



Computing Curriculum Overview

Our Ultimate End Goal: (intent statement)

What will our children be able to do when they leave us?

By the end of their time at Britannia Community Primary School, our Year 6 children will use computational thinking and creativity to understand and change the world.

The children will:

- be able to operate in the 21st century workplace.
- know the career opportunities that will be open to them if they study Computing.
- become independent users of computing technologies, gaining confidence and enjoyment from their activities.
- be digitally literate and competent users of technology.
- develop creativity, resilience, problem solving and critical thinking skills (particularly through Computer Science).
- have a range of experience to develop their understanding of themselves as individuals within their community but also as members of a wider global community and as responsible digital citizens.

We want the use of technology to support learning across the entire curriculum and to ensure our curriculum is accessible to every child.

The National Curriculum for Computing aims to ensure that all pupils:

- can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation.
- can analyse problems in computational terms and have repeated practical experience of writing computer programs in order to solve such problems.
- can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems.
- are responsible, competent, confident and creative users of information and communication technology.

Early Years Foundation Stage Framework and National Curriculum Coverage

EYFS	Key Stage 1	Key Stage 2	
Reception	Year 1 and Year 2	Year 3 and Year 4	Year 5 and Year 6
ELG – Children at the expected level of development will: Communication, Language and Literacy Listening, Attention and Understanding: Listen attentively and respond to what they hear with relevant questions, comments and actions when being read to and during whole class discussions and small group interactions. Make comments about what they have heard and ask questions to clarify their understanding. • Hold conversation when engaged in back-and-forth exchanges with their teacher and peers. Speaking: Children at the expected level of development will: • Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary. • Offer explanations for why things might happen, making use of recently introduced vocabulary from stories, non-fiction, rhymes and poems when appropriate. • Express their ideas and feelings about their experiences using full sentences,	Pupils should be taught to: • 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 technology purposefully to create, organise, store, manipulate and retrieve digital content. • recognise common uses of information technology beyond school. • 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.	Pupils should be taught to: • 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. • use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs. • 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. • 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. • use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	

including use of past, present and future tenses and making use of conjunctions, with modelling and support from their teacher. PSED Self Regulation Set and work towards simple goals, being able to wait for what they want and control their immediate impulses when appropriate. • Give focused attention to what the teacher says, responding appropriately even when engaged in activity, and show an ability to follow instructions involving several ideas or actions. Managing Self: Children at the expected level of development will: • Be confident to try new activities and show independence, resilience and perseverance in the face of challenge. • Explain the reasons for rules, know right from wrong and try to behave accordingly. Understanding the World: Past and Present: Children at the expected level of development will: • Talk about the lives of the people around them and their roles in society. • Know some similarities and differences between things in the past and now, drawing on their experiences and what has been read in class.		
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• Understand the past through settings, characters and events encountered in books read in class and storytelling. People, Culture and Communities Children at the expected level of development will: • Describe their immediate environment using knowledge from observation, discussion, stories, non-fiction texts and maps.		
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Long Term Plan Overview							
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Autumn 1		Creating Media: Digital Painting	Creating Media: Digital Photography	Creating Media: Animation	Creating Media: Audio Editing	Creating Media: Video Editing	Creating Media: Web Page Creation
Autumn 2		Programming A: Moving a Robot	Programming A: Robot Algorithms	Programming A: Sequencing in Music	Programming A: Repetition in Shapes	Programming A: Selection in Physical Computing	Programming A: Variables in Games
Spring 1		Data and Information: Grouping Data Safer Internet Day	Data and Information: Pictograms Safer Internet Day	Data and Information: Branching Databases Safer Internet Day	Data and Information: Data Logging Safer Internet Day	Data and Information: Flat File Databases Safer Internet Day	Data and Information: Spreadsheets Safer Internet Day
Spring 2		Computing Systems and Networks:	Computing Systems and Networks: IT Around Us	Computing Systems and Networks:	Computing Systems and Networks: The Internet	Computing Systems and Networks:	Computing Systems and Networks: Communication

		Technology Around Us		Connecting Computers		Sharing Information	and Collaboration
Summer 1		Creating Media: Digital Writing	Creating Media: Making Music	Creating Media: Desktop Publishing	Creating Media: Photo Editing	Creating Media: Vector Drawing	Creating Media: 3D Modelling
Summer 2		Programming B: Introduction to Animation	Programming B: An Introduction to Quizzes	Programming B: Events and Actions	Programming B: Repetition in Games	Programming B: Selection in Quizzes	Programming B: Sensing

Disciplinary Knowledge (skills)

The skills detailed below ensure progression in each area of Computing and provide rich opportunities for children to engage in a range of Computing experiences, whether this be in Computing or other curriculum subjects. These are the core skills that the children will have by the time they leave Year 6.

EYFS - Reception	Key Stage 1				Key Stage 2		
		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6

	Creating Media	<u>Digital Painting</u> To create a picture using freehand tools. To use shape and line tools when precision is needed. To use a range of paint colours. To use the fill tool to colour an enclosed area. To use the undo button to correct a mistake. To combine a range of tools to create a piece of artwork. <u>Digital Writing</u> To use letter, number and Space keys to enter text into a computer. To use punctuation and special characters. To select text. To choose options to achieve a desired effect. To change the appearance of text on a computer. To use the Backspace key to remove text. To position the text cursor in a chosen location. To use Undo.	<u>Digital Photography</u> To take photographs in both landscape and portrait format. To view photographs on a digital device. To decide which photographs to keep. To hold the camera still to take a clear photograph. To use zoom to change the composition of a photograph. To consider lighting before taking a photograph. To improve a photograph by retaking it. To use simple editing tools to change the appearance of a photograph. To improve a photograph by retaking it. <u>Digital Music</u> To experiment with musical patterns on a computer. To experiment with different sounds on a computer. To use a computer to create a musical pattern. To use a computer to compose a rhythm and a melody and a given theme. To use a computer to play the same music in different ways (e.g. tempo). To evaluate a musical composition created on a computer. To improve a musical composition created on a computer.	<u>Animation</u> To set up the work area with an awareness of what will be captured. To plan an animation using a storyboard. To capture an image. To use the onion skinning tool to review subject position. To move a subject between captures. To review a captured sequence of frames as an animation. To remove frames to improve an animation. To add media to enhance an animation. To review a completed project. <u>Desktop Publishing</u> To show that page orientation can be changed. To add text to a placeholder. To organise text and image placeholders in a page layout. To add and remove images to and from placeholders. To edit text in a placeholder. To choose fonts and apply effects to text. To move, resize and rotate images. To review a document.	<u>Photo Editing</u> To recognise that digital images can be manipulated. To recognise that digital images can be changed for different purposes. To choose the most appropriate tool for a particular purpose. To consider the impact of changes made on the quality of the image. <u>Audio Production</u> To record sound using a computer. To play recorded audio. To import audio into a project. To delete a section of audio. To change the volume of tracks in a project.	<u>Video Production</u> To use different camera angles. To use pan, tilt and zoom. To identify features of a video recording device or application. To combine filming techniques for a given purpose. To determine what scenes will convey your idea. To decide what changes I will make when editing. To choose to reshoot a scene or improve later through editing. To use split, trim and crop to edit a video. <u>Vector Drawing</u> To add an object to a vector drawing. To select one object or multiple objects. To delete objects. To move objects between the layers of a drawing. To group and ungroup selected objects. To duplicate objects using copy and paste. To modify objects. To reposition objects. To combine options to achieve a desired effect. To create a vector drawing for a given purpose.	<u>Web Page Creation</u> To review an existing website (navigation bar, header). To create a new blank web page. To add text to a web page. To set the style of text on a web page. To embed media in a web page. To add web pages to a website. To insert hyperlinks between pages. To insert hyperlinks to another site. To change the appearance of text. To preview a web page (different screen sizes e.g. laptop, ipad, phone). <u>3D Modelling</u> To position 3D shapes relative to one another. To use digital tools to modify 3D objects. To combine objects to create a 3D digital artefact. To use digital tools to accurately size 3D objects. To construct a 3D model which reflects a real world object.
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	Programming A	<u>Moving a Robot</u> To enact a given word. To predict the outcome of a command on a device. To list which commands can be used on a given device. To run a command on a floor robot. To choose a command for a given purpose. To choose a series of words that can be enacted as a program. To choose a series of commands that can be run as a program. To build a sequence of commands in steps. To combine commands in a program. To run a program on a device.	<u>Robot Algorithms</u> To choose a series of words that can be enacted as a sequence. To choose a series of instructions that can be run as a program. To create a program. To trace a sequence to make a prediction. To run a program on a device. To debug a program that I have written.	<u>Sequencing in Music</u> To build a sequence of commands. To combine commands in a program. To order commands in a program. To create a sequence of commands to produce a given outcome.	<u>Repetition in Shapes</u> To list an everyday task as a set of instructions including repetition. To use an indefinite loop to produce a given outcome. To use a count-controlled loop to produce a given outcome. To plan a program that includes appropriate loops to produce a given outcome. To recognise tools that enable more than one process to be run at the same time (concurrency). To create two or more sequences that run at the same time.	<u>Selection in Physical Computing</u> To create a condition-controlled loop. To use a condition in an 'if...then' statement to start an action. To use selection to switch the program flow in one of two ways. To use a condition in an 'if...then...else' statement to produce given outcomes.	<u>Variables in Games</u> To identify a variable in an existing program. To experiment with the value of an existing variable. To choose a name that identifies the rest of a variable to make it easier for humans to understand it. To decide where in a program to set a variable. To update a variable with a user input. To use an event in a program to update a variable. To use a variable in a conditional statement to control the flow of a program. To use the same variable n more than one location in a program.
	Data and Information	<u>Grouping Data</u> To identify some attributes of an object. To collect simple data. To show that collected data can be counted. To describe the properties of an object. To choose an attribute to group objects by. To group objects to answer questions. To explain that objects can be grouped by similarities (attribute). To describe a group of objects (based on commonality).	<u>Pictograms</u> To show that I can enter data onto a computer. To recognise that people, animals and objects can be described by attributes. To use a computer to view data in different formats. To use pictograms to answer single attribute questions. To use a computer to answer comparison questions (graphs, tables).	<u>Branching Databases</u> To create questions with yes/no answers. To choose questions that will divide objects into evenly sized subgroups. To repeatedly create subgroups of objects. To identify an object using a branching database. To retrieve information from different levels of the branching database.	<u>Data Logging</u> To use a digital device to collect data automatically. To choose an appropriate timeframe when collecting data automatically. To use a set of logged data to find information. To use a computer program to sort data by one attribute. To export information in different formats.	<u>Flat-File Databases</u> To choose different ways to view data. To ask questions that need more than one attribute to answer. To choose which attribute and value to search by to answer a given question (operands). To choose which attribute to sort data by to answer a given question. To choose multiple criteria to search data to answer a given question (AND and OR). To select an appropriate graph to visually compare data. To choose suitable ways to present information to other people.	<u>Introduction to Spreadsheets</u> To calculate data using a formula for each operation. To use functions to create new data. To use existing cells within a formula. To choose suitable ways to present spreadsheet data.

	Computing Systems and Networks	<u>Technology Around Us</u> To choose a piece of technology to do a job. To recognise that some technology can be used in different ways. To identify the main parts of a computer. To use a mouse in different ways. To use a keyboard to type. To use the keyboard to edit text. To show how to use technology safely.	<u>IT Around Us</u> To describe some uses of computers. To identify information technology in school. To identify information technology beyond school. To show how to use information technology safely.	<u>Connecting Computers</u> To identify input and output devices. To explain that a computer system accepts an input and processes it to produce an output. To explain how a computer network can be used to share information. To explain the role of a switch, server and wireless access point in a network. To identify network devices around me. To explain how networks can be connected to other networks.		<u>Systems and Searching</u> To describe the input and output of a search engine. To demonstrate that different search terms produce different results. To evaluate the results of search terms.	<u>Communication and Collaboration</u> To outline methods of communicating and collaborating using the internet. To choose methods of internet communication and collaboration for given purposes. To evaluate different methods of online communication and collaboration. To decide what you should and should not share online.
	Programming B	<u>Introduction to Animation</u> To choose a series of words that can be enacted as a program. To choose a series of commands that can be run as a program. To run a program on a device.	<u>An Introduction to Quizzes</u> To choose a series of words that can be enacted as a sequence. To explain what happens when we change the order of instructions. To choose a series of commands that can be run as a program. To trace a sequence to make a prediction. To test a prediction by running the sequence. To create and debug a program that I have written. To run a program on a device.	<u>Events and Actions</u> To build a sequence of commands. To combine commands in a program. To order commands in a program. To create a sequence of commands to produce a given outcome.	<u>Repetition in Games</u> To list an every day task as a set of instructions including repetition. To use an indefinite loop to produce a given outcome. To use a count-controlled loop to produce a given outcome. To plan a program that includes appropriate loops to produce a given outcome. To recognise tools that enable more than one process to be run at the same time (concurrency). To create two or more sequences that run at the same time.	<u>Selection in Quizzes</u> To choose a condition to use in a program. To create a condition-controlled loop. To use a condition in an 'if...then' statement to start an action. To use selection to switch program flow. To use 'if...then...else...' to switch program flow in one of two ways.	<u>Sensing</u> To identify a variable in an existing program. To experiment with the value of an existing variable. To choose a name that identifies the role of a variable to make it more usable (to humans). To decide where in a program to set a variable. To update a variable with a user input. To use an event in a program to update a variable. To use a variable in a conditional statement to control the flow of a program. To use the same variable in more than one location in a program.

Substantive Knowledge (the stuff)

Through teaching Computing, there is core knowledge that our children at Britannia must learn. This knowledge, as well as the skills noted above, are essential for our children to navigate the digital world confidently and effectively, preparing them for future technological advancements and challenges.

Children need to have opportunities to understand how Computing works in the world and how skills in Computing are becoming increasingly important in today’s job market.

Substantive Concept
Computer Science
Information Technology
Digital Literacy

EYFS - Reception	Key Stage 1		Key Stage 2			
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6

	Creating Media	<u>Digital Painting</u> To explain what different freehand tools do. To recognise that computers can be used to create art. To recognise a tool can be adjusted to suit my need. To decide when it's appropriate to use each tool. To consider impact of choices made. To compare painting using a computer with painting using brushes. <u>Digital Writing</u> To recognise that a keyboard is used to enter text into a computer. To recognise that the Shift key changes the output of a key. To recognise that text can be changed. To recognise that the appearance of text can be changed. To consider the impact of choices made.	<u>Digital Photography</u> To recognise that some digital devices can capture images using a camera. To talk about how to take a photograph. To recognise that photographs can be saved and viewed later. To make choices when composing my photograph. To recognise features of good photographs. To identify how a photograph could be improved. To explain the effect of light on a photograph. To recognise that photographs can be changed after they have been taken. To recognise that some images are not accurate. <u>Digital Music</u> To identify that computers can be used to play sounds of different instruments. To identify that the same pattern can be represented in different ways. To compare playing music on instruments with making music on a computer.	<u>Animation</u> To explain that an animation is made up of a sequence of images. To identify that a capturing device needs to be in a fixed position. To recognise that smaller movements create smoother animation. To explain the need for consistency in working. To explain the impact of adding other media to an animation. To explain that a project must be exported so it can be shared. <u>Desktop Publishing</u> To recognise how text and images can be used together to convey information. To define landscape and portrait as two different page orientations. To consider how different layouts can suit different purposes. To recognise that desktop publishing pages can be structured with placeholders. To recognise how different font styles and effects are used for particular purposes. To consider the benefits of using a desktop publishing application.	<u>Audio Production</u> To identify that sound can be recorded. To identify that an input device is needed to record sound. To identify that output devices are needed to play audio. To recognise that recorded audio can be stored on a computer. To recognise that audio can be edited. To recognise that sound can be represented visually as a waveform. To recognise that audio can be layered so that multiple sounds can be played at the same time. To consider the results of editing choices made. <u>Photo Editing</u> To use an application to change the whole of a digital image. To change the composition of a digital image by rotation and flipping. To change the composition of a digital image by cropping. To adjust colours of a digital image. To apply filters to a digital image. To apply effects to a digital image. To use an application to change part of a digital image. To select part of a digital image. To use clone, copy and paste to change the composition of a digital image. To use cloning to retouch a digital image.	<u>Video Production</u> To explain the features of video as a visual media format. To recognise which devices can and can't record video. To explain the purposes of a storyboard. To recognise that filming techniques can be used to create different effects. To recognise the need to regularly review and reflect on a video project. To explain the limitations of editing video on a recording device. To identify that videos can be edited on a recording device or on a computer. To identify videos can be improved through and reshooting/editing. To recognise projects need to be exported to be shared. <u>Vector Drawing</u> To identify that a vector drawing comprises separate objects. To recognise that each object in a drawing is in its own layer. To recognise that vector images can be scaled without impact on a quality. To recognise that objects can be modified in groups. To explain how alignment and size guides can help create a more consistent drawing. To consider the impact of choices made.	<u>Web Page Creation</u> To recognise the relationship between HTML and visual display. To recognise that web pages can contain different media types. To recognise that web pages are written by people. To recognise that a website is a set of hyperlinked webpages. To recognise components of a web page layout. To consider the ownership and use of images (copyright). To recognise the need to preview pages (different screens/devices). To recognise the need for a navigation path. To recognise the implications of linking to content owned by others. <u>3D Modelling</u> To explain that 3D models can be created on a computer. To recognise that a 3D environment can be viewed from different perspectives. To recognise that digital tools can be used to manipulate 3D objects. To show how placeholders can create holes in 3D objects. To recognise that artefacts can be broken down into a collection of 3D objects.
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					To use an application to add to the composition of a digital image. To add text to a digital image.		
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	Programming A	<u>Moving a Robot</u> To recall words that can be enacted. To explain what a given command does. To match a command to an outcome. To understand that a program is a set of commands that a computer can run. To recall that a series of instructions can be issued before they are enacted.	<u>Robot Algorithms</u> To describe that a series of instructions is a sequence. To explain what happens when we change the order of instructions. To recall that a series of instructions can be issued before they are enacted. To recognise that you can predict the outcome of a program.	<u>Sequence in Music</u> To explain that programs start because of an input. To explain what a sequence is. To identify that a program includes sequences of commands. To identify that the sequence of a program is a process. To explain that the order of commands can affect a program's output. To identify that different sequences can achieve the same output. To identify that different sequences can achieve different outputs.	<u>Repetition in Shapes</u> To relate what 'repeat' means. To identify everyday tasks that include repetition as part of a sequence e.g. brushing teeth, dance moves. To explain that we can use a loop command in a program to repeat instructions. To identify patterns in a sequence. To identify a loop within a program. To explain that in programming there are indefinite loops and count-controlled loops. To explain that an indefinite loop will run until the program is stopped. To explain that you can program a loop to stop after a specific number of times. To identify patterns in a sequence, e.g. step 3 times, means the same as step, step, step. To justify when to use a loop and when not to. To explain the importance of instruction order in a loop. To recognise that not all tools enable more than one process to be run at once.	<u>Selection in Physical Computing</u> To explain that a condition can only be true or false. To relate that a count-controlled loop contains a condition. To compare a count-controlled loop with a condition-controlled loop. To explain that a condition-controlled loop will stop when a condition is met. To explain that when a condition is met, a loop will complete a cycle before it stops. To explain that selection can be used to branch the flow of a program. To explain that a loop can be used to repeatedly check whether a condition has been met. To explain the importance of instruction order in 'if, then, else' statements.	<u>Variables in Games</u> To define a 'variable' as something that is changeable. To identify examples of information that is variable, for example, a football score during a match. To explain that a variable can be used in a program e.g. score. To define a program variable as a placeholder in memory for a single value. To explain that a variable has a name and a value. To recognise that the value of a variable can be used by a program. To recognise that the value of a variable can be updated. To identify that variables can hold numbers (integers) or letters (strings). To define the way that a variable is changed. To recognise that a variable can be set of a constant (fixed value). To explain the importance of setting up a variable at the start of a program (initialisation). To explain that there is only one variable at any one time. To explain that if you change the value of a variable, you cannot access the previous value (cannot undo). To explain that if you read a variable, the value remains. To explain that the name of a variable is meaningless to the computer.
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							To explain that the name of a variable needs to be unique.
	Data and Information	<u>Grouping Data</u> To identify that objects can be counted. To recognise that information can be presented. To recognise that information can be presented in different ways.	<u>Pictograms</u> To use a tally chart to collect data. To compare objects that have been grouped by attribute. To suggest appropriate headings for tally charts and pictograms. To explain that we can present information using a computer. To construct (complete) a given comparison question e.g. "Are there more ____ balls than ____?" To use a computer program to present information in different ways. To give simple examples of why some information should not be shared.	<u>Branching Databases</u> To investigate questions with yes/no answers. To identify attributes that you can ask yes/no questions about. To select an attribute to separate objects into two similarly sized groups. To explain that a branching database is an identification tool. To recognise that a data set can be structured using yes/no questions. To explain that a well-structured branching database will enable you to identify objects using fewer questions. To relate two levels of a branching database using AND. To suggest real world applications for branching databases.	<u>Data Logging</u> To suggest questions that can be answered using a table of data. To identify data that can be logged over time. To identify that sensors are input devices. To recognise that a sensor can be used as an input device for data collection. To explain that a data logger captures 'data points' from sensors over time.	<u>Flat-File Databases</u> To explain that a computer program can be used to organise data. To outline how ordering data allows us to answer some questions. To explain that tools can be used to select data to answer questions. To outline how operands can be used to filter data. To outline how AND and OR can be used to refine data selection. To explain that computer programs can be used to compare data visually. To explain that we present information to communicate a message.	<u>Introduction to Spreadsheets</u> To identify questions that can be answered using spreadsheet data. To explain what an item of data is in a spreadsheet. To explain how the data type determines how a spreadsheet can process the data. To outline that there are different software tools to work with data. To explain that formulas can be used to produce calculated data. To recognise cells can be linked. To explain why data should be organised in a spreadsheet. To recognise that a cell's value automatically updates when the value in a linked cell is changed. To evaluate results in comparison to the question asked.

	Computing Systems and Networks	<u>Technology Around Us</u> To explain that technology is something that can help us. To identify examples of technology. To explain how examples of technology help us. To recognise that a computer is an example of technology. To recognise that choices are made when using technology. To explain why rules are needed when using technology.	<u>IT Around Us</u> To recognise different types of computers used in school. To identify that a computer is a part of information technology. To recognise the features of information technology. To talk about uses of information technology. To explain how information technology benefits us. To say how rules for using information technology can help us. To recognise that choices are made when using information technology.	<u>Connecting Computers</u> To describe what an input is. To explain that a process acts on the inputs. To explain that an output is produced by the process. To identify how changing the process can affect the output. To recognise that a digital device is made up of several parts. To explain how computer systems can change the way that we work. To recognise that computers can be connected to each other. To identify how devices in a network are connected with one another. To recognise that a network is made up of a number of components. To explain how information is passed through multiple connections. To identify the benefits of computer networks.	<u>Systems and Searching</u> To recognise that a system is a set of interconnected parts which work together. To explain that computers can be connected together to form IT systems. To identify that data can be transferred between IT systems. To recognise inputs, processes and outputs in large IT systems. To describe the role of a particular IT system in their lives. To relate that search engines are examples of large IT systems. To explain why search engines create indices and that they are different for each search engine. To explain the role of web crawlers in creating an index. To explain how search results are selected. To explain that ranking orders search results to make them more useful. To explain how ranking is determined by rules and that different search engines use different rules. To explain why the order of results is important and to whom. To explain how search engines make money by selling targeted advertising space. To identify some of the limitations of search engines.	<u>Communication and Collaboration</u> To recognise that data is transferred across networks using agreed protocols (methods). To recognise that connections between computers allow access to shared stored files. To explain that data is transferred in packets. To recognise computers connected to the internet allow people in different places to work together. To discuss the opportunities that technology offers for communication and collaboration. To explain which types of media can be shared through the internet. To explain that communicating and collaboration using the internet can be public or private. s
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	Programming B	<u>Introduction to Animation</u> To enact a given word. To recall words that can be enacted. To predicted the outcome of a command on a device. To list that commands can be used on a given device. To explain what a given command does. To match a command to an outcome. To recognise how to run a command (press a button). To choose a command for a given purpose. To understand that a program is a set of commands a computer can run. To recall that a series of instructions can be issued before they are enacted. To build a sequence of commands in steps. To combine commands in a program.	<u>An Introduction to Quizzes</u> To describe a series of instructions as a sequence. To recall that a series of instructions can be issued before the enacted. To use logical reasoning to predict the outcome of a program.	<u>Events and Actions</u> To explain that programs start because of an input. To explain what a sequence is. To identify that a program includes sequences of commands. To identify that the sequence of a program is a process. To explain that the order of commands can affect a program's output. To identify that different sequences can achieve the same output. To identify that different sequences can achieve different outputs.	<u>Repetition in Games</u> To relate what 'repeat' means. To identify everyday tasks that include repetition as part of a sequence e.g. brushing teeth, dance moves. To explain that we can use a loop command in a program to repeat instructions. To identify patterns in a sequence. To identify a loop within a program. To explain in programming there are indefinite loops and count-controlled loops. To explain that an indefinite loop will run until the program is stopped. To explain that you can program a loop to stop after a specific number of times. To identify patterns in a sequence e.g. step 3 times means the same as step, step, step. To justify when to use a loop and when not to. To explain the importance of instruction order in a loop.	<u>Selection In Quizzes</u> To explain that a condition can only be true or false. To relate that a count-controlled loop contains a condition. To compare a count-controlled loop with a condition-controlled loop. To explain that a condition-controlled loop will stop when a condition is met. To explain that when a condition is met a loop will complete a cycle before it stops. To explain that selection can be used to branch the flow of a program. To explain that a loop can be used to repeatedly check whether a condition has been met. To explain the importance of instruction order in 'if...then...else...' statements.	<u>Sensing</u> To define 'variable' as something that is changeable. To identify examples of information that is variable e.g. a football score during a match. To explain that a variable can be used in a program e.g. score. To define a program variable as a placeholder in memory for a single value. To recognise that the value of a variable can be used by a program. To explain that a variable has a name and a value. To recognise that the value of a variable can be updated. To identify that variables can hold numbers (integers) or letters (strings). To define the way that a variable is changed. To recognise that a variable can be set as a constant (fixed value). To explain the importance of setting up a variable at the start of a program (initialisation). To explain that there is only one value for a variable at any one time. To explain that if you change the value of a variable, you cannot access the previous value (cannot undo). To explain that if you read a variable, the value remains. To explain that the name of a variable is meaningless to the computer.
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							To explain that the name of a variable needs to be unique.
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Key Vocabulary			
EYFS	Key Stage 1	Lower Key Stage 2	Upper Key Stage 2
	<u>Year 1</u> Computing Systems and Networks: Technology Around Us technology, computer, mouse, trackpad, keyboard, screen, double-click, typing Creating Media: Digital Painting paint program, tool, paintbrush, erase, fill, undo, shape tools, line tool, fill tool, undo tool, colour, brush style, brush size, pictures, painting, computers Creating Media: Digital Writing word processor, keyboard, keys, letters, type, numbers, space, backspace, text cursor, capital letters, toolbar, bold, italic, underline, mouse, select, font, undo, redo, format, compare, typing, writing Data and Information: Grouping Object, label, group, search, image, property, colour, size, shape, value, data set, more, less, most, fewest, least, the same Programming A: Moving A Robot BeeBot, forwards, backwards, turn, clear, go, commands, instructions, directions, left, right, route, plan, algorithm, program Programming B: Programming Animations Scratch JR, command, sprite, compare, programming, area, block, joining, start, run, program, background,	<u>Year 3</u> Computing Systems and Networks: Connecting Computers digital device, input, process, output, program, digital, non-digital, connection, network, switch, server, wireless access point, cables, sockets Creating Media: Desktop Publishing Texts, images, advantages, disadvantages, communicate, font, style, landscape, portrait, orientation, placeholder, template, layout, content, desktop publishing, copy, paste, purpose, benefits Creating Media: Stop Frame Animation Animation, flip book, stop-frame, frame, sequence, image, photograph, setting, character, events, onion skinning, consistency, evaluation, delete, media, import, transition Data and Information: Branching Databases Attribute, value, questions, table, objects, branching, database, objects, equal, even, separate, structure, compare, order, organise, selecting, information, decision tree Programming A: Sequencing Sounds Scratch, programming, blocks, commands, code, sprite, costume, stage, backdrop, motion, turn, point in direction, go to, glide, sequence, event, task, design,	<u>Year 5</u> Computing Systems and Networks: Systems and Searching System, connection, digital, input, process, storage, output, search, search engine, refine, index, bot, ordering, links, algorithm, search engine optimisation (SEO), web crawler, content creator, selection, ranking Creating Media: Introduction to Vector Graphics Vector, drawing tools, object, toolbar, vector drawing, move, resize, colour, rotate, duplicate/copy, zoom, select, align, modify, layers, order, copy, paste, group, ungroup, reuse, reflection Creating Media: Video Production Video, audio, camera, talking head, panning, close up, video camera, microphone, lens, mid-range, long shot, moving subject, side by side, angle (high, low, normal), static, zoom, pan, tilt, storyboard, filming, review, import, split, trim, clip, edit, reshoot, delete, reorder, export, evaluate, share Data and Information: Flat-file Databases Database, data, information, record, field, sort, order, group, search, value, criteria, graph, chart, axis, compare, filter, presentation Programming A: Selection in Physical Computing Microcontroller, USB, components, connection, infinite loop, output component, motor, repetition, count-controlled loop, Crumble controller, switch, LED,

delete, reset, algorithm, predict, effect, change, value, instructions, design. Year 2 Computing Systems and Networks: Information Technology Around Us Information Technology (IT), computer, barcode, scanner/scan Creating Media: Digital Music Music, quiet, loud, feelings, emotion(s), pattern, rhythm, pulse, pitch, tempo, notes, create, beat, instrument, open, edit Creating Media: Digital Photography Device, camera, photograph, capture, image, digital, landscape, portrait, framing, subject, compose, light sources, flash, focus, background, editing, filter, format, framing, lighting Data and Information: Pictograms More than, less than, most, least, common, popular, organise, data, object, tally chart, votes, total, pictogram, enter, data, compare, objects, count, explain, attribute, group, same, different, conclusion, block diagram, sharing Programming A: Robot Algorithms Instruction, sequence, clear, unambiguous, algorithm, program, order, prediction, artwork, design, route, mat, debugging, decomposition Programming B: Programming Quizzes Sequence, command, program, run, start, outcome, predict, blocks, design, actions, sprite, project, modify, change, algorithm, build, match, compare, debug, features, evaluate, decomposition, code.	run the code, order, note, chord, algorithm, bug, debug, code. Programming B: Events and Actions in Programs Motion, event, sprite, algorithm, logic, move, resize, extension lock, pen up, set up, pen, design, action, debugging, errors, set up, code, test, debug, actions Year 4 Computing Systems and Networks – Connecting Computers: The Internet Internet, network, router, security, switch, server, wireless action point (WAP), website, web page, web address, routing, web browser, World Wide Web, content, links, files, use, download, sharing, ownership, permission, information, accurate, honest, content, adverts Creating Media: Audio Production Audio, microphone, speaker, headphones, input device, output device, sound, podcast, edit, trim, align, layer, import, record, playback, selection, load, save, export, MP3, evaluate, feedback Creating Media: Photo Editing Image, edit, digital, crop, rotate, undo, save, adjustments, effects, colours, hue, saturation, sepia, vignette, image, retouch, clone, select, combine, made up, real, composite, cut, copy, paste, alter, background, foreground, zoom, undo, font Data and Information: Data Logging data, table, layout, input device, sensor, logger, logging, data point, interval, analyse, dataset, import, export, logged, collection, review, conclusion Programming A: Repetition in Shapes Logo (programming environment), program, turtle, commands, code snippet, algorithm, design, debug, pattern, repeat, repetition, count-controlled loop, value, trace, decompose, procedure. Programming B: Repetition in Games Scratch, programming, sprite, blocks, code, loop, repeat, value, infinite loop, count-controlled loop, costume, repetition, forever, animate, event block,	Sparkle, crocodile clips, connect, battery box, program, condition, input, output, selection, action, debug, circuit, power, cell, buzzer Programming B: Making Quizzes Selection, condition, true, false, count-controlled loop, outcomes, conditional statement, algorithm, program, debug, question, answer, task, design, input, implement, test, run, setup, operator Year 6 Computing Systems and Networks: Communication and Collaboration Communication, protocol, data, address, internet protocol (IP), Domain Name Server (DNS), packet, header, data payload, chat, explore, slide deck, reuse, remix, collaboration, internet, public, private, one-way, two-way, one-to-one, one-to-many Creating Media: Webpage Creation Website, web page, browser, media, HTML (hypertext markup language), logo, layout, header, media, purpose, copyright, fair use, home page, preview, evaluate, device, Google Sites, breadcrumb trail, navigation, hyperlink, subpage, evaluate, implication, external link, embed. Creating Media: 3D Modelling TinkerCAD, 2D, 3D, shapes, select, move, perspective, view, handles, resize, lift, lower, recolour, rotate, duplicate, group, cylinder, cube, cuboid, sphere, cone, prism, pyramid, placeholder, hollow, choose, combine, construct, evaluate, modify Data and Information: Introduction to Spreadsheets Data, collecting, table, structure, spreadsheet, cell, cell reference, data item, format, formula, calculation, spreadsheet, input, output, operation, rang, duplicate, sigma, propose, question, data set, organised, chart, evaluate, results, sum, comparison, software, tools. Programming A: Variables in Games Variable, change, name, value, set, design, event, algorithm, code, task, artwork, program, project, code, test, debug, improve, evaluate, share, assign, declare Programming B: Sensing Movement
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