Building Ambition, Resilience & Respect

Computing Curriculum

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https://teachcomputing.org/curriculum/

Haveley Hey Curriculum Statement for Computing

Intent

Computing at Haveley Hey Primary School intends to develop 'digital citizens' through a modern, ambitious and relevant education in computing. We want to equip pupils to use computational thinking and creativity that will enable them to become active participants in the digital world. It is important to us that the children understand how to use the ever-changing technology to express themselves, as tools for learning and as a means to drive their generation forward into the future.

Whilst ensuring they understand the advantages and disadvantages associated with online experiences, we want children to develop as respectful, responsible and confident users of technology, aware of measures that can be taken to keep themselves and others safe online.

Our aim is to provide a computing curriculum that is designed to balance acquiring a broad and deep knowledge alongside opportunities to apply skills in various digital contexts. Beyond teaching computing discreetly, we will give pupils the opportunity to apply and develop what they have learnt across wider learning in the curriculum. Within Haveley Hey we have a specialist teacher of Computing to deliver Music effectively in KS2.

Implementation

Curriculum	Key Concepts	Subject Specific Approach
The Primary National Curriculum for Computing is split into three strands: information technology, digital literacy and computer science. • Information technology is about the use of computers for functional purposes, such as collecting and presenting information, or using search technology. • Digital literacy is about the safe and responsible use of technology, including recognising its advantages for collaboration or communication. • Computer science helps children of all ages to understand how computers and networks work. It gives all children the opportunity to learn basic computer programming, from simple floor robots in Years 1 and 2, right up to creating on-screen computer games and programmes by Year 6, using programming software such as Scratch.	Our Computing curriculum is taught through the Teach Computing scheme which is split into 4 main concepts that are taught progressively through Years 1-6. They are: • Computing systems and networks • Creating media • Programming • Data and information The Programming and Creating Media units are revisited in two different terms within the school year, so that the concepts and key skills can be consolidated.	At Haveley Hey, we aim to use a variety of strategies to deliver effective lessons. Computing is taught collaboratively, specifically using pair programming and peer instruction, and also structured group tasks, to stimulate discussion and share understanding. We use physical computing and making activities that offer tactile and sensory experiences to enhance learning. Combining electronics and programming with arts and crafts provides children with a creative, engaging context to explore and apply computing concepts. Our teachers model processes or practices - everything from debugging code to binary number conversions - using techniques such as worked examples and live coding. Modelling is particularly beneficial to our children as it providing scaffolding that can be gradually taken away. We use project-based learning activities to provide children with the opportunity to apply and consolidate their knowledge and understanding.

Impact

Pupil Voice	Evidence of Knowledge and Skills

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Computing within Haveley Hey helps us learn important skills for our futures. We have the opportunity to use a wide range of technology that we don't have access to outside of school.

We can use Seesaw to share our learning with our families at home and love receiving comments and feedback from our parents and carers whilst we are at school. In KS2 we enjoy having a specialist Computing teacher who is very knowledgeable and supportive when learning with new programs and devices.

During our time at Haveley Hey we have the option to further our skills by being part of Computing clubs which allows us to expand our learning further and focus on areas of particular individual interests.

We measure the impact of our curriculum and evidence of knowledge and skills through the following methods:

- Pupil discussions and interviewing the pupils about their learning (pupil voice).
- Staff discussions about children's learning through staff meeting time and meetings with the Curriculum lead, Computing lead and Computing teacher.
- Uploading evidence to Seesaw to keep an online journal of children's work
- Use of assessment sheets to assess understanding of the learning objectives in every lesson as well as noting those children working below and above expectations.

Resilience

Computing at Haveley Hey encourages the children to build skills using technology that they are often unfamiliar with. Children will understand that learning new skills is not always an easy task and they may face challenges when exploring new devices and programs but that each mistake is helping them learn.

Ambition

Computing is becoming an ever-increasingly vital part of the modern world. By teaching our children Computing skills from a young age, we are opening doors for their future and giving them life skills necessary for them to pursue future careers. Children of all abilities are challenged and encouraged to be the best they can be. We aim to bring abstract concepts to life with real-world contextual examples and show our learners how their skills will benefit their future.

Respect

An important part of the Computing curriculum is being safe online and learning that technology is a very valuable, powerful tool and needs to be respected. E-safety is threaded throughout the curriculum and children learn about online identify and how to communicate online safely and respectfully.

We are fortunate to have invested in a lot of new technology over the past academic year which children are taught to treat with respect.

	Computing Long Term Plan	Computing at Haveley Hey Primary School intends to develop 'digital citizens' through a modern, ambitious and relevant education in computing. We want to equip pupils to use computational thinking and creativity that will enable them to become active participants in the digital world. It is important to us that the children understand how to use the ever-changing technology to express themselves, as tools for learning and as a means to drive their generation forward into the future. Whilst ensuring they understand the advantages and disadvantages associated with online experiences, we want children to develop as respectful, responsible and confident users of technology, aware of measures that can be taken to keep themselves and others safe online.				
		Autumn		**Spring**		**Summer**
	Autumn 1	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
	Subject content Key stage 1 ➤ 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					
Year 1		Technology around us	Digital Painting	Moving a Robot	Grouping Data	Digital writing
Main teaching points		Learners will develop their understanding of technology and how it can help them in their everyday lives. They will start to become familiar with the different components of a computer by developing their keyboard and mouse skills. Learners will also consider how to use technology responsibly.	Learners will develop their understanding of a range of tools used for digital painting. They then use these tools to create their own digital paintings, while gaining inspiration from a range of artists' work. The unit concludes with learners considering their preferences when painting with and without the use of digital devices.	Learners will be introduced to early programming concepts. Learners will explore using individual commands, both with other learners and as part of a computer program. They will identify what each command for the floor robot does, and use that knowledge to start predicting the outcome of programs. The unit is paced to ensure time is spent on all aspects of programming, and builds knowledge in a structured manner. Learners are also introduced to the early	This unit introduces learners to data and information. Labelling, grouping, and searching are important aspects of data and information. Searching is a common operation in many applications, and requires an understanding that to search data, it must have labels. This unit of work focuses on assigning data (images) with different labels in order to demonstrate how	Learners will develop their understanding of the various aspects of using a computer to create and manipulate text. They will become more familiar with using a keyboard and mouse to enter and remove text. Learners will also consider how to change the look of their text, and will be able to justify their reasoning in making these changes. Finally, learners will consider the differences between using a computer to create text, and writing text on paper. They

				stages of program design through the introduction of algorithms.	computers are able to group and present data.	will be able to explain which method they prefer and explain their reasoning for choosing this.
Key links						
Year 2	Information Technology around us	Digital Photography	Robot algorithms	Pictograms	Creating Music	Programming quizzes
Main teaching points	Learners will develop their understanding of what information technology (IT) is and will begin to identify examples. They will discuss where they have seen IT in school and beyond, in settings such as shops, hospitals, and libraries. Learners will then investigate how IT improves our world, and they will learn about the importance of using IT responsibly.	Learners will learn to recognise that different devices can be used to capture photographs and will gain experience capturing, editing, and improving photos. Finally, they will use this knowledge to recognise that images they see may not be real.	This unit develops learners' understanding of instructions in sequences and the use of logical reasoning to predict outcomes. Learners will use given commands in different orders to investigate how the order affects the outcome. They will also learn about design in programming. They will develop artwork and test it for use in a program. They will design algorithms and then test those algorithms as programs and debug them.	Learners will begin to understand what the term data means and how data can be collected in the form of a tally chart. They will learn the term 'attribute' and use this to help them organise data. They will then progress onto presenting data in the form of pictograms and finally block diagrams. Learners will use the data presented to answer questions.	In this unit, learners will be using a computer to create music. They will listen to a variety of pieces of music and consider how music can make them think and feel. Learners will compare creating music digitally and non-digitally. Learners will look at patterns and purposefully create music.	This unit initially recaps on learning from the Year 1 ScratchJr unit 'Programming B – Programming animations'. Learners begin to understand that sequences of commands have an outcome, and make predictions based on their learning. They use and modify designs to create their own quiz questions in ScratchJr, and realise these designs in ScratchJr using blocks of code. Finally, learners evaluate their work and make improvements to their programming projects.
Key links		Builds on Technology around us in Yr 1	Builds on Digital Painting in Yr 1	Builds on Moving a Robot in Yr 1	Builds on Grouping Data in Yr 1	Builds on Programming animations in Yr 1and Robot Algorithms in Yr 2

Subject content Key stage 2:

➢ 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

Year 3	Connecting computers	Stop-frame animation	Sequencing sounds	Branching databases	Desktop publishing	Events and actions in programs
Main teaching points	Children will develop their understanding of digital devices, with an initial focus on inputs, processes, and outputs. They will also compare digital and non-digital devices. Next, children will be introduced to computer networks, including devices that make up a network's infrastructure, such as wireless access points and switches. Finally, children will discover the benefits of	Children will use a range of techniques to create a stop-frame animation using tablets. Next, they will apply those skills to create a story-based animation. This unit will conclude with children adding other types of media to their animation, such as music and text.	This unit explores the concept of sequencing in programming through Scratch. It begins with an introduction to the programming environment, which will be new to most children. They will be introduced to a selection of motion, sound, and event blocks which they will use to create their own programs, featuring sequences. The final project is to make a representation of a piano. The unit is paced to focus on all aspects of	During this unit, Children will develop their understanding of what a branching database is and how to create one. They will gain an understanding of what attributes are and how to use them to sort groups of objects by using yes/no questions. The children will create physical and on-screen branching databases. Finally, they will evaluate the effectiveness of branching databases and will decide what types of data should be	Children will become familiar with the terms 'text' and 'images' and understand that they can be used to communicate messages. They will use desktop publishing software and consider careful choices of font size, colour and type to edit and improve premade documents. Children will be introduced to the terms 'templates', 'orientation', and 'placeholders' and begin to understand	This unit explores the links between events and actions, while consolidating prior learning relating to sequencing. Children begin by moving a sprite in four directions (up, down, left, and right). They then explore movement within the context of a maze, using design to choose an appropriately sized sprite. This unit also introduces programming extensions, through the use of **Pen** blocks. Children are given the

	connecting devices in a network.		sequences, and make sure that knowledge is built in a structured manner. Children also apply stages of program design through this unit.	presented as a branching database.	how these can support them in making their own template for a magazine front cover. They will start to add text and images to create their own pieces of work using desktop publishing software. Children will look at a range of page layouts thinking carefully about the purpose of these and evaluate how and why desktop publishing is used in the real world.	opportunity to draw lines with sprites and change the size and colour of lines. The unit concludes with Children designing and coding their own maze-tracing program.
Key links	Builds on Technology around us in Yr 2	Builds on Digital Painting in Yr 1	Builds on Programming Quizzes us in Yr 2	Builds on Pictograms in Yr 2	Builds on Technology Digital Writing in Yr 1	Builds on Sequencing Sounds in Yr 3
Year 4	**The internet**	**Audio editing**	**Repetition in shapes**	**Data logging**	**Photo editing**	**Repetition in games**
Main teaching points	Children will apply their knowledge and understanding of networks, to appreciate the internet as a network of networks which need to be kept secure. They will learn that the World Wide Web is part of the internet, and will be	In this unit, children will initially examine devices capable of recording digital audio, which will include identifying the input device (microphone) and output devices (speaker or headphones) if available. Children will discuss the ownership of digital audio and the	Children will create programs by planning, modifying, and testing commands to create shapes and patterns. They will use Logo, a text-based programming language. This unit is the first of the two programming units in Year 4, and looks at	In this unit, pupils will consider how and why data is collected over time. Pupils will consider the senses that humans use to experience the environment and how computers can use special input devices called sensors to monitor the environment. Pupils	In this unit, children will develop their understanding of how digital images can be changed and edited, and how they can then be resaved and reused. They will consider the impact that editing images can have, and	Children will explore the concept of repetition in programming using the Scratch environment. The unit begins with a Scratch activity similar to that carried out in Logo in Programming unit A, where children can discover similarities between two

	given opportunities to explore the World Wide Web for themselves in order to learn about who owns content and what they can access, add, and create. Finally, they will evaluate online content to decide how honest, accurate, or reliable it is, and understand the consequences of false information.	copyright implications of duplicating the work of others. In order to record audio themselves, children will use Audacity to produce a podcast, which will include editing their work, adding multiple tracks, and opening and saving the audio files. Finally, children will evaluate their work and give feedback to their peers.	repetition and loops within programming	will collect data as well as access data captured over long periods of time. They will look at data points, data sets, and logging intervals. Pupils will spend time using a computer to review and analyse data. Towards the end of the unit, pupils will pose questions and then use data loggers to automatically collect the data needed to answer those questions.	evaluate the effectiveness of their choices.	environments. Children look at the difference between count-controlled and infinite loops, and use their knowledge to modify existing animations and games using repetition. Their final project is to design and create a game which uses repetition, applying stages of programming design throughout.
Key links	Builds on Connecting Computers in Yr 3	Builds on Animations in Yr 3	Builds on Events, Actions and Programs in Yr 3	Builds on Branching Databases in Yr 3	Builds on Digital Photography in Yr 2	Builds on Repetition in Shapes in Yr 4
Year 5	**Sharing information**	**Video editing**	**Selection in Physical computing**	**Flat-file databases**	**Vector drawing**	**Selection in quizzes**
Main teaching points	Children develop their understanding of computer systems and how information is transferred between systems and devices. Children consider small-scale systems as well as large-scale systems. They explain the input, output, and process aspects of a variety of different real-world systems. Children discover how	Children will learn how to create short videos by working in pairs or groups. As they progress through this unit, they will be exposed to topic-based language and develop the skills of capturing, editing, and manipulating video. Children are guided with step-by-step support to take their idea from conception to completion. At the conclusion of the unit, children have the	In this unit, children will use physical computing to explore the concept of selection in programming through the use of the Crumble programming environment. Children will be introduced to a microcontroller (Crumble controller) and learn how to connect and program it to control components (including output devices — LEDs and motors). Children will be	This unit looks at how a flat-file database can be used to organise data in records. Pupils use tools within a database to order and answer questions about data. They create graphs and charts from their data to help solve problems. They use a real-life database to answer a question, and present their work to others.	In this unit, children start to create vector drawings. They learn how to use different drawing tools to help them create images. Children recognise that images in vector drawings are created using shapes and lines, and each individual element in the drawing is called an object. Children layer their objects and	Children will develop their knowledge of 'selection' by revisiting how 'conditions' can be used in programming, and then learning how the 'if... then... else...' structure can be used to select different outcomes depending on whether a condition is 'true' or 'false'. They represent this understanding in algorithms, and then by

	information is found on the World Wide Web, through learning how search engines work (including how they select and rank results) and what influences searching, and through comparing different search engines.	opportunity to reflect on and assess their progress in creating a video.	introduced to conditions as a means of controlling the flow of actions in a program. Children will make use of their knowledge of repetition and conditions when introduced to the concept of selection (through the 'if...then...' structure) and write algorithms and programs that utilise this concept. To conclude the unit, children will design and make a working model of a fairground carousel that will demonstrate their understanding of how the microcontroller and its components are connected, and how selection can be used to control the operation of the model. Throughout this unit, children will apply the stages of programming design.		begin grouping and duplicating them to support the creation of more complex pieces of work.	constructing programs in the Scratch programming environment. They learn how to write programs that ask questions and use selection to control the outcomes based on the answers given. They use this knowledge to design a quiz in response to a given task and implement it as a program. To conclude the unit, children evaluate their program by identifying how it meets the requirements of the task, the ways they have improved it, and further ways it could be improved.
Key links	Builds on The Internet in Yr4	Builds on Audio recording in Yr 4	Builds on repetition in games in yr 4	Builds on Data Logging in yr 4	Builds on Photo Editing in yr 4	Builds on Selection in Physical computing in yr 5
Year 6	Internet communication	Webpage creation	Variable in games	Introduction to spreadsheets	3D modelling	Sensing

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Main teaching points						
	In this unit children explore how data is transferred over the internet. Children initially focus on addressing, before they move on to the makeup and structure of data packets. Children then look at how the internet facilitates online communication and collaboration; they complete shared projects online and evaluate different methods of communication. Finally, they learn how to communicate responsibly by considering what should and should not be shared on the internet.	Children will be introduced to creating websites for a chosen purpose. Children identify what makes a good web page and use this information to design and evaluate their own website using Google Sites. Throughout the process, children pay specific attention to copyright and fair use of media, the aesthetics of the site, and navigation paths.	This unit explores the concept of variables in programming through games in Scratch. First, children find out what variables are and relate them to real-world examples of values that can be set and changed. Then they use variables to create a simulation of a scoreboard. In Lessons 2, 3, and 5, which follow the Use-Modify-Create model, children experiment with variables in an existing project, then modify them, before they create their own project. In Lesson 4, children focus on design. Finally, in Lesson 6, children apply their knowledge of variables and design to improve their games in Scratch.	This unit introduces the children to spreadsheets. They will be supported in organising data into columns and rows to create their own data set. Children will be taught the importance of formatting data to support calculations, while also being introduced to formulas and will begin to understand how they can be used to produce calculated data. Children will be taught how to apply formulas that include a range of cells, and apply formulas to multiple cells by duplicating them. Children will use spreadsheets to plan an event and answer questions. Finally, children will create graphs and charts, and evaluate their results in comparison to questions asked.	Children will develop their knowledge and understanding of using a computer to produce 3D models. Children will initially familiarise themselves with working in a 3D space, moving, resizing, and duplicating objects. They will then create hollow objects using placeholders and combine multiple objects to create a model of a desk tidy. Finally, children will examine the benefits of grouping and ungrouping 3D objects, then go on to plan, develop, and evaluate their own 3D model of a building. (visit from a 3D artist)	This unit is the final KS2 programming unit and brings together elements of all the four programming constructs: sequence from Year 3, repetition from Year 4, selection from Year 5, and variables (introduced in Year 6 – 'Programming A'. It offers pupils the opportunity to use all of these constructs in a different, but still familiar environment, while also utilising a physical device — the micro:bit. The unit begins with a simple program for pupils to build in and test within the new programming environment, before transferring it to their micro:bit. Pupils then take on three new projects in Lessons 2, 3, and 4, with each lesson adding more depth. Design features prominently in this unit. A design template is introduced in Lesson 3, initially scaffolded to give pupils the opportunity to create code from a given design. In Lesson 4 that scaffolding is gradually reduced, then in Lesson 5,

						pupils create their own design, using the same template. In the final lesson, pupils will apply their knowledge of the programming constructs and use their design to create their own micro:bit-based step counter.
Key Links	Builds on Internet Communication in Yr5	Builds on Video Editing in Yr5	Builds on Selection in Quizzes in Yr5	Builds on Flat-File Databases in Yr5	Builds on Vector Drawing in Yr5	Builds on Variables in Games in Yr 6

	Progression Document Computing						
	An EYFS student can:	**A Year 1 student can:**	**A Year 2 student can:**	**A Year 3 student can:**	**A Year 4 student can:**	**A Year 5 student can:**	**A Year 6 student can:**
Computing systems and networks **1 - Technology around us** **2 - Information technology around us** **3 - Connecting computers** **4 - The internet** **5 – Systems and Searching** **6 – Communication and Collaboration**	Recognise technology that is used at home and in school. Understand what a computer is and the different uses of computers i.e. learning, communicating, finding information, playing games etc. Understand some ways to stay safe when using electronic devices and the internet (Education for a Connected World) https://czone.eastsussex.gov.uk/safeguarding/safeguarding-in-schools-colleges-and-early-years-settings/education-for-a-connected-world-resources/	Explain that technology is something that can help us and give examples Identify examples of technology including a computer Recognise that choices are made when using technology Explain why rules are needed when using technology Choose a piece of technology to do a job and show how it can be used in different ways Identify the main parts of a computer	Recognise different types of computers used in school as part of information technology Recognise the features of information technology Talk about the uses and benefits of information technology and understand how rules can help us make choices Describe some uses of computers Identify information technology in and beyond school	Describe what an input is and explain how a process acts in it Explain how a process produces an output and the effect of changing a process Recognise how computer systems can change the way we work Identify how devices in a network are connected with each other Explain how information is passed through multiple connections Identify the benefits of computer networks Identify input and output devices Explain how a computer network can be used to	Describe how networks physically connect to other networks Explain how networked devices make up the internet Outline how websites can be shared via the worldwide web Describe how content can be added and accessed on the world wide web Recognise how content on the world wide web is created by people Evaluate the consequences of unreliable content	I can identify how to use a search engine I can describe how search engines select results I can explain how search results are ranked I can recognise why the order of results is important, and to whom I can recognise how we communicate using technology I can evaluate different methods of inline communication	I can explain how computers can be connected together to form systems I can recognise the role of computer systems in our lives I can recognise how information is transferred over the internet I can explain how sharing information online lets people in different places work together I can contribute to a shared project online I can evaluate different ways of working together online

		Use a mouse in different ways Use a keyboard to type and edit text	Show how to use information technology safely	share information and the role of a switch, server and wireless access point Identify network devices around me Explain how networks can be connected to other networks			
End Points	To understand what a computer is including different types To suggest ways to use a computer safely	- Recognise different types of computers - Recognise different hardware for computers - Describe how computers can store information - Suggest ways to use computers safely		- Understand how computers are connected - Identify input and output devices - Describe how computers communicate over the internet. - Recognise how information can be added to the World Wide Web.		- Explain how computer networks are connected - Explain how to search for information safely on the internet - Understand how the internet is used for collaborative work	
Creating media A **1 - Digital writing** **2 - Digital photography** **3 - Stop-frame animation** **4 - Audio production**	Manage a device by correctly closing websites or apps and safely turning on and off. Input commands using the space bar, backspace, enter, letters and numbers on a keyboard on any device (including on a tablet). Input commands using a mouse to control a cursor and use the left click to select options OR use finger control to interact with a tablet (double tap, swipe) Experience simple apps and software and use these to present ideas	Recognise that a keyboard is used to enter text into a computer and use the Shift key to change the output of a key Recognise that text can be changed in appearance and by editing Consider the impact of choices made	Recognise that some digital devise can capture images using a camera Explain how to take a 'good' photograph and composition choices including light Recognise that photographs can be saved and viewed later	Explain that an animation is made up of a sequence of images Identify that computing device needs to be in a fixed position Recognise that smaller movements create smoother animation Explain the impact of adding other media to an animation	Identify that sound can be recorded using an input device and played using an output device Recognise that recorded audio can be stored on a computer and be edited Recognise that sound can be represented as a waveform	I can explain what makes a video effective I can identify digital devices that can record video I can capture video using a range of techniques I can create a story board	I can review an existing website and consider its structure I can plan the features of a webpage I can consider the ownership and use of images (copyright) I can recognise the need to preview pages

5 – Video Production **6 – Web Page Creation**		Use letter, number, punctuation, special characters and space keys to enter text into a computer Select text Choose options to change the appearance of text Position the text cursor and use backspace to remove text Use Undo Explain and predict the outcome of a command	Identify how a photograph could be improved Recognised that photographs can be changed and are not always accurate Capture a clear digital image in landscape and portrait, using zoom and considering lighting View photographs on a digital device and decide which to keep Improve a photograph by retaking it or using filters	Explain that a project must be exported so it can be shared Plan an animation using a storyboard Capture an image using the onion skinning tool and moving a subject between captures Review a captured sequence of frames and remove frames to improve animation Add media to enhance an animation and review the completed project	Recognise that audio can be layered to play multiple sounds Consider the results of editing choices made Record and play sound using a computer Import audio into a project Delete a section of audio Change the volume of tracks in a project	I can identify how video can be improved through reshooting and editing I can consider the impact of choices made when making an sharing a video	I can outline the need for a navigation path I can recognise the implications of linking to content owned by other people
End Points	- How to turn the computer on and off safely - How to open and close apps securely - How to interact with computers using a variety of inputs such as mouse, keyboard and touchscreen		- How to use specific apps to create content - How to use a keyboard - How to edit the content and appearance of text - How to capture images	- How to use specific apps to create content - How to save projects safely - How to review and edit projects - How to record sound - How to edit sound including volume		- How to use specific apps to create content - How to use a camera to capture video - How to edit video and add features such as titles	

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		- How to edit images				- Understand the types of media which can be displayed on a web page - How to add content to a web page. - How to create a 'bread crumb tail' of web pages
Programming A **1 - Moving a robot** **2 - Robot algorithims** **3 - Sequencing sounds** **4 - Repetition in shapes** **5 – Selection in Physical computing** **6 – Variables in Games**		Understand that a program is a set of commands that a computer can run Recall that a series of instructions can be issued before they are enacted List which commands can be used on a given device Run a command on a floor robot Choose a series of words that can be enacted as a program Choose a series of commands that can be run as a program	Describe a series of instructions as a sequence Explain what happens when we change the order of instructions Use logical reasoning to predict the outcome of a program Choose a series of words that can be enacted as a sequence Choose a series of instructions that can be run as a program Create and debug a program I have written	Explain that programs start because of an input Identify that a program includes a sequence of commands (process) Explain how the order of commands can affect a program's output Build a sequence of commands combined in a program Order commands in a program Create a sequence of commands to produce a given outcome	Identify a loop command in a program and explain how it is used Explain the purpose of indefinite and count controlled loops Justify when to use a loop and when not to Explain the important of instruction order in a loop Recognise that not all tools enable more than one process to be run at once List an everyday task as a set of instructions	I can control a simple circuit connected to a computer I can write a program that includes count-controlled loops I can explain how a loop can stop when a condition is met I can explain how a loop can be used to repeatedly check whether a condition has been met I can design a physical project that includes a selection I can create a program that	I can define a 'variable' as something that is changeable I can explain why a variable is used in a program I can explain why a variable is used in a program I can choose how to improve a game by using variables I can design a project that builds on given example I can use my design to create a project I can evaluate my project

		Run a program on a device	Trace a sequence to make a prediction and test the prediction		including repetition Plan a program using indefinite and count controlled loop to produce a given outcome Use tools to enable more than one process to be run at the same time	controls a physical computing project	
End Points			- Describe a sequence of instructions as a sequence - Design a sequence of commands - Run a sequence of commands - Begin to debug a sequence of commands	- Understand that a sequence is several commands in order. - Create a sequence of commands for a specific purpose. - Begin to use loops in sequences	- Understand how to connect a circuit - Understand input and output - Use selection to produce a sequence with different outcomes - Understand variables - Introduce a variety of variables into a game such as lives, score and timer.	
Data and information **1 - Grouping data** **2 - Pictograms** **3 - Branching databases**		Identify that objects can be counted Recognise that information can be presented in different ways Identify some attributes of an	Use a tally chart to collect data and suggest appropriate headings Compare objects that have been grouped by attribute using	Investigate questions with yes/no answers and identify their attributes Select an attribute to separate objects into 2 groups Explain that a branching database is an tool used	Explain that data gathered over time can be used to answer questions Identify that sensors are input devices use for data collection	I can use a form to record information I can compare paper and computer-based databases I can outline how grouping and then	I can identify questions which can be answered using data I can explain how objects can be described using data

4 - Data logging **5 – Flat File Databases** **6 - Spreadsheets**		object and choose one to group objects by Collect simple data and show that it can be counted Describe the properties of an object Group objects to answer questions and group by similarities Describe a group of objects	comparative questions Use a computer program to present information in different ways Give simple examples of why some information should not be shared Enter data onto a computer and view it in different formats including pictograms Recognise that people, animals and objects can be described using attributes Use a computer to answer comparison questions (graphs, tables)	to identify objects using fewer questions Suggest real-world applications for branching databases Create questions with yes/no answers Choose questions that will divide objects into equal subgroups Identify an object using a branching database Retrieve information from different levels of a branching database	Explain how data logger captures 'data points' from sensors Use a digital device to collect data at chosen automatic intervals Use logged data to find information Use a computer program to sort data by one attribute Export information in different formats	sorting data allows us to answer questions I can explain how tools can be used to select specific data I can explain how computer programs can be used to compare data visually I can apply my knowledge of a database to ask and answer real-world questions	I can explain how formulas can be used to produce calculated data I can apply formulas to data, including duplicating I can create a spreadsheet to plan an event I can choose suitable ways to present data
End Points		- Collect simple data	- Ask questions to organise and sort data	Use a computer to search, sort and filter data.		

			- Group objects together based on properties - Enter data onto a computer - Use a computer to answer questions including comparison.	- Use a computer to collect data - Use a computer to analyse data - Use a computer to display data in different ways.		Use a computer to enter data Apply simple formulas to complete tasks Choose suitable ways to present data.	
Creating media B **1 - Digital painting** **2 - Making music** **3 - Desktop publishing** **4 - Photo editing** **5 – Introduction to Vector Graphics** **6 – 3D Modelling**		Explain what different freehand tools do Recognise computers can be used to create art Recognise a tool can be adjusted to suit my need and recognise its appropriate use Compare painting using a computer with painting with brushes Create a picture using freehand tools Use shape and line tools for precision Use a range of colours and the fill tool to colour an enclosed area	Identify that computers can be used to play sounds of different instruments Identify that the same pattern can be represented in different ways Compare playing music on instruments with making music on a computer Use a computer to experiment with different sounds and create a musical pattern Use a computer to compose a rhythm and a melody and play them in different ways (eg. tempo)	Recognise how text and images convey information Understand the difference between landscape and portrait Consider how different layouts can suit different purposes Recognise that DTP pages can be structured with placeholders Recognise how different font styles and effects are used for different purposes Change page orientation Add and organise text and image placeholders Move, resize and rotate images	Explain how digital images can be changed for different purposes Recognise that not all images are real Consider the impact of changed made on the quality of an image Change the composition of an image (arrange, crop and cut) Apply a change globally to an image (adjust colours apply filters, add effects) Apply changes locally to an image (retouch and reuse)	I can identify that drawing tools can be used to produce different outcomes I can create a vector drawing by combining shapes I can use tools to achieve a desired effect I can recognise that vector drawings consist of layers I can group objects to make them easier to work with I can evaluate my drawing by suggesting improvements and creating alternatives	I can use a computer to create and manipulate 3D digital objects I can compare working digitally with 2D and 3D graphics I can construct a digital 3D model of a digital object I can identify that physical objects can be broken down into a collection of 3D shapes I can design a digital model by combining 3D objects I can develop and improve a digital 3D model against design criteria

		Combine a range of tools to create a piece of artwork	Evaluate and improve a musical composition created on a computer	Edit text including choosing fonts and applying effects Review a document	Make additions to an image (draw, add text, add an element)		
End Points			- Understand the computers can be used to create artwork - Create artwork using a variety of tools - Use a computer to experiment with sounds - To evaluate and improve media using a computer	- Understand how to create publications using text and images. - Understand how to edit text and images - Use a computer to import and save images - Use a variety of tools to edit images - Understand the danger of fake images	- Add objects into a project - Combine objects to make complex shapes - Edit objects including size, shape and colour - Plan, create and evaluate a final project.		

Programming B **1 Programming animations** **2 - Programming quizzes** **3 - - Events and actions in programs** **4 - Repetition in games** **5 –Selection in Quizzes** **6 –Sensing Movement**		I can choose a command for a given purpose I can show that a series of commands can be joined together I can identify the effect of changing a value I can explain that each sprite has its own instructions I can design the parts of a project I can use my algorithm to create a program	I can explain that a sequence of commands has a start I can explain that a sequence of commands has an outcome I can create a program using a given design I can change a given design I can create a program using my own design I can decide how my project can be improved	I can explain how a sprite moves in an existing project I can create a program to move a sprite in four directions I can adapt a program to a new context I can develop my program by adding features I can identify and fix bugs in a program	I can develop the use of count-controlled loops in a different programming environment I can explain that in programming there are infinite loops and count-controlled loops I can develop a design that includes two or more loops which run at the same time I can modify an infinite loop in a given program I can design a project that includes repetition I can create a project that includes repetition	I can explain how selection is used in computer programs I can relate that a conditional statement connects a condition to an outcome I can explain how selection directs the flow of a program I can design a program that uses selection I can create a program that uses selection I can evaluate my program	I can create a program to run on a controllable device I can explain that selection can control the flow of a program I can update a variable with a user input I can use an conditional statement to compare a variable to a value I can design a project that uses inputs and outputs on a controllable device I can develop a program to use inputs and outputs on a controllable device
End Points		- To create sequences for a given purpose		- Add a range of features into a coding project	- Use selection to create different outcomes	

		- Create projects with several sequences - Design a project to meet given criteria - Evaluate and debug a project.	- Know how to move sprites within a project - Design a project using loops. - Use a different types of loops to suit different purposes	- Use variables to create more complex sequences - Use inputs and outputs on a controllable device

	Progression Document E-Safety						
	An EYFS student can:	**A Year 1 student can:**	**A Year 2 student can:**	**A Year 3 student can:**	**A Year 4 student can:**	**A Year 5 student can:**	**A Year 6 student can:**
Self-image and Identity *This strand explores the differences between online and offline identity beginning with self-awareness, shaping online identities and how media impacts on gender and stereotypes. It identifies effective routes for reporting and support and explores the impact of online technologies on self-image and behaviour.*	I can recognise that I can say 'no' / 'please stop' / 'I'll tell' / 'I'll ask' to somebody who asks me to do something that makes me feel sad, embarrassed or upset. I can explain how this could be either in real life or online.	I can recognise that there may be people online who could make me feel sad, embarrassed or upset. If something happens that makes me feel sad, worried, uncomfortable or frightened I can give examples of when and how to speak to an adult I can trust.	I can explain how other people's identity online can be different to their identity in real life. I can describe ways in which people might make themselves look different online. I can give examples of issues online that might make me feel sad, worried, uncomfortable or frightened; I can give examples of how I might get help.	I can explain what is meant by the term 'identity' I can explain how I can represent myself in different ways online. I can explain ways in which and why I might change my identity depending on what I am doing online (e.g. gaming; using an avatar; social media).	I can explain how my online identity can be different to the identity I present in 'real life'. Knowing this, I can describe the right decisions about how I interact with others and how others perceive me	I can explain how identity online can be copied, modified or altered. I can demonstrate responsible choices about my online identity, depending on context	I can describe ways in which media can shape ideas about gender. I can identify messages about gender roles and make judgements based on them. I can challenge and explain why it is important to reject inappropriate messages about gender online. I can describe issues online that might make me, or others feel sad, worried, uncomfortable or frightened. I know and can give

							examples of how I might get help, both on and offline. I can explain why I should keep asking until I get the help I need.
Online relationships *This strand explores how technology shapes communication styles and identifies strategies for positive relationships in online communities. It offers opportunities to discuss relationships and behaviours that may lead to harm and how positive*	I can recognise some ways in which the internet can be used to communicate. I can give examples of how I (might) use technology to communicate with people I know.	I can use the internet with adult support to communicate with people I know. I can explain why it is important to be considerate and kind to people online	I can use the internet to communicate with people I don't know well (e.g. email a pen pal in another school/ country). I can give examples of how I might use technology to communicate with others I don't know well.	I can describe ways people who have similar interests can get together online. I can give examples of technology-specific forms of communication (e.g. emojis, text speak) I can explain some risks of communicating online with others I don't know well. I can explain why I should be careful who I trust online and what information I can trust them with. I can explain how my and other people's	I can describe strategies for safe and fun experiences in a range of online social environments. I can give examples of how to be respectful to others online.	I can explain that there are some people I communicate with online who may want to do me or my friends harm. I can recognise that this is not my/our fault. I can make positive contributions and be part of online communities. I can describe some of the communities in which I am	I can show I understand my responsibilities for the well-being of others in my online social group. I can explain how impulsive and rash communications online may cause problems (e.g. flaming, content produced in live streaming). I can demonstrate how I would support others

online interaction can empower and amplify voice.				feelings can be hurt by what is said or written online. I can explain why I can take back my trust in someone or something if I feel nervous, uncomfortable or worried. I can explain what it means to 'know someone' online and why this might be different from knowing someone in real life. I can explain what is meant by 'trusting someone online'. I can explain why this is different from 'liking someone online'.		involved and describe how I collaborate with others positively.	(including those who are having difficulties) online.
Online reputation *This strand explores the concept of reputation and how others may use online information to make judgements. It*	I can identify ways that I can put information on the internet.	I can recognise that information can stay online and could be copied. I can describe what information I should not put online without	I can explain how information put online about me can last for a long time. I know who to talk to if I think someone has made a mistake	I can search for information about myself online. I can recognise I need to be careful before I share anything about myself or others online.	I can describe how others can find out information about me by looking online. I can explain ways that some of the information	I can search for information about an individual online and create a summary report of the information I find.	I can explain how I am developing an online reputation which will allow other people to form an opinion of me. I can describe some simple

offers opportunities to develop strategies to manage personal digital content effectively and capitalise on technology's capacity to create effective positive profiles			asking a trusted adult first.	about putting something online.	I know who I should ask if I am not sure if I should put something online.	about me online could have been created, copied or shared by others	I can describe ways that information about people online can be used by others to make judgments about an individual.	ways that help build a positive online reputation.
Online bullying *This strand explores bullying and other online aggression and how technology impacts those issues. It offers strategies for effective reporting and intervention and considers how bullying and other*	I can describe ways that some people can be unkind online. I can offer examples of how this can make others feel.	I can describe how to behave online in ways that do not upset others and can give examples.	I can give examples of bullying behaviour and how it could look online. I understand how bullying can make someone feel. I can talk about how someone can/would get help about being	I can explain what bullying is and can describe how people may bully others. I can describe rules about how to behave online and how I follow them.	I can identify some online technologies where bullying might take place. I can describe ways people can be bullied through a range of media (e.g. image, video, text, chat). I can explain why I need to think	I can recognise when someone is upset, hurt or angry online. I can describe how to get help for someone that is being bullied online and assess when I need to do or say something or tell someone.	I can describe how to capture bullying content as evidence (e.g. screengrab, URL, profile) to share with others who can help me. I can identify a range of ways to report concerns both in school and at home about online bullying.

aggressive behaviour relates to legislation.			bullied online or offline.		carefully about how content I post might affect others, their feelings and how it may affect how others feel about them (their reputation).	I can explain how to block abusive users. I can explain how I would report online bullying on the apps and platforms that I use. I can describe the helpline services who can support me and what I would say and do if I needed their help (e.g. Childline).	
Managing online information *This strand explores how online information is found, viewed and interpreted. It offers strategies for effective*	I can talk about how I can use the internet to find things out. I can identify devices I could use to access information on the internet. I can give simple examples of how to find information (e.g. search engine, voice activated searching).	I can use the internet to find things out. I can use simple keywords in search engines. I can describe and demonstrate how to get help from a trusted adult or	I can use keywords in search engines I can demonstrate how to navigate a simple webpage to get to information I need (e.g. home, forward, back	I can use key phrases in search engines. I can explain what autocomplete is and how to choose the best suggestion. I can explain how the internet can	I can analyse information and differentiate between 'opinions', 'beliefs' and 'facts. I understand what criteria have to be met before something is a 'fact'.	I can use different search technologies I can evaluate digital content and can explain how I make choices from search results. I can explain key concepts including data, information, fact, opinion belief, true, false, valid,	I can use search technologies effectively. I can explain how search engines work and how results are selected and ranked. I can demonstrate the strategies I would apply to be

searching, critical evaluation and ethical publishing.		helpline if I find content that makes me feel sad, uncomfortable worried or frightened.	buttons; links, tabs and sections). I can explain what voice activated searching is and how it might be used (e.g. Alexa,). I can explain the difference between things that are imaginary, 'made up' or 'make believe' and things that are 'true' or 'real'. I can explain why some information I find online may not be true.	be used to sell and buy things. I can explain the difference between a 'belief', an 'opinion' and a 'fact'.	I can describe how I can search for information within a wide group of technologies (e.g. social media, image sites, video sites). I can describe some of the methods used to encourage people to buy things online (e.g. advertising offers; in-app purchases, pop-ups) and can recognise some of these when they appear online. I can explain that some people I 'meet online' may be computer programmes pretending to be real people	reliable and evidence. I understand the difference between online misinformation and dis-information. I can explain what is meant by 'being sceptical'. I can explain what is meant by a 'hoax'. I can explain why I need to think carefully before I forward anything online. I can explain why some information I find online may not be honest, accurate or legal. I can explain why information that is on a large number of sites may still be inaccurate or untrue.	discerning in evaluating digital content. I can describe how some online information can be opinion and can offer examples. I can explain how and why some people may present 'opinions' as 'facts. I can define the terms 'influence', 'manipulation' and 'persuasion' and explain how I might encounter these online. I can demonstrate strategies to enable me to analyse and evaluate the validity of 'facts' and I can explain why using these strategies are important I can identify, flag and report inappropriate content.

					I can explain why lots of people sharing the same opinions or beliefs online does not make those opinions or beliefs true		
Health, wellbeing and lifestyle *This strand explores the impact that technology has on health, well-being and lifestyle. It also includes understanding negative behaviours and issues amplified and sustained by online technologies and the strategies for dealing with them.*	I can identify rules that help keep us safe and healthy in and beyond the home when using technology. I can give some simple examples	I can explain rules to keep us safe when we are using technology both in and beyond the home. I can give examples of some of these rules.	I can explain simple guidance for using technology in different environments and settings. I can say how those rules/guides can help me.	I can explain why spending too much time using technology can sometimes have a negative impact on me; I can give some examples of activities where it is easy to spend a lot of time engaged (e.g. games, films, videos).	I can explain how using technology can distract me from other things I might do or should be doing. I can identify times or situations when I might need to limit the amount of time I use technology. I can suggest strategies to help me limit this time.	I can describe ways technology can affect healthy sleep and can describe some of the issues. I can describe some strategies, tips or advice to promote healthy sleep with regards to technology.	I can describe common systems that regulate age-related content (e.g. PEGI, BBFC, parental warnings) and describe their purpose. I can assess and action different strategies to limit the impact of technology on my health (e.g. nightshift mode, regular breaks, correct posture, sleep, diet and exercise).

							I can explain the importance of self-regulating my use of technology; I can demonstrate the strategies I use to do this (e.g. monitoring my time online, avoiding accidents).
Privacy and security
This strand explores how personal online information can be used, stored, processed and shared. It offers both behavioural and technical strategies to limit impact on privacy and protect data and systems | I can identify some simple examples of my personal information (e.g. name, address, birthday, age, location).

 I can describe the people I can trust and can share this with; I can explain why I can trust them. | I can recognise more detailed examples of information that is personal to me (e.g. where I live, my family's names, where I go to school).

I can explain why I should always ask a trusted adult before I share any information | I can describe how online information about me could be seen by others

I can describe and explain some rules for keeping my information private.

I can explain what passwords are and can use passwords for my | I can give reasons why I should only share information with people I choose to and can trust.

I can explain that if I am not sure or I feel pressured, I should ask a trusted adult I understand and can give reasons why passwords are important. | I can explain what a strong password is.

I can describe strategies for keeping my personal information private, depending on context.

I can explain that others online can pretend to be me or other people, | I can create and use strong and secure passwords.

I can explain how many free apps or services may read and share my private information (e.g. friends, contacts, likes, images, videos, voice, messages, geolocation) with others. | I use different passwords for a range of online services I can describe effective strategies for managing those passwords (e.g. password managers, acronyms, stories). I know what to do if my password is lost or stolen. |

against compromise		about myself online. I can explain how passwords can be used to protect information and devices.	accounts and devices. I can explain how many devices in my home could be connected to the internet and can list some of those devices.	I can describe simple strategies for creating and keeping passwords private. I can describe how connected devices can collect and share my information with others.	including my friends. I can suggest reasons why they might do this. I can explain how internet use can be monitored	I can explain how and why some apps may request or take payment for additional content (e.g. in-app purchases) and explain why I should seek permission from a trusted adult before purchasing.	I can explain what app permissions are and can give some examples from the technology or services I use. I can describe simple ways to increase privacy on apps and services that provide privacy settings. I can describe ways in which some online content targets people to gain money or information Illegally; I can describe strategies to help me identify such content (e.g. scams, phishing).
Copyright and ownership	I know that work I create belongs to me.	I can explain why work I create	I can describe why other	I can explain why copying someone else's work from	When searching on the internet	I can assess and justify when it is acceptable to use	I can demonstrate the use of search

This strand explores the concept of ownership of online content. It explores strategies for protecting personal content and crediting the rights of others as well as addressing potential consequences of illegal access, download and distribution.	I can name my work so that others know it belongs to me.	using technology belongs to me. I can say why it belongs to me (e.g. 'it is my idea' or 'I designed it'). I can save my work so that others know it belongs to me (e.g. filename, name on content).	people's work belongs to them. I can recognise that content on the internet may belong to other people.	the internet without permission can cause problems. I can give examples of what those problems might be	for content to use, I can explain why I need to consider who owns it and whether I have the right to reuse it. I can give some simple examples.	the work of others. I can give examples of content that is permitted to be reused.	tools to find and access online content which can be reused by others. I can demonstrate how to make references to and acknowledge sources I have used from the internet.