The Erme Primary School

COMPUTING CURRICULUM OVERVIEW

"What a computer is to me is the most remarkable tool that we have ever come up with. It's the equivalent of a bicycle for our minds." **Steve Jobs**	**VISION:** At Moorsway, we aim to equip students with a uniquely powerful set of tools to interact successfully with an increasing computer dominated world. We provide our pupils with the skills to participate effectively and safely in the digital world both in school and at home and celebrate the positive effects that social media can have. We understand that technology can cause negative issues both in and outside of the classroom and believe firmly that the one of the best tools we have is to educate our pupils that there are choices online.

Algorithms Computing systems Creating media Data & information Design & development

Effective use of tools Impact of technology Networks Programming Safety & security

EYFS	**EYFS R**	Show resilience and perseverance in the face of a challenge. PSED know and talk about the different factors that support their overall health and wellbeing: -sensible amounts of 'screen time' PSED Develop their small motor skills so that they can use a range of tools competently, safely and confidently. PD Explore, use and refine a variety of artistic effects to express their ideas and feelings. EA&D
	EYFS ELG	Be confident to try new activities and show independence, resilience and perseverance in the face of challenge. PSED Explain the reasons for rules, know right from wrong and try to behave accordingly. PSED Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. EA&D

Meadowsfoot Year 1	Y1 A+B	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Unit overview	**Computing Systems and Networks - Technology Around Us** AL CS Children develop their understanding of technology and how it can help them.	**Creating Media - Digital Painting** ET CM Children explore the world of digital art and its exciting range of creative tools.	**Programming - Moving a Robot** AL PG This unit introduces children to early programming concepts.	**Data and Information - Grouping Data** AL DI This unit introduces pupils to data and information.	**Creating Media - Digital Writing** ET CM This unit promotes children's understanding of the various aspects of using a computer to create and change text.	**Programming - Programming Animations** PG DD This unit introduces children to on-screen programming through ScratchJr.
	Key Vocabulary	*technology, mouse, computer, keyboard, responsible, network system*	*paint program, tool, paintbrush, erase, fill, undo, shape tools, line tool, fill tool, undo tool, colour, brush style, brush size, pictures, painting, computers*	*action, command, outcome, device, beebot, direction, button, forwards backwards, left, right, route*	*group, data, count, present, similarities, sort*	*text, keyboard, cursor, size colour, font, undo, edit backspace*	*animation, programming, sprite, command, device, sequence*
	Small Steps	**Technology in our classroom:** To identify technology **Using technology:** To identify a computer and its main parts **Developing mouse skills:** To use a mouse in different ways **Using a computer keyboard:** To use a keyboard to type **Developing keyboard skills:** To use the keyboard to edit text **Using a computer responsibly:** To create rules for using technology responsibly	**How can we paint using computers?** To describe what different freehand tools do **Using shape and lines:** To use the shape tool and the line tools **Making careful choices:** To make careful choices when painting a digital picture **Why did I choose that?** To explain why I chose the tools I used **Painting all by myself:** To use a computer on my own to paint a picture **Comparing computer art and painting:** To compare painting a picture on a computer and on paper	**Buttons**: To explain what a given command will do **Directions**: To act out a given word **Forwards and backwards**: To combine 'forwards' and 'backwards' commands to make a sequence **Four directions**: To combine four direction commands to make sequences **Getting there**: To plan a simple program **Routes:** To find more than one solution to a problem	**Label and match:** To label objects **Group and count:** To identify that objects can be counted **Describe an object:** To describe objects in different ways **Making different groups:** To count objects with the same properties **Comparing groups:** To compare groups of objects **Answering questions:** To answer questions about groups of objects	**Exploring the keyboard:** To use a computer to write **Adding and removing text:** To add and remove text on a computer **Exploring the toolbar:** To identify that the look of text can be changed on a computer **Making changes to text:** To make careful choices when changing text **Explaining my choices:** To explain why I used the tools that I chose Pencil or keyboard: To compare typing on a computer to writing on paper	**Comparing tools:** To choose a command for a given purpose **Joining blocks:** To show that a series of commands can be joined together **Making a change:** To identify the effect of changing a value **Adding sprites:** To explain that each sprite has its own instructions **Project design:** To design the parts of a project **Following my design:** To use my algorithm to create a program
	Key Knowledge	Explain how technology can help us Identify examples of technology Recognise that choices are made when using technology Explain why rules are needed when using technology Name main parts of a computer Describe how to use technology safely	Explain what different freehand tools do Recognise tools can be adjusted to suit need Decide when it's appropriate to use each tool Explain impact of choices made	List which commands can be given on a device Explain what a given command does Match a command to an outcome	Know that objects can be counted Recognise that information can be presented	Know the function of a keyboard and how different keys enter different characters Recognise that text can be changed Know the purpose of the backspace key	List commands that can be used on a given device Explain what a given command does Understand that a program is a set of commands a computer can run
	Key Skills	Choose a piece of technology to do a job Recognise that technology can be used in different ways Use a mouse in different ways Use a keyboard to type and edit text	Create a picture using freehand tools Use shape and line tools Use a range of paint colours Use the fill tool Use the undo button to correct a mistake Combine a range of tools to create a piece of art	Predict the outcome of a command on a device Run a command on a robot Choose a command for a given purpose	Identify attributes of an object Collect simple data and show it can be counted Describe properties of an object Choose an attribute to sort by Group objects to answer a question	Select text Change appearance of text Use undo and backspace to remove text Consider the impact of choices made	Predict the outcome of a command on a device Choose a command for a given purpose Build a sequence of commands in steps

					Explain that objects can be grouped by similarities		

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Mothecombe Year 2/3	Y2/3 A	Autumn 1A	Autumn 2A	Spring 1A	Spring 2A	Summer 1A	Summer 2A
	Unit overview	**Computing Systems and Networks – IT Around Us** **NW CS** How is Information Technology (IT) being used for good in our lives?	**Creating Media - Digital Photography** **ET CM** Children will learn to recognise that different devices can be used to capture photographs and will gain experience capturing, editing and improving photos.	**Programming - Robot Algorithms** **AL PG** Children develop their understanding of instructions in sequences ad the use of logical reasoning to predict outcomes.	**Data and Information - Branching Databases** **DI ET** Learners will develop their understanding of what a branching database is and how to create one.	**Creating Media - Stop-Frame Animation** **ET CM** Learners will use a range of techniques to create a stop-frame animation using tablets, creating a story-based animation with music and text.	**Programming - Sequencing Sounds** **PG DD** This unit explores the concept of sequencing in programming through Scratch. They will be introduced to a selection of motion, sound, and event blocks which they will use to create their own programs, featuring sequences.
	Key Vocabulary	*technology, mouse, computer, keyboard, responsible, network system*	*photographs, digital, device, capture, landscape, portrait, lighting, effects, image, edit*	*instructions, sequence, predict, logical, outcome, code, debug, program*	*branching database, question, objects, structure, order, test, information*	*stopframe, animation, media, smoother, capture, sequence, frame, review*	*sequence, scratch, programming, sprite, command, outcome, order, appearance*
	Small Steps	**Technology in our classroom:** To identify technology **Using technology:** To identify a computer and its main parts **Developing mouse skills:** To use a mouse in different ways **Using a computer keyboard:** To use a keyboard to type **Developing keyboard skills:** To use the keyboard to edit text **Using a computer responsibly:** To create rules for using technology responsibly	**Taking photographs:** To use a digital device to take a photograph **Landscape or portrait?** To make choices when taking a photograph **What makes a good photograph:** To describe what makes a good photograph **Lighting:** To decide how photographs can be improved **Effects:** To use tools to change an image **Is it real?** To recognise that photos can be changed	**Giving instructions**: To describe a series of instructions as a sequence **Same but different:** To explain what happens when we change the order of instructions **Making predictions:** To use logical reasoning to predict the outcome of a program **Mats and routes:** To explain that programming projects can have code and artwork **Algorithm design:** To design an algorithm **Break it down:** To create and debug a program that I have written	**Yes or no questions:** To create questions with yes/no answers **Making groups:** To identify the attributes needed to collect data about an object **Creating a branching database:** To create a branching database **Structuring a branching database:** To explain why it is helpful for a database to be well structured **Planning a branching database:** To plan the structure of a branching database **Making a dinosaur identifier:** To independently create an identification tool	**Can a picture move?** To explain that animation is a sequence of drawings or photographs **Frame by frame:** To relate animated movement with a sequence of images **What's the story?** To plan an animation **Picture perfect:** To identify the need to work consistently and carefully **Evaluate and make it great!** To review and improve an animation **Lights, camera, action:** To evaluate the impact of adding other media to an animation	**Scratch:** To explore a new programming environment **Programming sprites:** To identify that commands have an outcome **Sequences:** To explain that a program has a start **Ordering commands:** To recognise that a sequence of commands can have an order **Looking good:** To change the appearance of my project **Making an instrument:** To create a project from a task description
	Key Knowledge	Explain how technology can help us Identify examples of technology Recognise that choices are made when using technology Explain why rules are needed when using technology Name the main parts of a computer	Recognise what makes a good photo Make choices about composition and lighting Recognise that photos can be change after they have been taken	Describe that a series of instructions is a sequence Explain what happens when we change the order of instructions Recognise that you can predict the outcome of a program	Give examples of yes/no questions Describe what a branching database is, and its purpose	Explain what an animation is Recognise that smaller movements create smoother animation Explain impact of adding extra media	Describe the purpose of the project, for example, to create sounds when keys are pressed Explain what sequence means and demonstrate it in an algorithm Explain why the code is in that particular sequence

		Describe how to use technology safely					
	Key Skills	Choose a piece of technology to do a job Recognise that technology can be used in different ways Use a mouse in different ways Use a keyboard to type and edit text	Capture an imagine in landscape or portrait View photographs on a digital device Use zoom, composition and lighting Edit photos using filters	Choose a series of instructions that can be run as a program Run a program on a device Debug a program that I have written	I can select objects to arrange in a branching database I can group objects using my own yes/no questions I can test my branching database to see if it works	Capture an image Move a subject between captures Review and edit captured sequence of frames Add media to enhance an animation Review a completed product	Choose a name that describes the action of the sprite Choose relevant backdrops Create algorithms Adapt code for additional sprites Run their code and identify if it meets the requirements of the task Evaluate how successful they were in meeting the task requirements
Mothecombe Year 2/3	**Y2/3 B**	**Autumn 1B**	**Autumn 2B**	**Spring 1B**	**Spring 2B**	**Summer 1B**	**Summer 2B**
	Unit overview	**Computing Systems and Networks – Connecting Computers** **NW CS** Children are challenged to develop their understanding of digital devices, with an initial focus on inputs, processes, and outputs.	**Creating Media - Digital Music** **CM DD** Children will explore how music can make them think and feel. They will make music with both percussion instruments and digital tools.	**Programming - Programming Quizzes** **PG DD** This unit deepens children's knowledge of ScratchJr, building on prior learning.	**Data and Information - Pictograms** **DI ET** This unit introduces children to the term 'data'. They begin to understand what data means and how this can be collected.	**Creating Media - Desktop Publishing** **ET CM** Learners will become familiar with the terms 'text' and 'images' and understand that they can be used to communicate messages.	**Programming - Events and Actions in Programs** **PG DD** This unit explores the links between events and actions, whilst consolidating prior learning relating to sequencing.
	Key Vocabulary	*digital device, input, process, output, network, connection, server, switch, wireless access point (wi-fi), password*	*music, pattern, tempo, rhythm, notes, digital, compose*	*programming, instructions, sequence, order, command, program, predict, create, debug*	*tally chart, pictogram, data, attribute, compare*	*layout, format, size, colour, font, placeholder, text, image, desktop publishing*	*motion, event, sprite, algorithm, logic, move, resize, extension block, pen up, set up, pen, design, action, debugging, errors, setup, code, test, debug, actions.*
	Small Steps	**How does a digital device work?** Introduces input, process, and output, and the importance of secure passwords. **What parts make up a digital device?** Explores how inputs, processes, and outputs relate to familiar devices and their components. **How do digital devices help us?** Compares creating work with digital devices versus non-digital tools. **How am I connected?** Introduces how devices connect and share information through networks. **How are computers connected?** Explains key network components and the	**How music makes us feel:** To say how music can make us feel **Rhythms and patterns:** To identify that there are patterns in music **How music can be used:** To describe how music can be used in different ways **Notes and tempo:** To show how music is made from a series of notes **Creating digital music:** To create music for a purpose **Reviewing and editing music:** To review and refine our computer work	**Scratch Jr recap:** To explain that a sequence of commands has a start **Outcomes:** To explain that a sequence of commands has an outcome **Using a design:** To create a program using a given design **Changing a design:** To change a given design **Designing and creating a program:** To create a program using my own design **Evaluating:** To decide how my project can be improved	**Counting and comparing:** To recognise that we can count and compare objects using tally charts **Enter the data:** To recognise that objects can be represented as pictures **Creating pictograms:** To create a pictogram **What is an attribute?:** To select objects by attribute and make comparisons **Comparing people:** To recognise that people can be described by attributes **Presenting information:** To explain that we can present information using a computer	**Words and pictures:** To recognise how text and images convey information **Can you edit it?** To recognise that text and layout can be edited **Great template!** To choose appropriate page settings **Can you add content?** To add content to a desktop publishing publication **Lay it out:** To consider how different layouts can suit different purposes **Why desktop publishing?** To consider the benefits of desktop publishing	**Moving a sprite:** To explain how a sprite moves in an existing project **Maze movement:** To create a program to move a sprite in four directions **Drawing lines:** To adapt a program to a new context **Adding features:** To develop my program by adding features **Debugging movement:** To identify and fix bugs in a program **Making a project:** To design and create a maze-based challenge

		benefits of connecting computers. **What does our school network look like** Examines real-world network setups and links them to prior learning.					
	Key Knowledge	Devices use input, process, and output (IPO) Digital devices process data, unlike non-digital tools. Networks connect devices to share information. Networks include servers, switches, Wi-Fi access points. Passwords keep devices/data safe.	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	Describe a series of instructions as a sequence Explain what happens when changing the order of instructions	Know what a tally chart is Know what a pictogram is Explain what an attribute is	Outline an approach to complete a task Choose a specific layout and explain why it is most suited Name different formats, including size, colour and font	Explain what a sequence is Identify that a programme includes sequences or commands Identify what a process is Explain that the order of commands can affect a program's output
	Key Skills	Identify input and output devices and describe how they use IPO. Compare digital and non-digital tools. Explain how devices connect and share data in a network. Recognise key parts of a network. Create secure passwords.	Experiment with different sounds on a computer Use a computer to compose a rhythm and a melody on a given theme Evaluate a musical composition	Choose a series of commands that can be run as a program Use logical reasoning to make predictions Create and debug programs	Collect data, record/ organise/ compare in a tally chart Create pictograms from tally charts Create pictograms to arrange objects by attribute Ask/answer questions about data Draw conclusions from data	Use placeholders to divide the page Add text and images Format some of the text Evaluate and suggest improvements	Build a sequence of commands Combine commands in a program Order commands in a program Create a sequence of commands to produce a given outcome

Riverside Year 4/5	**Y4/5 A**	**Autumn 1A**	**Autumn 2A**	**Spring 1A**	**Spring 2A**	**Summer 1A**	**Summer 2A**
	Unit overview	**Computing Systems and Networks – The Internet** **NW SS** Learners will apply their knowledge and understanding of networks, to appreciate the internet as a network of networks which need to be kept secure.	**Creating Media – Audio Production** **ET CM** Learners will identify the input device (microphone) and output devices (speaker or headphones) required to work with sound digitally.	**Programming – Repetition in Shapes** **AL PG** This unit looks at repetition and loops within programming. Children will create programs by planning, modifying, and testing commands to create shapes and patterns.	**Data and Information – Data Logging** **CS DI** In this unit, pupils will consider how and why data is collected over time.	**Creating Media – Vector Graphics** **ET CM** In this unit, learners start to create vector drawings. They learn how to use different drawing tools to help them create image	**Programming – Selection In Quizzes** **AL PG** 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.
	Key Vocabulary	*internet, network, router, security, switch, server, wireless access 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*	*audio, microphone, speaker, headphones, input device, output device, sound, podcast, edit, trim, align, layer, import, record, playback, selection, load, save, export, mp3, evaluate, feedback.*	*repeat, repetition, sequence, loop, instruction, pattern, indefinite count-controlled, outcome*	*data, table, layout, input device, sensor, logger, logging, data point, interval, analyse, dataset, import, export, logged, collection, review, conclusion.*	*shapes, lines, vector, combining, effective, layers, manipulate , zoom*	*selection, condition, true, false, count-controlled loop, outcomes, conditional statement, algorithm, program, debug, question, answer, task, design, input, implement, test, run, setup, operator*

	Small Steps	**Connecting networks:** To describe how networks physically connect to other networks **What is the internet made of?** To recognise how networked devices make up the internet **Sharing information:** To outline how websites can be shared via the World Wide Web **What is a website?** To describe how content can be added and accessed on the World Wide Web (WWW) **Who owns the web?** To recognise how the content of the WWW is created by people **Can I believe what I read?** To evaluate the consequences of unreliable content	**Recording sound:** To identify that sound can be recorded **Editing audio:** To explain that audio recordings can be edited **Planning a podcast:** To recognise the different parts of creating a podcast project **Creating a podcast:** To apply audio editing skills independently **Combining audio:** To combine audio to enhance my podcast project **Evaluating podcasts:** To evaluate the effective use of audio	**Programming a screen turtle:** To identify that accuracy in programming is important **Programming letters:** To create a program in a text-based language **Patterns and repeats:** To explain what 'repeat' means **Using loops to create shapes:** To modify a count-controlled loop to produce a given outcome **Breaking things down:** To decompose a task into small steps **Creating a program:** To create a program that uses count-controlled loops to produce a given outcome	**Answering questions:** To explain that data gathered over time can be used to answer questions **Data collection:** To use a digital device to collect data automatically **Logging:** To explain that a data logger collects 'data points' from sensors over time **Analysing data:** To recognise how a computer can help us analyse data **Data for answers:** To identify the data needed to answer questions **Answering my question:** To use data from sensors to answer questions	**Drawing tools:** To identify that drawing tools can be used to produce different outcomes **Creating images:** To create a vector drawing by combining shapes **Making effective drawings:** To use tools to achieve a desired effect **Layers and objects:** To recognise that vector drawings consist of layers **Manipulating objects:** To group objects to make them easier to work with **Vector drawings:** To apply what I have learned about vector drawings	**Exploring Conditions:** To explain how selection is used in computer programs **Selecting outcomes**: To relate that a conditional statement connects a condition to an outcome **Asking questions**: To explain how selection directs the flow of a program **Designing a quiz**: To design a program that uses selection **Testing a quiz**: To create a program that uses selection **Evaluating a quiz**: To evaluate my program
	Key Knowledge	Describe how networks connect Explain what the World Wide Web is Give reasons for the importance of online safety Describe the benefits and risks of the WWW	Know what makes appropriate content for a podcast Know the difference between saving and exporting	Relate what repeat means Identify everyday tasks that include repetition as part of a sequence Explain that we can use a loop command to repeat instructions Identify patterns and loops Explain that in programming here are indefinite loops and count-controlled loops	Suggest questions that can be answered using a table of data Identify data that can be logged over time Identify that sensors input devices Explain how data loggers capture data points	Know that a vector drawing comprises separate objects Recognise that each object in a drawing is in its own layer Recognise that objects can be modified in groups Explain how alignment and size guides can help create a more consistent drawing	Explain that a condition can only be true or false To relate and compare count-controlled loops Explain that selection can be used to branch the flow Explain that loop can be used to repeatedly check if a condition has been met
	Key Skills	Access the World Wide Web Use search engines and websites	Use a computer to record sound Make edits to sound recordings Save files and export audio Evaluate the effective use of audio	Build a sequence of commands in steps Combine commands in a program Use an indefinite loop to produce a given outcome Use a count-controlled loop to produce a given outcome	Use a digital device to collect data automatically Choose an appropriate timeframe Use a set of logged data to find information Use a computer programme to sort data Export information in different formats	Add and delete objects in vector drawings duplicate objects using copy and paste Modify and reposition objects Combine options to achieve a desired effect	Choose a condition to use in a program Use a condition in an 'If.. then..' statement Use selection to switch program flow Use 'If.. then…. else..' to switch program flow

Riverside Year 4/5	Y4/5 B	Autumn 1B	Autumn 2B	Spring 1B	Spring 2B	Summer 1B	Summer 2B
	Unit overview	**Computing Systems and Networks – Systems and Searching** **NW ET** Learners develop their understanding of computer	**Creating Media – Video Production** **CM DD** This unit gives learners the opportunity to learn how to create short videos in groups.	**Programming – Repetition in Games** **PG DD** This unit explores the concept of repetition in programming using the Scratch environment.	**Data and Information – Flat-file Databases** **DI ET** This unit looks at how a flat-file database can be used to organise data in records. Pupils	**Creating Media – Photo Editing** **ET CM** Learners will develop their understanding of how digital images can be changed and	**Programming – Selection in Physical Computing** **PG CS** Learners will use physical computing to explore the concept of selection in

		systems and how information is transferred between systems and devices. Learners consider small-scale systems as well as large-scale systems.	They will be exposed to topic-based language and develop the skills of capturing, editing, and manipulating video.	Learners look at the difference between count-controlled and infinite loops.	use tools within a database to order and answer questions about data.	edited, and how they can then be resaved and reused.	programming through the use of the Crumble programming environment.
	Key Vocabulary	*internet, search engine, connected, systems, paths,*	*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.*	*scratch, programming, sprite, blocks, code, loop, repeat, value, infinite loop, count-controlled loop, costume, repetition, forever, animate, event block, duplicate, modify, design, algorithm, debug, refine, evaluate.*	*data, table, layout, input device, sensor, logger, logging, data point, interval, analyse, dataset, import, export, logged, collection, review, conclusion.*	*digital, image, composition, edit, crop, duplicate, clone*	*action, algorithm, condition count-controlled, infinite loops, selection*
	Small Steps	**Systems:** To explain that computers can be connected together to form systems **Computer systems and us:** To recognise the role of computer systems in our lives **Searching the web:** To identify how to use a search engine **Selecting search results:** To describe how search engines select results **How search results are ranked**: To explain how search results are ranked **How are searches influenced?** To recognise why the order of results is important, and to whom	**What is video:** To explain what makes a video effective **Filming techniques:** To use a digital device to record video **Using a storyboard:** To capture video using a range of techniques **Planning a video:** To create a storyboard **Importing and editing video:** To identify that video can be improved through reshooting and editing **Video Evaluation:** To consider the impact of the choices made when making and sharing a video	**Using loops to create shapes:** To develop the use of count-controlled loops in a different programming environment **Different loops:** To explain that in programming there are infinite loops and count-controlled loops **Animate your name:** To develop a design that includes two or more loops which run at the same time **Modifying a game:** To modify an infinite loop in a given program **Designing a game:** To design a project that includes repetition **Creating a game:** To create a project that includes repetition	**Answering questions:** To explain that data gathered over time can be used to answer questions **Data collection:** To use a digital device to collect data automatically **Logging:** To explain that a data logger collects 'data points' from sensors over time **Analysing data:** To recognise how a computer can help us analyse data **Data for answers:** To identify the data needed to answer questions **Answering my question:** To use data from sensors to answer questions	**Changing digital images:** To explain that the composition of digital images can be changed **Recolouring:** To explain that colours can be changed in digital images Cloning: To explain how cloning can be used in photo editing **Combining:** To explain that images can be combined **Creating:** To combine images for a purpose **Evaluating:** To evaluate how changes can improve an image	**Connecting crumbles:** To control a simple circuit connected to a computer **Combining output components:** To write a program that includes count-controlled loops **Controlling with conditions:** To explain that a loop can stop when a condition is met **Starting with selection:** To explain that a loop can be used to repeatedly check whether a condition has been met **Drawing designs:** To design a physical project that includes selection **Writing and testing algorithms:** To create a program that controls a physical computing project
	Key Knowledge	Understand that components can work together to perform a task Consider how larger computer systems work Understand why search engines are necessary Consider why some searches return more results than others	Explain what makes a video effective Identify features of videos Identify and find features on a digital video recording device Explain how to improve a video by reshooting and editing	Explain what repeat means Identify everyday tasks that include repetition Explain what a loop command is Identify patterns in sequence Identify a loop within a program Explain the difference between count controlled/infinite loops Explain the importance of instruction order in a loop	Suggest questions that can be answered using a table of data Identify data that can be logged over time Identify that sensors input devices Explain how data loggers capture data points	Recognise that images can be manipulated Understand and use the terms crops, rotate, reflect and clone Explain what changes have been made to an image	Explain what an infinite loop does Explain what it means for a condition to be true or false Describe conditions and actions Explain what selection means
	Key Skills	Use a search engine, and use the address bar Write and test instructions	Capture video using a range of techniques Experiment with different camera angles	Use an indefinite loop to produce a given outcome Use a count-controlled loop to produce a given outcome	Use a digital device to collect data automatically Choose an appropriate timeframe	Use an application to change a digital image Crop an image Adjust the colours of an image	Create simple circuits and connect to a computer Write a programme using count-controlled loops

		Conduct their own searches and break down, in detail, the steps needed to find things on the web Emulate web crawlers to create an index of their own classroom	Evaluate my video and share my opinions	Create two or more sequences that run concurrently	Use a set of logged data to find information Use a computer programme to sort data Export information in different formats	Apply filters and effects to an image Use clone, copy, and paste to change the composition of a digital image	Design a physical project that includes selection Write algorithms

Oldaport Year 6	Y6 A+B	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Unit overview	**Computing Systems and Networks – Communication and Collaboration** **NW ET** In this unit learners explore how data is transferred over the internet. Learners initially focus on addressing, before they move on to the makeup and structure of data packets.	**Creating Media – Webpage Creation** **CM DD** This unit introduces learners to the creation of 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.	**Programming – Variables in Games** **PG DD** This unit explores the concept of variables in programming through games in Scratch.	**Data and Information – Introduction to Spreadsheets** **DI ET** This unit introduces the learners to spreadsheets. They will be supported in organising data into columns and rows to create their own data set.	**Creating Media – 3D Modelling** **ET CM** Learners will develop their knowledge and understanding of using a computer to produce 3D models.	**Programming – Sensing Movement** **PG CS** This unit is the final KS2 programming unit and brings together elements of all the four programming constructs: sequence, repetition, selection, and variables. 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.
	Key Vocabulary	Internet, data packets, transfer, public, private, information, sharing, communicate	Website, webpage, hyperlink, preview, layout, text, media, navigation, copyright, ownership	variable, change, name, value, set, design, event, algorithm, code, task, artwork, program, project, code, test, debug, improve, evaluate, share, assign, declare	Spreadsheet, Modify, Formula Calculate, Duplicate, Present, Data	3D, Model, Modify, Placeholders Combine, Analyse	Micro:bit, MakeCode, input, process, output, flashing, USB, trace, selection, condition, if then else, variable, random, sensing, accelerometer, value, compass, direction, navigation, design, task, algorithm, step counter, plan, create, code, test, debug.
	Small Steps	**Internet addresses:** To explain the importance of internet addresses **Data packets:** To recognise how data is transferred across the internet **Working together:** To explain how sharing information online can help people to work together **Shared working:** To evaluate different ways of working together online **How we communicate:** To recognise how we communicate using technology **Communicating responsibly:** To evaluate different methods of online communication	**What makes a good website?** To review an existing website and consider its structure **How would you layout your web page?** To plan the features of a web page **Copyright or CopyWRONG?** To consider the ownership and use of images (copyright) **How does it look?** To recognise the need to preview pages **Follow the breadcrumbs** To outline the need for a navigation path **Think before you link!** To recognise the implications of linking to content owned by other people	**Introducing variables** To define a 'variable' as something that is changeable **Variables in programming** To explain why a variable is used in a program **Improving a game** To choose how to improve a game by using variables **Lesson 4 Designing a game** To design a project that builds on a given example **Design to code** To use my design to create a project **Improving and sharing** To evaluate my project	**Collecting Data:** To create a data set in a spreadsheet **Formatting a spreadsheet:** To build a data set in a spreadsheet **What's the formula?** To explain that formulas can be used to produce calculated data **Calculate and duplicate:** To apply formulas to data **Event planning:** To create a spreadsheet to plan an event **Presenting data:** To choose suitable ways to present data	**Introduction to 3d modelling:** To recognise that you can work in three dimensions on a computer **Modifying 3D objects:** To identify that digital 3D objects can be modified **Make your own name badge:** To recognise that objects can be combined in a 3D model **Make a desk tidy:** To create a 3D model for a given purpose **Planning a 3D model:** To plan my own 3D model **Make a 3D model :** To create my own digital 3D model	**The Micro:bit**: To create a program to run on a controllable device **Go with the flow**: To explain that selection can control the flow of a program **Sensing inputs**: To update a variable with a user input **Finding your way**: To use an conditional statement to compare a variable to a value **Designing a step counter**: To design a project that uses inputs and outputs on a controllable device **Making a step counter:** To develop a program to use inputs and outputs on a controllable device

	Key Knowledge	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 explain that communicating and collaboration using the internet can be public or private	Name features of a website Know what a website is in terms of hyperlinked pages Understand ownership and use of images Explain why navigations and previews are needed	Define a variable and give examples Recognise that a variable can have a name and a value Describe ways that variables can be changed or set as constant	Identify questions which can be answered using a spreadsheet Outline different software tools Explain how data type determines how a spreadsheet processes data Explain what formula is	Know that you can work in 3D on computers Identify that 3D shapes can be modified Describe ways in which a 3D object can be changed	Define a variable Identify examples of information that is variable Explain that a variable has a name and a value, and the value can be used and updated by a program Recognise that variables can be set as constant
	Key Skills	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	Review and evaluate an existing website Design and create a new website Add text and embed media Preview and edit work Use hyperlinks in different ways	Identify and experiment with variables Use variables in different places Use variables within conditional statements	Calculate data using a formula Use functions to create new data Choose suitable ways to present data	Accurately size 3D objects Show that placeholders can create holes in 3D objects Combine a number of 3D objects Analyse a 3D model	Identify a variable in an existing program Experiment with the value of a variable Choose names that identify role of variable Decide where to set a variable Use a variable in a conditional statement