm.
- I can identify the important aspects of a programming task (abstraction).
- I can decompose important aspects of a programming task in a logical way, identifying appropriate coding structures that would work.
- I can test and debug my program as I work on it and use logical methods to identify a cause of a bug.
- I can identify a specific line of code that is causing a problem in my program and attempt a fix.
- I can translate algorithms that include sequence, selection and repetition into code and nest these structures within each other.

Digital Literacy:

- I can demonstrate safe and respectful use of a range of different technologies and online services.
- I can identify more discrete inappropriate behaviours online. For example, someone who may be trying to groom me or someone else.
- I can use critical thinking to help me stay safe online.
- I know the value of protecting my privacy and others online.
- I can use filters when searching for digital content.
- I can explain in detail how accurate and reliable a webpage and its content is.

	<ul style="list-style-type: none"> • I can use inputs and outputs within my coded programs such as sound, movement and buttons and represent the state of an object. • I can interpret (understand) a program in parts and can make logical attempts to put the separate parts together in an algorithm to explain the program as a whole. 	
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<u>Vocabulary:</u>		
<p>2D/3D Object Ed space Resize Lift Rotate/Position/Select/Duplicate tools Dimensions Placeholder Modify Search Search engine Refine Index Bot Crawler Ranking Search engine optimisation Links Web crawlers Content creator Selection Internet SMS Email Public/Private one-way/two-way/one-to-one Website Web page Browser Media Hypertext Markup Language (HTML) Header Copyright Fair use Home page Breadcrumb trail Navigation Hyperlink Subpage External link Embed</p>	<p>Micro:bit Input Output Process USB (Universal Serial Bus) Selection Condition Variable If...then...else Random Sensing Accelerometer Navigation Algorithm Debug</p>	