New Earswick Primary School
Computing Curriculum

Computing for the pupils of New Earswick Primary School

Our Computing curriculum is designed to allow pupils to understand and master the digital world they live in, using technology to create media, manipulate data and information and apply this knowledge through programming.

Most Computing teaching is discrete whilst teachers may choose to link some lessons to follow the school topic:

- **A Step in Time**
- **Discover**
- **Me, Myself and I**

Skills

We have designed a progression of skills to allow our pupils to become proficient in:

- ***Computer science***
- ***Digital literacy***
- ***Information technology***

Barriers

Stakeholders have identified that our pupils lack confidence and life experiences. Our entire curriculum, including Computing, promotes opportunities to be Braver, Stronger and Smarter. Our Computing curriculum provides opportunities for our children to use technology in many ways and across many subjects to enable pupils to succeed in their next step in their education and beyond into the working world.

Whole School Overview

Unit	Early Years	Y1	Y2	Y3	Y4	Y5	Y6
Computing systems and networks	Recognise that a range of technology is used in places such as homes and schools.	Technology around us	IT around us	Connecting computers	The Internet	Sharing information	Communication
Creating media	Select and use technology for particular purposes. *Expressive arts and design – children experiment with painting and graphics apps.*	Digital Painting	Digital Photography	Animation	Audio editing	Vector drawing	3D modelling
		Digital Writing	Making music	Desktop publishing	Photo editing	Video editing	Web page creation
Data and informatio		Grouping data	Pictograms	Branching databases	Data logging	Flat-file databases	Spreadsheets
Programming		Moving a robot	Robot algorithms	Sequence in music	Repetition in shapes	Selection in physical computing	Variables in games
		Introduction to animation	An introduction to quizzes	Events and actions	Repetition in games	Selection in quizzes	Sensing

Skills Progression

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Computing systems and networks	• Recognise **examples of** information technology beyond school • Use technology purposefully to **create, store and retrieve** digital content	• Recognise **common uses of** information technology beyond school	• Understand computer networks including the internet; how they can provide multiple services, such as the World Wide Web.	• Understand computer networks including the internet; **explain** how they can provide multiple services, such as the World Wide Web.	• Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; **solve problems by decomposing them into smaller parts** • 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** • 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.** • Use technology safely, respectfully and responsibly; **recognise acceptable/unacceptable behaviour;** know how to report a concern.	• Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts and **adapt techniques for purpose.** • Understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, **and <u>use</u> the opportunities they offer** for communication and collaboration • 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**
Creating Media	• Use technology purposefully to **create, store and retrieve** digital content • Use technology **safely and respectfully, keeping personal information private**	• Use technology purposefully to create, **organise**, store, **manipulate** and retrieve digital content	• Select and use variety of software (including internet services) on a range of digital devices to design and create a range of programs.	• Use search technologies effectively • 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. • Use technology safely, respectfully**, and responsibly** and know how to report a concern.	• 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.**	• 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**
Data and information	• Use technology purposefully to **create, store and retrieve** digital content • Use technology **safely and respectfully**	• Use technology purposefully to create, **organise**, store, **manipulate** and retrieve digital content • 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**	• Select and use variety of software (including internet services) on a range of digital devices to design and create a range of programs. • Use technology safely, respectfully and know how to report a concern.	• Use sequence, selection, and repetition in programs; **work with variables and various forms of inputs** and outputs • 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.	• 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.**	• 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**
Programming	• Understand what algorithms are; and that programs execute by following precise and unambiguous instructions • **Create** simple programs • Use logical reasoning to **begin to predict** the behaviour of simple programs	• 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 **accurately predict** the behaviour of simple programs	• Design, write, and debug programs that accomplish specific goals. • Use sequence and selection in programs. • Explain how some simple algorithms work	• Design, write and debug programs that accomplish specific goals, **including controlling or simulating physical systems.** • Use sequence, selection, **and repetition** in programs. • **Use logical reasoning** to explain how some simple algorithms work.	• 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.** • Use logical reasoning to explain how some simple algorithms work **and to detect errors in algorithms and programs**	• Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts and **adapt techniques for purpose.** • 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

YEAR 1

	A Step in Time				Discover				Me, myself and I			
	Autumn 1		Autumn 2		Spring 1		Spring 2		Summer 1		Summer 2	
Curriculum Links	**Year 1** **Dinosaur disasters** **Technology around us** **Discrete computing**		**Year 1** **Space- Tim Peak and travel (space buggies)** **Moving a Robot**		**Year 1** **Kings and Queens** **Digital Painting**		**Year 1** **Endangered Animals** **Grouping Data**		**Year 1** **New Earswick – Joseph Rowntree, homes** **Digital Writing**		**Year 1** **New Earswick – Joseph Rowntree, homes** **Introduction to animation** **Discrete computing**	
Curriculum	• Recognise **examples of** information technology beyond school • Use technology purposefully to **create, store and retrieve** digital content		• Understand what algorithms are; and that programs execute by following precise and unambiguous instructions • **Create** simple programs • Use logical reasoning to **begin to predict** the behaviour of simple programs		• Use technology purposefully to **create, store and retrieve** digital content		• Use technology purposefully to **create, store and retrieve** digital content • Use technology **safely and respectfully**		• Use technology purposefully to **create, store and retrieve** digital content • Use technology **safely and respectfully, keeping personal information private**		• Understand what algorithms are; and that programs execute by following precise and unambiguous instructions • **Create** simple programs • Use logical reasoning to **begin to predict** the behaviour of simple programs	
Suggested tasks (including working scientifically)	**Technology around us** Lesson 1 Technology in our classroom Lesson 2 Using technology Lesson 3 Developing mouse skills Lesson 4 Using a computer keyboard Lesson 5 Developing keyboard skills Lesson 6 Using a computer responsibly		**Moving a Robot** Lesson 1 Buttons Lesson 2 Directions Lesson 3 Forwards and backwards Lesson 4 Four directions Lesson 5 Getting there Lesson 6 Routes		**Digital Painting** Lesson 1 How can we paint using computers? Lesson 2 Using shapes and lines Lesson 3 Making careful choices Lesson 4 Why did I choose that? Lesson 5 Painting all by myself Lesson 6 Comparing computer art and painting		**Grouping Data** Lesson 1 Label and match Lesson 2 Group and count Lesson 3 Describe an object Lesson 4 Making different groups Lesson 5 Comparing groups Lesson 6 Answering questions		**Digital Writing** Lesson 1 Exploring the keyboard Lesson 2 Adding and removing text Lesson 3 Exploring the toolbar Lesson 4 Making changes to text Lesson 5 Explaining my choices Lesson 6 Pencil or keyboard		**Introduction to animation** Lesson 1 Comparing tools Lesson 2 Joining blocks Lesson 3 Make a change Lesson 4 Adding sprites Lesson 5 Project design Lesson 6 Following my design	
Vocabulary	Technology Computer Mouse File Picture Program Keyboard Keys	House Push Here There	Screen Tools Toolbar Lines Image Picture File	This One Them Have	Command Device Instructions Predict Turn Order Program	Up With Your Put	Objects Labels Property Groups Sort Compare	Like Some Are Ask	Keys Keyboard Text Backspace Spacebar Font toolbar	Today You Some Put	Sprite Program Block Instructions	Pull Push Ask Do
Outcomes	• Can identify and find keys on a keyboard • Can open a word processor • Can enter text into a computer • Can use backspace to remove text • Can use letter, number, and space keys • Can identify the toolbar and use bold, italic, and underline • Can type capital letters • Can change the font		• Can use commands to move a sprite • Can use a start block in a program • Can use more than one block by joining them together • Can add blocks to each of my sprites • Can delete a sprite • Can create an algorithm for each sprite • Can test the programs I have created		• Can run a command on a device • Can predict the outcome of a sequence involving forwards and backwards commands • Can experiment with turn and move commands to move a robot • Can predict the outcome of a sequence involving up to four commands • Can choose the order of commands in a sequence • Can debug my program • Can explain what my program should do • Can plan two programs		• Can describe objects using labels • Can describe a property of an object • Can group objects in more than one way • Can compare groups of objects • Can decide how to group objects to answer a question		• Can identify and find keys on a keyboard • Can open a word processor • Can enter text into a computer • Can use backspace to remove text • Can use letter, number, and space keys • Can identify the toolbar and use bold, italic, and underline • Can type capital letters • Can change the font • Can select a word by double-clicking • Can select all of the text by clicking and dragging • Can use 'undo' to remove changes		• Can use commands to move a sprite • Can use a start block in a program • Can use more than one block by joining them together • Can add blocks to each of my sprites • Can create an algorithm for each sprite • Can test the programs I have created	
Previous ←	EYFS:		EYFS:		EYFS:		EYFS:		EYFS:		EYFS:	
Next →	Y2: IT around us Y3: Computers Y4: The Internet Y5: Sharing information Y6: Communication		Y2: Robot algorithms Y3: Events & actions Y4: Repetition in games		Y2: Digital photography Y4: Photo editing		Y2: Pictograms Y3: Branching databases Y4: Data logging Y5: Flat-file databases Y6: Spreadsheets		Y3: Desktop publishing Y6: Webpage creation		Y2: Robot algorithms Y3: Events & actions Y4: Repetition in games	

YEAR 2

	A Step in Time		Discover		Me, myself and I	
	Autumn 1	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
Curriculum Links	**Year 2 Ice Age IT around us Discrete computing**	**Year 2 Stone Age Digital Photography Discrete computing**	**Year 2 Castles & Dragons Robot Algorithms**	**Year 2 Discover Pictograms**	**Year 2 New Earswick – factory and chocolate Making Music**	**Year 2 New Earswick – factory and chocolate Introduction to quizzes**
Curriculum	• Recognise **common uses of** information technology beyond school	• Use technology purposefully to create, **organise**, store, **manipulate**, and retrieve digital content	• 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 **accurately predict** the behaviour of simple programs	• Use technology purposefully to create, **organise**, store, **manipulate** and retrieve digital content • 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**	• Use technology purposefully to create, **organise**, store, **manipulate** and retrieve digital content	• 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 **accurately predict** the behaviour of simple programs
Suggested tasks (including working scientifically)	**IT around us** Lesson 1 What is information technology? Lesson 2 Where have we seen information technology at home? Lesson 3 Where have we seen information technology in the world? Lesson 4 How does information technology improve our world? Lesson 5 Demonstrate safe use of information technology Lesson 6 Using information technology responsibly	**Digital Photography** Lesson 1 Taking Photographs Lesson 2 Landscape or portrait? Lesson 3 What makes a good photograph? Lesson 4 Lighting Lesson 5 Effects Lesson 6 Is it real?	**Robot Algorithms** Lesson 1 Giving instructions Lesson 2 Same but different Lesson 3 Making predictions Lesson 4 Mats and routes Lesson 5 Algorithm design Lesson 6 Debugging	**Pictograms** Lesson 1 Counting and comparing Lesson 2 Enter the data Lesson 3 Creating pictograms Lesson 4 What is an attribute? Lesson 5 Comparing people Lesson 6 Presenting information	**Making Music** Lesson 1 How music makes us feel Lesson 2 Rhythms and patterns Lesson 3 How music can be used Lesson 4 Notes and tempo Lesson 5 Creating digital music Lesson 6 Reviewing and editing music	**Introduction to quizzes** Lesson 1 Scratch Jr recap Lesson 2 Outcomes Lesson 3 Using a design Lesson 4 Changing a design Lesson 5 Designing and creating a program Lesson 6 Evaluating
	Computers Technology Images Files Where Think Around Home School	Photos Device Photograph Digital Focus Light Edit Tool Took Where Stop Take	Sequence Instructions Algorithm Commands Code Test Debug Predict More Round Over Going	Tally Data Total Pictograms Attribute Information Present Find How Things Around	Music Instruments Rhythm Tools Pattern Series Live New Play How	Sequence Program Commands Blocks Background Images Character Algorithm Debug Find More Work Right
Outcomes	• Can describe some uses of computers • Can move and resize images • Can open a file • Can list different uses of information technology • Can explain simple guidance for using information technology in different environments and settings • Can identify the choices that I make when using information technology	• Can capture digital photos and talk about my experience • Can take photos in both landscape and portrait format • Can improve a photograph by retaking it • Can experiment with different light sources • Can explore the effect that light has on a photo • Can focus on an object • Can use a tool to achieve a desired effect	• Can choose a series of words that can be enacted as a sequence • Can create different algorithms for a range of sequences (using the same commands) • Can show the difference in outcomes between two sequences that consist of the same commands • Can use an algorithm to program a sequence on a floor robot • Can predict the outcome of a sequence • Can create an algorithm to meet my goal • Can explain what my algorithm should achieve • Can use my algorithm to create a program • Can test and debug each part of the program	• Can record data in a tally chart • Can enter data onto a computer • Can use a computer to view data in a different format • Can use pictograms to answer simple questions about objects • Can use a tally chart to create a pictogram • Can answer 'more than'/'less than' and 'most/least' questions about an attribute • Can create a pictogram to arrange objects by an attribute and draw conclusions from it • Can give simple examples of why information should not be shared	• Can create a rhythm pattern • Can connect images with sounds • Can use a computer to experiment with pitch and duration • Can refine my musical pattern on a computer • Can use a computer to create a musical pattern using three notes • Can save my work • Can reopen my work	• Can identify the start of a sequence • Can show how to run my program • Can change the outcome of a sequence of commands • Can match two sequences with the same outcome • Can predict the outcome of a sequence of commands • Can build sequences of blocks to match a design • Can choose the images for my own design • Can create an algorithm • can debug • Can improve my project by adding features
Previous ←	EYFS: Y1: Technology around us	EYFS: Y1: Digital painting	EYFS: Y1: Moving a robot	EYFS: Y1: Grouping data	EYFS:	EYFS: Y1:
Next →	Y3: Computers Y4: The Internet Y5: Sharing information Y6: Communication	Y4: Photo editing	Y3: Events & actions Y4: Repetition in games	Y3: Branching databases Y4: Data logging Y5: Flat-file databases Y6: Spreadsheets	Y3: Sequence in music	Y2: Robot algorithms Y3: Events & actions Y4: Repetition in games

YEAR 3

	A Step in Time				Discover				Me, myself and I			
	Autumn 1		Autumn 2		Spring 1		Spring 2		Summer 1		Summer 2	
Curriculum Links	**Year 3 Ancient Egypt Connecting Computers Discrete computing**		**Year 3 Ancient Egypt Stop-frame Animation**		**Year 3 Life as a Roman Soldier Sequence in Music**		**Year 3 Life as a Roman Soldier Branching Databases Discrete computing**		**Year 3 New Earswick – a changing village Desktop Publishing**		**Year 3 New Earswick – a changing village Events and Actions Discrete computing**	
Curriculum	• Understand computer networks including the internet; how they can provide multiple services, such as the World Wide Web.		• Select and use variety of software (including internet services) on a range of digital devices to design and create a range of programs.		• Design, write, and debug programs that accomplish specific goals. • Use sequence and selection in programs. • Explain how some simple algorithms work		• Select and use variety of software (including internet services) on a range of digital devices to design and create a range of programs. • Use technology safely, respectfully and know how to report a concern.		• Select and use variety of software (including internet services) on a range of digital devices to design and create a range of programs.		• Design, write, and debug programs that accomplish specific goals. • Use sequence and selection in programs. • Explain how some simple algorithms work	
Suggested tasks (including working scientifically)	**Connecting Computers** Lesson 1 How does a digital device work? Lesson 2 What parts make up a digital device? Lesson 3 How do digital devices help us? Lesson 4 How am I connected? Lesson 5 How are computers connected? Lesson 6 What does our school network look like?		**Stop-frame Animation** Lesson 1 Can a picture move? Lesson 2 Frame by frame Lesson 3 What's the story? Lesson 4 Picture perfect Lesson 5 Evaluate and make it great! Lesson 6 Lights, camera, action!		**Sequence in Music** Lesson 1 Introduction to Scratch Lesson 2 Programming sprites Lesson 3 Sequences Lesson 4 Ordering commands Lesson 5 Looking good Lesson 6 Making an instrument		**Branching Databases** Lesson 1 Yes or no questions Lesson 2 Making groups Lesson 3 Creating a branching database Lesson 4 Structuring a branching database Lesson 5 Using a branching database Lesson 6 Presenting information		**Desktop Publishing** Lesson 1 Words and pictures Lesson 2 Can you edit it? Lesson 3 Great template! Lesson 4 Can you add content? Lesson 5 Lay it out Lesson 6 Why desktop publishing?		**Events and Actions** Lesson 1 Moving a sprite Lesson 2 Maze movement Lesson 3 Drawing lines Lesson 4 Adding features Lesson 5 Debugging movement Lesson 6 Making a project	
	Digital Devices Inputs Outputs Network Switch Server Wireless access point Network Connections Information	Certain Describe Important Particular Popular	Animation Sequence Stop-frame Setting Character Storyboard Onion skin	Build Centre Complete Different Guide	Scratch Attributes Projects Sprites Backdrop Commands Blocks Program Sequence Algorithm Debug	Purpose Learn Experience Group Heard	Groups Attributes Branching Database Fields Pictogram Data Information	Question Answer Certain Consider Different	Text Images Messages Communicate Font Style Size Colours Edit Tools Toolbar Page orientation Content Publishing	Build Interest Particular Material Special	Program Movement Actions Sprite Debug Bugs Blocks Commands Code Algorithm	Purpose Knowledge Build Forwards Appear
Outcomes	• Can explain that digital devices accept inputs and outputs • Can explain how I use digital devices for different activities • Can identify the benefits of computer networks		• Can create an effective stop frame animation • Can create a storyboard • Can use onion skinning to help me make small changes between frames • Can add other media to my animation		• Can create a program following a design • Can create a sequence of connected commands • Can implement my algorithm as code		• Can select an attribute to separate objects • Can create questions and apply them to a tree structure • Can create a branching database		• Can change font style, size, and colours for a given purpose • Can create a template for a particular purpose • Can make changes to content after I've added it • Can match a layout to a purpose		• Can program movement • Can choose blocks to set up my program • Can build more sequences of commands to make my design work • Can identify additional features (from a given set of blocks)	
Previous ←	Y1: Technology around us Y2: IT around us				Y1: Moving a robot Y2: Robot algorithms, Making music		Y1: Grouping data Y2: Pictograms		Y1: Digital writing		Y1: Moving a robot Y2: Robot algorithms	
Next →	Y4: The Internet Y5: Sharing information Y6: Communication		Y4: Repetition in games		Y4: Repetition in games		Y4: Data logging Y5: Flat-file databases Y6: Spreadsheets		Y6: Webpage creation		Y4: Repetition in games Y6: Variables in games	

YEAR 4

	A Step in Time				Discover				Me, myself and I			
	Autumn 1		Autumn 2		Spring 1		Spring 2		Summer 1		Summer 2	
Curriculum Links	**Year 4 Industrial Revolution – Victorian Child The Internet Discrete computing**		**Year 4 Industrial Revolution – Victorian Child Audio Editing**		**Year 4 Boudicca and Warriors Iceni Repetition in Shapes Discrete computing**		**Year 4 Shackleton's Journey Data Logging**		**Year 4 New Earswick – architecture Photo Editing**		**Year 4 New Earswick – architecture Repetition in Games Discrete computing**	
Curriculum	• Understand computer networks including the internet; **explain** how they can provide multiple services, such as the World Wide Web.		• 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. • Use technology safely, respectfully**, and responsibly** and know how to report a concern.		• Design, write and debug programs that accomplish specific goals, **including controlling or simulating physical systems.** • Use sequence, selection, **and repetition** in programs. • **Use logical reasoning** to explain how some simple algorithms work.		• Use sequence, selection, and repetition in programs; **work with variables and various forms of inputs** and outputs • 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.		• Use search technologies effectively • 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.		• Design, write and debug programs that accomplish specific goals, **including controlling or simulating physical systems.** • Use sequence, selection, **and repetition** in programs. **Use logical reasoning** to explain how some simple algorithms work.	
Suggested tasks (including working scientifically)	**The Internet** Lesson 1 Connecting networks Lesson 2 What is the internet made of? Lesson 3 Sharing information Lesson 4 What is a website? Lesson 5 Who owns the web? Lesson 6 Can I believe what I read?		**Audio Editing** Lesson 1 Digital recording Lesson 2 Recording sounds Lesson 3 Creating a podcast Lesson 4 Editing digital recordings Lesson 5 Combining audio Lesson 6 Evaluating podcasts		**Repetition in Shapes** Lesson 1 Programming a screen turtle Lesson 2 Programming letters Lesson 3 Patterns and repeats Lesson 4 Using loops to create shapes Lesson 5 Breaking things down Lesson 6 Creating a program		**Data Logging** Lesson 1 Answering questions Lesson 2 Data collection Lesson 3 Logging Lesson 4 Analysing data Lesson 5 Data for answers Lesson 6 Answering my question		**Photo Editing** Lesson 1 Changing digital images Lesson 2 Changing the composition of images Lesson 3 Changing images for different uses Lesson 4 Retouching images Lesson 5 Fake images Lesson 6 Making and evaluating a publication		**Repetition in Games** Lesson 1 Using loops to create shapes Lesson 2 Different loops Lesson 3 Animate your name Lesson 4 Modifying a game Lesson 5 Designing a game Lesson 6 Creating our games	
	Information Network Devices Websites World Wide Web (WWW) Media Content	Information Believe Possession Decide Library	Digital Devices Record Sound Files Format Audio Edit Export Import Podcast	Consider Decide Describe Separate Length	Code Value Command Algorithm Template Design Sequence Pattern Loop Procedure Chunks Program Debugging	Build Certain Difficult Enough Increase	Data sat Intervals Sensor Recording Measurements Sort data Data logger Data points	Question Special Possible Probably Increase	Digital Images Composition Edit Tools Publication	Experiment Favourite Possible Material Different	Instructions Repetition Count-controlled loops Programming Infinite loops Project Code Algorithm Debug	Through Increase Build Complete Describe
Outcomes	• Can explain how the internet allows us to view the World Wide Web • Can describe how to access websites on the WWW • Can explain the types of media that can be shared on the World Wide Web • Can explain why I need to think carefully before I share or re-share content		• Can identify the inputs and outputs required to play audio or record sound • Can identify inputs and outputs required to play or record sound • Can use a device to record audio and play back sound • Can save a digital recording as a file • Can edit sections of an audio recording • Can open a digital recording from a file • Can use editing tools to arrange sections of an audio file		• Can create a code snippet for a given purpose • Can program a computer by typing commands • can test my algorithm in a text-based language • Can write an algorithm to produce a given outcome • Can use a count-controlled loop to produce a given outcome		• Can choose a data set to answer a given question • Can suggest questions that can be answered using a given data set • Can import a data set • Can use a computer program to sort data • Can propose a question that can be answered using logged data • Can use a data logger to collect data and interpret the results		• Can change the composition of an image by selecting parts of it • Can choose appropriate tools to retouch an image • Can combine parts of images to create new images		• Can list an everyday task as a set of instructions including repetition • Can modify a snippet of code to create a given outcome • Can predict the outcome of a snippet of code • Can choose and modify count-controlled and an infinite loops • Can re-use existing code snippets on new sprites • Can build a program that follows my design • Can refine the algorithm in my design	
Previous ←	Y1: Technology around us Y2: IT around us Y3: Computers		Y2: Making music				Y1: Grouping data Y2: Pictograms Y3: Branching databases		Y2: Digital photography		Y3: Animation	
Next →	Y5: Sharing information Y6: Communication, Webpage creation		Y5: Video editing		Y5: Vector drawing		Y5: Flat-file databases Y6: Spreadsheets		Y5: Video editing			

YEAR 5

	A Step in Time		Discover		Me, myself and I	
	Autumn 1	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
Curriculum Links	**Year 5** **Industrial Revolution – Inequality** **Sharing Information** **Discrete computing**	**Year 5** **Industrial Revolution – Inequality** **Video Editing**	**Year 5** **Rainforests** **Selection in Physical Computing** **Discrete computing**	**Year 5** **Rainforests** **Flat-file Databases**	**Year 5** **Viking Invasion** **Vector Drawing**	**Year 5** **New Earswick – compared with Viking/Saxon settlement** **Selection in Quizzes**
Curriculum	• Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; **solve problems by decomposing them into smaller parts** • 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** • 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.** • Use technology safely, respectfully and responsibly; **recognise acceptable/unacceptable behaviour;** know how to report a concern.	• 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.**	• 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.** • Use logical reasoning to explain how some simple algorithms work **and to detect errors in algorithms and programs**	• 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.**	• 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.**	• 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.** Use logical reasoning to explain how some simple algorithms work **and to detect errors in algorithms and programs**
Suggested tasks (including working scientifically)	**Sharing Information** Lesson 1 Systems Lesson 2 Computer systems and us Lesson 3 Transferring information Lesson 4 Working together Lesson 5 Better working together Lesson 6 Shared working	**Video Editing** Lesson 1 What is video? Lesson 2 Identifying devices Lesson 3 Using a device Lesson 4 Features of an effective video Lesson 5 Importing and editing video Lesson 6 Video evaluation	**Selection in Physical Computing** Lesson 1 Connecting Crumbles Lesson 2 Combining output devices Lesson 3 Controlling with conditions Lesson 4 Starting with selection Lesson 5 Drawing designs Lesson 6 Writing and testing algorithms	**Flat-file Databases** Lesson 1 Creating a paper-based database Lesson 2 Computer databases Lesson 3 Using a database Lesson 4 Using search tools Lesson 5 Comparing data visually Lesson 6 Databases in real life	**Vector Drawing** Lesson 1 The drawing tools Lesson 2 Create a vector drawing Lesson 3 Being effective Lesson 4 Layers and objects Lesson 5 Manipulating objects Lesson 6 Get designing	**Selection in Quizzes** Lesson 1 Exploring conditions Lesson 2 Selecting outcomes Lesson 3 Asking questions Lesson 4 Planning a quiz Lesson 5 Testing a quiz Lesson 6 Evaluating a quiz
	Inputs Processes Outputs Computer systems Connected Devices Information Transfer Networks Online Offline Public Private System Physical Community Available Immediately	Video Visual Audio Digital Devices Software Capture Edit Store Retrieve Export Tools Equipment Sufficient Develop Explanation Necessary	Circuit Microcontroller Input Output Device Loop Condition Action Project Repetition Debug Program Attached Awkward Communicate Correspond Develop	Form Information Database Field Record Sort Criteria Value Tools Data Filter Results Programme Queue Suggest Variety Necessary	Vector Tools Resize Rotate Duplicate Alignment Zoom Modify Objects Layers Achieve Familiar Recognise Language Physical	Conditions Selection Program Statement Branch Algorithm Program Code Explanation Recommend Language Programme Achieve
Outcomes	• Can describe that a computer system features inputs, processes, and outputs • Can explain the benefits of a given computer system • Can explain that the internet allows different media to be shared • Can compare working online with working offline • Can explain how the internet enables effective collaboration • Can identify different ways of working together online	• Can explain the benefits of adding audio to a video • Can choose the most suitable digital device for recording my project • Can identify and name digital devices that can record video and sound • Can demonstrate suitable methods of using a digital device to capture my video • Can demonstrate the safe use and handling of devices • Can select a suitable device and software to capture my video • Can explain how to improve a video by reshooting and editing • Can store, retrieve, and export my recording to a computer • Can select the correct tools to	• Can build a simple circuit to connect a microcontroller to a computer • Can connect more than one output device to a microcontroller • Can decide which output devices I control with a count-controlled loop • Can design sequences for given output devices • Can use selection (an 'if… then…' statement) to direct the flow of a program • Can test and debug my project • Can use selection to produce an intended outcome • Can write an algorithm to control lights and a motor	• Can create multiple questions about the same field • Can order, sort, and group my data cards • Can navigate a flat-file database to compare different views of information • Can choose multiple criteria to answer a given question • Can ask questions that will need more than one field to answer • Can refine a search in a real-world context	• Can identify the main tools use for vector drawing • Can move, resize, and rotate objects I have duplicated • Can modify objects to create different effects • Can change the order of layers in a vector drawing • Can reuse a group of objects to further develop my vector drawing	• Can identify conditions in a program • Can modify a condition in a program • Can create a program with different outcomes using selection • Can use selection in an infinite loop to check a condition • Can design the flow of a program which contains 'if… then… else…' • Can implement my algorithm to create the first section of my program • Can share my program with others • Can test my program • Can extend my program further

		make edits to my video				
Previous	Y1: Technology around us Y2: IT around us Y3: Computers Y4: The Internet	Y4: Photo editing	Y4: Events and actions	Y1: Grouping data Y2: Pictograms Y3: Branching databases Y4: Data logging	Y4: Repetition in shapes	Y4: Repetition in games
Next	Y6: Communication	Y6: Webpage creation	Y6: Sensing	Y6: Spreadsheets	Y6: 3D modelling	

YEAR 6

	A Step in Time		Discover		Me, myself and I	
	Autumn 1	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
Curriculum Links	**Year 6 Industrial Revolution – Titanic Communication**	**Year 6 Industrial Revolution – Titanic Web Page Creation**	**Year 6 World Wars Variables in Games**	**Year 6 World Wars Introduction to Spreadsheets**	**Year 6 New Earswick – In the war and now 3D Modelling Discrete computing**	**Year 6 New Earswick – In the war and now Sensing Discrete computing**
Curriculum	• Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts and **adapt techniques for purpose.** • Understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, **and use the opportunities they offer** for communication and collaboration • 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**	• 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**	• Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts and **adapt techniques for purpose.** • 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	• 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**	• 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**	• Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts and **adapt techniques for purpose.** • 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
Suggested tasks (including working scientifically)	**Communication** Lesson 1 Searching the web Lesson 2 Selecting search results Lesson 3 How search results are ranked Lesson 4 How are searches influenced? Lesson 5 How we communicate Lesson 6 Communicating responsibly	**Web Page Creation** Lesson 1 What makes a good website? Lesson 2 How would you layout your web page? Lesson 3 Copyright or CopyWRONG? Lesson 4 How does it look? Lesson 5 Follow the breadcrumbs Lesson 6 Think before you link!	**Variables in Games** Lesson 1 Introducing variables Lesson 2 Variables in programming Lesson 3 Improving a game Lesson 4 Designing a game Lesson 5 Design to code Lesson 6 Improving and sharing	**Introduction to Spreadsheets** Lesson 1 What is a spreadsheet? Lesson 2 Modifying spreadsheets Lesson 3 What's the formula? Lesson 4 Calculate and duplicate Lesson 5 Event planning Lesson 6 Presenting data	**3D Modelling** Lesson 1 What is 3D Modelling? Lesson 2 Making changes Lesson 3 Rotation and position Lesson 4 Making holes Lesson 5 Planning my own 3D model Lesson 6 Making my own 3D model	**Sensing** Lesson 1 The micro:bit Lesson 2 Go with the flow Lesson 3 Sensing inputs Lesson 4 Finding your way Lesson 5 Designing a step counter Lesson 6 Making a step counter
	Tools Web crawlers Search engines Results Limitations Internet Criteria Accompany Achieve Category Sufficient Convenience	Media Website HTML Ownership Copyright Webpage Navigation Toolbars Homepage Content Links Persuade Variety Recommend Community Develop	Variable Program Controller Memory Algorithms Code Project Opportunity Occur Interrupt Convenience Criticise	Data set Format Cell Field Criteria Attributes Formula Spreadsheet Range Data Duplicating Sufficient Communicate Necessary Average Category	2D 3D Manipulate Graphical Digitally Model Modify Rotate Position Criteria Develop Equipment Familiar System Programme	Programming Controllable Device Inputs Outputs Conditions Variable Statement Algorithms Debugging Inputs Outputs Variety Symbol Queue Interrupt Physical
Outcomes	• Can complete a web search to find specific information • Can refine my search • Can suggest some of the criteria that a search engine checks to decide on the order of results • Can choose methods of communication to suit particular purposes • Can compare different methods of communicating on the internet • Can decide when I should and should not share • Can explain that communication on the internet may not be private	• Can discuss the different types of media used on websites • Can explore a website • Can draw a web page layout that suits my purpose • Can add content to my own web page • Can make multiple web pages and link them using hyperlinks • Can create hyperlinks to link to other people's work	• Can identify examples of information that is variable • Can identify that variables can hold numbers or letters • Can recognise that the value of a variable can be changed • Can decide where in a program to change a variable • Can make use of an event in a program to set a variable • Can choose the artwork for my project • Can create algorithms for my project • Can choose a name that identifies the role of a variable • Can create the artwork for my project • Can test the code that I have written • Can share my game with others	• Can ask simple relevant questions which can be answered using data • Can explain the relevance of data headings • Can build a data set in a spreadsheet application • Can construct a formula in a spreadsheet • Can apply a formula to multiple cells by duplicating it • Can create a formula which includes a range of cells • Can apply a formula to calculate the data I need to answer questions • Can use a spreadsheet to answer questions • Can produce a graph • Can use a graph to show the answer to questions	• Can select, move, and delete a digital 3D shape • Can change the colour of a 3D object • Can resize a 3D object • Can rotate a 3D object • Can select and duplicate multiple 3D objects • Can create digital 3D objects of an appropriate size • Can modify multiple 3D objects • Can plan my 3D model • Can modify my model to improve it	• Can test my program on an emulator • Can transfer my program to a controllable device • Can use a variable in an if… then… else… statement to select the flow of a program • Can use a condition to change a variable • Can modify a program to achieve a different outcome • Can use an operand (e.g. <>=) in an if… then… statement • Can use a range of approaches to find and fix bugs
Previous ←	Y1: Technology around us Y2: IT around us Y3: Computers	Y1: Digital writing Y3: Desktop publishing	Y4: Repetition in games	Y1: Grouping data Y2: Pictograms Y3: Branching databases	Y3 DT: CAD Y5: Vector drawing	Y5: Selection in quizzes

	Y4: The Internet Y5: Sharing Information			Y4: Data logging Y5: Flat-file databases		
Next						