



Whole School Key Knowledge: Computing

Class: Holly		Year group: 1	
	Key Knowledge Focus 1 Computing systems and networks (Technology all around us)	Key Knowledge Focus 2 Creating media (Digital painting / creating a cartoon)	Key Knowledge Focus 3 Programming A (Moving a robot)
Key Knowledge (from the National Curriculum)	<p>Use technology purposefully to create, organise, store, manipulate and retrieve digital content</p> <p>Recognise common uses of information technology beyond school</p> <p>Use technology safely and respectfully</p>	<p>Use technology purposefully to create, organise, store, manipulate and retrieve digital content</p>	<p>Understand what algorithms are, how they are implemented are programs on digital devices, and that programs execute by following precise and unambiguous instructions</p> <p>Create and debug simple programs</p> <p>Use logical reasoning to predict the behaviour of simple programs.</p>
Key Knowledge	<p>Declarative knowledge</p> <ul style="list-style-type: none"> ● To know that a computer is an example of technology ● To know that some technology can be used in different ways ● To know that main parts of a computer ● To know that rules are needed when using technology ● To know how to use a mouse 	<p>Declarative knowledge</p> <ul style="list-style-type: none"> ● To know when it's appropriate to use each tool. ● To know that a tool can be adjusted to suit my need <p>Procedural knowledge</p> <ul style="list-style-type: none"> ● To know how to use shape and line tools when precision is needed ● To know how to use a range 	<p>Declarative knowledge</p> <ul style="list-style-type: none"> ● To know that a program is a set of commands a computer can run. ● To know how to run a program ● To know what a given command does <p>Procedural knowledge</p>



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	<ul style="list-style-type: none"> To know how to use a keyboard to type 	<ul style="list-style-type: none"> of paint colours To know how to use the fill tool to colour an enclosed area. To know how to combine a range of tools to create a piece of artwork To know how to use the undo button to correct a mistake 	<ul style="list-style-type: none"> To know how to match a command to an outcome To know how to choose a command for a given purpose To know how to build a sequence of commands in steps To know how to run a command on a floor robot To know how to combine commands in a program
Curriculum focus	Recognising technology in school and using it responsibly	Choosing appropriate tools in a program to create art and making comparisons with working non-digitally.	Writing short algorithms and programs for floor robots, and predicting program outcomes.
Suggested enquiry questions (Questions in bold must be taught)	<p>What is technology? How do we use technology? Can you name different parts of a computer? How do I use technology responsibly?</p>	<p>How can we paint using computers? Why did I choose that tool?</p>	<p>What do we use robots for? Why do robots do what they do? How do robots do what they do</p>
Key vocabulary	<p>Technology Desktop / chrome book Logging in Mouse Keyboard Program Typing Save / edit / delete Arrow keys</p>	<p>Freehand tools Line and shape tools Fill Undo Paint program Tool Paintbrush Erase Brush styles / size</p>	<p>Forwards Backwards Turn Clear Go Commands Instructions directions</p>



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Supporting documents and resources	Just 2 Easy Teaching Computing Website – www.teachcomputing.org/curriculum (Unit 1.1)	Just 2 Easy	Beebots Teaching Computing Website – www.teachcomputing.org/curriculum (Unit 1.3)
Potential visit/ visitor opportunities		Link to an artist (there are several suggested in the unit plan)	
Morecambe Bay Curriculum links			

Class: Elm		Year group: 2	
	Key Knowledge Focus 1 Computing systems and networks (IT around us)	Key Knowledge Focus 2 Creating media (Digital photography)	Key Knowledge Focus 3 Programming A (Robot algorithms)
Key Knowledge (from the National Curriculum)	Use technology purposefully to create, organise, store, manipulate and retrieve digital content Recognise common uses of information technology beyond	Use technology purposefully to create, organise, store, manipulate and retrieve digital content Recognise common uses of information technology beyond	Understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions



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	school Use technology safely and respectfully	school Use technology safely and respectfully	Create and debug simple programs Use logical reasoning to predict the behaviour of simple programs
Key Knowledge	<p>Declarative knowledge</p> <ul style="list-style-type: none"> To know that a computer is a part of information technology To know the features of information technology To know about the uses of technology in and beyond school To know how information technology benefits us To know that choices are made when using information technology To know how to use information technology safely. 	<p>Declarative knowledge</p> <ul style="list-style-type: none"> To know that photos can be saved and view later <p>Procedural knowledge</p> <ul style="list-style-type: none"> To know how to capture a digital image To know how to take a photograph in both landscape and portrait format To know how to view photographs on a digital device To know how to hold the camera to take a clear photograph To know how to use zoom to change the composition of a photograph To know how to use filters to edit a photograph 	<p>Declarative knowledge</p> <ul style="list-style-type: none"> To know that a series of instructions as a 'sequence' To know how to use logical reasoning to predict the outcome of a program To know what happens when we change the order of instructions <p>Procedural knowledge</p> <ul style="list-style-type: none"> To know how to choose a series of commands that can run a program To know how to trace a sequence to make a prediction To know how to create and debug a program To know how to run a program on a device



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Curriculum focus	Identifying IT and how its responsibly use improves our world in school and beyond. (Information technology around us)	Capturing and changing digital photographs for different purposes.	Writing short algorithms and programs for floor robots, and predicting outcomes
Suggested enquiry questions (Questions in bold must be taught)	What is IT? How do we use IT in our lives? How can IT helps us?	What makes a good photograph? How can photographs be changed?	How can we make clear instructions for our robot to follow? What will the outcome be? How can we improve our instructions?
Key vocabulary	Information Technology Chrome books, tablets Examples of devices that use computers.	Device, Camera, Photograph Capture, Image, Digital Landscape, Portrait, framing, subject, compose, light source, flash, focus, background, editing, filter, format, Framing, lighting, focus, filter	Instruction, sequence, clear, unambiguous, algorithm, program, order, prediction design, route, debugging, decomposition
Supporting documents and resources	Teaching Computing Website – www.teachcomputing.org/curriculum (Unit 2.1) Google slides Mind mapping tool – popplet	Teaching Computing Website – www.teachcomputing.org/curriculum (Unit 2.2) Ipads Digital camera	Teaching Computing Website – www.teachcomputing.org/curriculum (Unit 2.3) Bee-bots.
Potential visit/ visitor opportunities			
Morecambe Bay Curriculum links			



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Class: Willow		Year group: 3 & 4		Cycle: A (2022-2023; 2024-2025)	
	Key Knowledge Focus 1 Computing systems and networks (Connecting computers)	Key Knowledge Focus 2 Creating media (Stop-frame animation)	Key Knowledge Focus 3 Programming A (Mr. P. ICT) (MicroBit LED animations – Y3)		
Key Knowledge (from the National Curriculum)	<p>Use sequence, selection, and repetition in programs; work with variables and various forms of input and output</p> <p>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.</p> <p>Select, use and combine a variety of software (including internet services) on a range of digital devices.</p>	<p>Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create context that accomplish given goals.</p> <p>Use technology safely, respectfully and responsibly.</p>	<p>Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems, solve problems by decomposing them into smaller parts.</p> <p>Use sequence, selection and repetition in programs; work with various forms of input and output.</p> <p>Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.</p> <p>Create a range of programs that accomplish given goals.</p>		
Key Knowledge	<p>Declarative knowledge</p> <ul style="list-style-type: none"> ● To know that a computer system accepts an input and processes it to produce an output. 	<p>Declarative knowledge</p> <ul style="list-style-type: none"> ● To know that a capturing device needs to be in a fixed position ● To know that smaller 	<p>Declarative knowledge</p> <ul style="list-style-type: none"> ● To know that programs begin because of an input ● To know what a sequence is. ● To know that the order of 		



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	<ul style="list-style-type: none"> To know that a digital device is made up of several parts. To know that computers can be connected to each other To know that a network is made up of several components To know the role of a switch, server, and wireless access point in a network To know the benefits of computer networks 	<p>movements create a smoother animation</p> <p>Procedural knowledge</p> <ul style="list-style-type: none"> To know how to set up a work area with an awareness of what will be captured To know how to capture an image To know how to use the onion skinning tool to review a subject position To know how to remove frames to improve an animation To know how to add media to enhance an animation 	<p>commands can affect a programs output</p> <p>Procedural knowledge</p> <ul style="list-style-type: none"> To know how to build a sequence of commands To know how to combine commands in a program To know how to order commands in a program To know how to create a sequence of commands to produce a given outcome
Curriculum focus	Identifying the digital devices have inputs, processes, and outputs, and how devices can be connected to make networks. (Connecting Computers)	Capturing and editing digital still images to produce a stop-frame animation that tells a story	Creating sequences in a block-based programming language to control a microbit
Suggested enquiry questions (Questions in bold must be taught)	<p>How do digital devices help us?</p> <p>How am I connected?</p> <p>How are computers connected?</p> <p>What is the</p>	<p>What is an animation?</p> <p>Can you create you own storyboard?</p>	
Key vocabulary	Digital device, input, process, output, Program, digital, non-digital, connection, network, network switch, server, wireless access point, network cables, network sockets	Animation, flipbook, stop frame animation, frame, sequence, image, photograph, setting, character, events, onion skinning, consistency, delete, evaluation, media, import, transition	programming blocks, commands, code, sequence, event, task, design, code, run the code, order, note, chord, algorithm, bug, debug, microbit, peripheral, download, upload, button, sense



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Supporting documents and resources	Teaching Computing Website – www.teachcomputing.org/curriculum (Unit 3.1) Any Painting program	Teaching Computing Website – www.teachcomputing.org/curriculum (Unit 3.2) iMotion	Mr. P ICT Microbit https://makecode.microbit.org/#editor
Potential visit/ visitor opportunities			
Morecambe Bay Curriculum links			

Class: Beech	Year group: 4 & 5		Cycle: A (2022-2023; 2024-2025)
	Key Knowledge Focus 1 Computing systems and networks Systems and searching (Yr5)	Key Knowledge Focus 2 Programming A Repetition in Games (Yr4)	Key Knowledge Focus 3 Programming B Selection in physical computing (Yr5)
Key Knowledge (from the National Curriculum)	Understanding computer networks including the internet; how they provide multiple services, such as the world wide web. Use a variety of software (including	Design, write and debug programs that accomplish specific goals; solve problems by decomposing them into smaller parts. Use repetition in programs,	Design, write and debug programs that accomplish specific goals; solve problems by decomposing them into smaller parts. Use, sequence, selection and



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	<p>internet services) on a range of digital devices.</p> <p>Use technology safely, respectfully and responsibly</p>	<p>Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.</p> <p>Select and use software to design and create a range of programs that accomplish given goals.</p>	<p>repetition in programs; work with various forms of input and output</p> <p>Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.</p> <p>Select and use software to design and create a range of programs that accomplish given goals.</p>
<p>Key Knowledge</p>	<p>Declarative knowledge</p> <ul style="list-style-type: none"> ● To know that computers can be connected to form IT systems ● To know that data can be transferred between IT systems ● To know inputs, processes and outputs on large IT systems and search engines are an example. ● To know why search engines create indices, and that they are different for each search engine. ● To know the role of web crawlers in creating an index ● To know how ranking is determined by rules ● To know some of the limitations of search engines 	<p>Declarative knowledge</p> <ul style="list-style-type: none"> ● To know that loop commands in a program repeat instructions and identify a loop within a program ● To know indefinite loops and count-controlled loops ● To know the importance of instruction order in a loop <p>Procedural knowledge</p> <ul style="list-style-type: none"> ● To know how to create two or more sequences that run at the same time. ● To know how to plan a program that includes appropriate loops to produce a given outcome 	<p>Declarative knowledge</p> <ul style="list-style-type: none"> ● To know the importance of instruction order in 'if...then...else' statements ● To know that a condition can only be true or false ● To know the difference between a conditioned controlled loop and a count-controlled loop <p>Procedural knowledge</p> <ul style="list-style-type: none"> ● To know how to create a condition-controlled loop ● To choose a condition to use in a program ● To know how to use a condition in an 'if...then...' statement to start an action <p>To know how to use 'if...then...else'</p>



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		<ul style="list-style-type: none"> To know how to use an indefinite loop to produce a given outcome. To know how to use a count-controlled loop to produce a given outcome 	to switch program flow in one of two ways.
Curriculum focus	Recognising IT systems in the world and how some can enable searching on the internet	Using a block-based programming language to explore count-controlled and infinite loops when creating a game.	Exploring conditions and selection using a programmable microcontroller
Possible Curriculum links			
Key vocabulary	System, connection, digital, input, process, output, search, search engine, refine, index, crawler, bot, ordering, ranking, search engine, links, algorithms, search engine optimisation, searching, search engine, web crawler, content creator, selection, ranking	Scratch, programming, sprite, blocks, code, loop, repeat, value, forever, infinite loop, count-controlled loop, costume, repetition, animate, costume, event block, duplicate, modify, design, algorithm, debug, refine, evaluate	Microcontroller, components, connection, infinite loop, output component, motor, repetition, count-controlled, loop, crumble controller, switch, motor, LED, sparkle, crocodile clips, connect, battery box, program, condition, input, output, selection, actions, debug
Supporting documents and resources	Teaching Computing Website – www.teachcomputing.org/curriculum (Unit 5.1) Google slides	Teaching Computing Website – www.teachcomputing.org/curriculum (Unit 4.6) Scratch	Teaching Computing Website – www.teachcomputing.org/curriculum (Unit 5.3) Crumble controller + starter kit + motor



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Potential visit/ visitor opportunities			
Morecambe Bay Curriculum links			

Class: Oak		Year group: 5 & 6		Cycle: A (2022-2023; 2024-2025)	
	<p>Key Knowledge Focus 1 Computing systems and networks</p> <p>Communication and collaboration (Y6)</p>	<p>Key Knowledge Focus 2 Creating media</p> <p>Webpage creation (Y6)</p>	<p>Key Knowledge Focus 3 Programming A</p> <p>Variables in games (Y6)</p>		
<p>Key Knowledge (from the National Curriculum)</p>	<p>Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems, solve problems by decomposing the into smaller parts</p> <p>Understand computer networks, including the internet; how that can provide multiple services, such as the World Wide web, and the opportunities they offer for</p>	<p>Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content</p> <p>Select, use and combine a variety of software on a range of digital devices to design and create a range of content that accomplish a given goal.</p> <p>Use technology safely, respectfully</p>	<p>Design, write and debug programs that accomplish specific goals, solve problems by decomposing them into smaller parts</p> <p>Use sequence, selection and repetition in programs; work with variable and various forms of input and output.</p> <p>Use logical reasoning to explain how</p>		



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	<p>communication and collaboration</p> <p>Use a variety of software (including internet services) on a range of digital devices to analyse and evaluate digital content.</p>	<p>and responsible.</p>	<p>some simple algorithms work and to detect and correct errors in algorithms and programs</p> <p>Use a variety of software on a range of digital devices to design and create a range of programs that accomplish a given goal.</p> <p>Use technology safely, respectfully and responsibly.</p>
<p>Key Knowledge</p>	<p>Declarative knowledge</p> <ul style="list-style-type: none"> • To know that data is transferred across networks using agreed protocols (methods) • To know that data is transferred in packets. • To know that connections between computers allow access to shared storied files • To know different methods of online communication and collaboration • To know computers connected to the internet allow people in different places to work together <p>Procedural knowledge</p> <ul style="list-style-type: none"> • To know how to choose methods 	<p>Declarative knowledge</p> <ul style="list-style-type: none"> • To know the relationship between HTML and visual display • To know the components of a webpage layout. <p>Procedural knowledge</p> <ul style="list-style-type: none"> • To know how to insert hyperlinks between pages and to other sites • To know how to add web pages • To know how to embed media in a web page • To know how to add and set the style of text 	<p>Declarative knowledge</p> <ul style="list-style-type: none"> • To know that a variable is something that is changeable • To know that there is only one value for a variable at any one time. • To know that variables can hold both numbers (integers) or letters (strings) and has a name and a value. <p>Procedural knowledge</p> <ul style="list-style-type: none"> • To know how to identify a variable in an existing program • To know how to set a variable within a program



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	of communication and collaboration for given purposes.	<ul style="list-style-type: none"> To know how to create a new blank web page 	
Curriculum focus	Exploring how data is transferred by working collaboratively online	Designing and creating webpages, giving consideration to copyright, aesthetics, and navigation.	Exploring variables when designing and coding a game
Cross-curricular links			
Key vocabulary	Communication, protocol, data, address, Internet protocol (IP) address, Domain Name Server (DNS), packet, header, data payload, chat. Explore, slide deck, reuse, remix, collaboration, communication, internet, public, private, one-way, two-way, one-to-one, one-to-many	Website, web page, browser. Media, Hypertext Markup Language (HTML), copyright, fair use, home page preview, evaluate, device, Google sites, breadcrumb trail, navigation. Hyperlink, subpage, evaluate, implication, external link, embed	Variable, change, name, value, set, design, event, algorithm. Code, task, artwork, program, project, code, test, debug, improve, evaluate, share,
Supporting documents and resources	Teaching Computing Website – www.teachcomputing.org/curriculum (Unit 6.1) Google slides	Teaching Computing Website – www.teachcomputing.org/curriculum (Unit 6.2) Google Sites	Teaching Computing Website – www.teachcomputing.org/curriculum (Unit 6.1) Scratch
Potential visit/ visitor opportunities			
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