

Norton Computing progression

Vision/intent: Through our curriculum we teach our Christian values: Hope, Wisdom, Community and Respect so that our children are prepared spiritually, morally and culturally for a life in modern Britain. Norton schools Vision:

Hope: (strive) that our children lead happy and fulfilled lives through seeing the best in others and in themselves; they are resilient, forward looking and appreciative

Wisdom: (Think) that our children have the essential knowledge, skills and behaviours to guarantee that they thrive in modern Britain; the wisdom to preserve the beauty of our planet; the wisdom to make informed, positive decisions

Community: (Act) that our children celebrate differences and value everyone in our Norton family and wider community; they celebrate belonging to a local, national and international community and they expect inclusion

Respect: (Respect) our children know that everyone has the right to be themselves. Norton is a place where everyone can feel safe, be happy and learn. Everyone at our school is equal and acts with respect and kindness towards each other. Our children respect themselves and are proud to be part of an inclusive school.

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
EYFS	Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes.					
Year 1	<p><u>Computing systems and networks</u></p> <p>Technology around us</p> <p>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.</p>	<p><u>Digital media</u></p> <p>Digital painting</p> <p>During this unit, learners 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.</p>	<p><u>Digital media</u></p> <p>Digital writing</p> <p>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 will be able to explain which method they prefer and</p>	<p><u>Data and information</u></p> <p>Grouping data</p> <p>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 computers are able to group and present data.</p>	<p><u>Programming A</u></p> <p>Moving a robot</p> <p>This unit introduces learners 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 floor robot command 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 stages of program design</p>	<p><u>Programming B</u></p> <p>Introduction to animation</p> <p>Learners will be introduced to on-screen programming through ScratchJr. Learners will explore the way a project looks by investigating sprites and backgrounds. They will use programming blocks to use, modify, and create programs. Learners will also be introduced to the early stages of program design through the introduction of algorithms.</p>

			explain their reasoning for choosing this.		through the introduction of algorithms.	
Year 2	<p><u>Computing systems and networks</u></p> <p>Information technology around us</p> <p>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.</p>	<p><u>Digital media</u></p> <p>Digital photography</p> <p>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.</p>	<p><u>Digital media</u></p> <p>Making music</p> <p>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.</p>	<p><u>Data and information</u></p> <p>Pictograms</p> <p>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.</p>	<p><u>Programming A</u></p> <p>Robot algorithms</p> <p>This unit develops pupils' understanding of instructions in sequences and the use of logical reasoning to predict outcomes. Pupils will use given commands in different orders to investigate how the order affects the outcome. Pupils 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.</p>	<p><u>Programming B</u></p> <p>An introduction to quizzes</p> <p>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.</p>
Year 3	<p><u>Computing systems and networks</u></p> <p>Connecting computers</p> <p>Learners 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, learners will be introduced to computer networks, including devices that make up a network's infrastructure, such as</p>	<p><u>Digital media</u></p> <p>Animation</p> <p>Learners 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 learners adding other types of media to their animation, such as music and text.</p>	<p><u>Digital media</u></p> <p>Desktop publishing</p> <p>Learners 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. Learners will</p>	<p><u>Data and information</u></p> <p>Branching databases</p> <p>Learners 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. Learners will be</p>	<p><u>Programming A</u></p> <p>Sequence in music</p> <p>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 learners. They will be introduced to a selection of motion, sound, and event blocks which they will use to create their own</p>	<p><u>Programming B</u></p> <p>Events and actions</p> <p>This unit explores the links between events and actions, whilst consolidating prior learning relating to sequencing. Learners will begin by moving a sprite in four directions (up, down, left and right). They will then explore movement within the context of a maze, using design to choose an</p>

	wireless access points and switches. Finally, learners will discover the benefits of connecting devices in a network.		be introduced to the terms 'templates', 'orientation', and 'placeholders' and begin to understand 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. Learners 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.	introduced to the terms 'templates', 'orientation', and 'placeholders' and begin to understand 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. Learners 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.	programs, featuring sequences. The final project is to make a representation of a piano. The unit is paced to focus on all aspects of sequences, and make sure that knowledge is built in a structured manner. Learners also apply stages of program design through this unit.	appropriately sized sprite. This unit also introduces programming extensions, through the use of pen blocks. Learners are given the opportunity to draw lines with sprites and change the size and colour of lines. The unit concludes with learners designing and coding their own maze tracing program.
Year 4	<p><u>Computing systems and networks</u></p> <p>The internet</p> <p>Learners 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 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. This unit</p>	<p><u>Digital media</u></p> <p>Audio editing</p> <p>In this unit, learners 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. Learners will discuss the ownership of digital audio and the copyright implications of duplicating the work of others. In order to record audio themselves, learners will use Audacity to produce a podcast, which will include editing their work, adding multiple tracks, and opening and saving the audio files. Finally, learners will evaluate their work and</p>	<p><u>Digital media</u></p> <p>Photo editing</p> <p>In this unit, learners 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 evaluate the effectiveness of their choices.</p>	<p><u>Data and information</u></p> <p>Data logging</p> <p>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 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</p>	<p><u>Programming A</u></p> <p>Repetition in shapes</p> <p>This unit is the first of the two programming units in Year 4, and looks at repetition and loops within programming. Pupils will create programs by planning, modifying, and testing commands to create shapes and patterns. They will use Logo, a text-based programming language.</p>	<p><u>Programming B</u></p> <p>Repetition in games</p> <p>This unit explores the concept of repetition in programming using the Scratch environment. It begins with a Scratch activity similar to that carried out in Logo in Programming unit A, where learners can discover similarities between two environments. Learners 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</p>

	requires devices with an internet connection. Chrome Music Lab is used in one lesson to demonstrate content which can be produced on the World Wide Web.	give feedback to their peers.		automatically collect the data needed to answer those questions.		programming design throughout.
Year 5	<p><u>Computing systems and networks</u></p> <p>Sharing information</p> <p>In this unit, learners will develop their understanding of computer systems and how information is transferred between systems and devices. Learners will consider small-scale systems as well as large-scale systems. They will explain the input, output, and process aspects of a variety of different real-world systems. Learners will also take part in a collaborative online project with other class members and develop their skills in working together online.</p>	<p><u>Digital media</u></p> <p>Vector drawing</p> <p>In this unit learners will find out that vector images are made up of shapes. They will learn how to use the different drawing tools and how images are created in layers. They will explore the ways in which images can be grouped and duplicated to support them in creating more complex pieces of work. This unit is planned using the Google Drawings app other alternative pieces of software are available.</p>	<p><u>Digital media</u></p> <p>Video editing</p> <p>This unit gives learners the opportunity to learn how to create short videos in 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. Active learning is encouraged through guided questions and by working in small groups to investigate the use of devices and software. Learners are guided with step-by-step support to take their idea from conception to completion. At the teacher's discretion, the use of green screen can be incorporated into this unit. At the conclusion of the unit, learners have the opportunity to reflect on and assess their progress in creating a video.</p>	<p><u>Data and information</u></p> <p>Flat file databases</p> <p>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.</p>	<p><u>Programming A</u></p> <p>Selection in physical computing</p> <p>In this unit, learners will use physical computing to explore the concept of selection in programming through the use of the Crumble programming environment. Learners will be introduced to a microcontroller (Crumble controller) and learn how to connect and program components (including output devices- LEDs and motors) through the application of their existing programming knowledge. Learners are introduced to conditions as a means of controlling the flow of actions and make use of their knowledge of repetition and conditions when introduced to the concept of selection (through the if, then structure).</p>	<p><u>Programming B</u></p> <p>Selection in quizzes</p> <p>In this unit, pupils develop their knowledge of selection by revisiting how conditions can be used in programs 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 constructing programs using the Scratch programming environment. They use their knowledge of writing programs and using selection to control outcomes to design a quiz in response to a given task and implement it as a program.</p>
Year 6	<p><u>Computing systems and networks</u></p> <p>Communication</p> <p>In this unit, the class will learn about the World</p>	<p><u>Digital media</u></p> <p>3D modelling</p> <p>During this unit, learners will develop their</p>	<p><u>Digital media</u></p> <p>Web page creation</p> <p>This unit introduces learners to the creation of</p>	<p><u>Data and information</u></p> <p>Spreadsheets</p> <p>This unit introduces the learners to spreadsheets.</p>	<p><u>Programming A</u></p> <p>Variables in games</p> <p>This unit explores the concept of variables in</p>	<p><u>Programming B</u></p> <p>Sensing</p> <p>This unit is the final KS2 programming unit and</p>

	<p>Wide Web as a communication tool. First, they will learn how we find information 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. They will then investigate different methods of communication, before focusing on internet-based communication. Finally, they will evaluate which methods of internet communication to use for particular purposes.</p>	<p>knowledge and understanding of using a computer to produce 3D models. Learners will initially familiarise themselves with working in a 3D space, including combining 3D objects to make a house and examining the differences between working digitally with 2D and 3D graphics. Learners will progress to making accurate 3D models of physical objects, such as a pencil holder, which include using 3D objects as placeholders. Finally, learners will examine the need to group 3D objects, then go on to plan, develop, and evaluate their own 3D model of a photo frame.</p>	<p>websites for a chosen purpose. Learners identify what makes a good web page and use this information to design and evaluate their own website using Google Sites. Throughout the process learners pay specific attention to copyright and fair use of media, the aesthetics of the site, and navigation paths.</p>	<p>They will be supported in organising data into columns and rows to create their own data set. Learners 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. Learners will be taught how to apply formulas that include a range of cells, and apply formulas to multiple cells by duplicating them. Learners will use spreadsheets to plan an event and answer questions. Finally, learners will create graphs and charts, and evaluate their results in comparison to questions asked.</p>	<p>programming through games in Scratch. First, pupils will learn what variables are, and relate them to real-world examples of values that can be set and changed. Pupils will then use variables to create a simulation of a scoreboard. In Lessons 2, 3, and 5, which follow the Use-Modify-Create model, pupils will experiment with variables in an existing project, then modify them, then they will create their own project. In Lesson 4, pupils will focus on design. Finally, in Lesson 6, pupils will apply their knowledge of variables and design to improve their game in Scratch.</p>	<p>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 learners the opportunity to use all of these constructs in a different, but still familiar environment whilst also utilising a physical device - the micro:bit. The unit begins with a simple program which learners build in and test in the programming environment before transferring it to their micro:bit. Learners then take on three new projects in lessons 2, 3 and 4, with each lesson adding more depth.</p>
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