



ELT Computing Curriculum Sequence of Knowledge

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Computer Science						
<p>Algorithms and Programming (Sequence/selection/repetition)</p> 	<p>Unplugged Computing Lessons</p> <p>I understand that algorithms are a set of instructions.</p> <p>I can create simple programs.</p> <p>I can debug simple programs.</p> <p>I understand debugging means to fix an error in an algorithm.</p> <p>I understand algorithms need to be unambiguous.</p> <p>I know unambiguous in computing is a very clear instruction or command.</p> <p>I can predict the behaviour of simple algorithms.</p> <p>I know predict means to say what I think will happen.</p> <p>I can create a set of instructions using picture cards for my partner to follow.</p> <p>I can follow instructions created by my partner. I can identify when my partner makes a mistake when acting out instructions (debugging). I can tell my partner how to fix their mistakes. I can use foam mats to create an unambiguous algorithm for my partner to follow. I can predict what an algorithm will do.</p> <p>I can work as a team to create, debug and predict what an algorithm will do and I can becoming confident debugging algorithms. I can solve problems by splitting them into smaller parts.</p>	<p>Unplugged Lessons</p> <p>I understand and can explain what algorithms are (a set of instructions).</p> <p>I can create and debug simple programs.</p> <p>I know debugging is fixing an error in an algorithm.</p> <p>I know unambiguous means a very clear instruction or command.</p> <p>I can predict an algorithm by saying what I think will happen.</p> <p>I know a program is a set of instructions for a computer.</p> <p>I understand computers, digital devices and robots follow precise, unambiguous instructions.</p> <p>I know repetition is doing an action more than once.</p> <p>I can use repetition in my algorithms by adding e.g. 'x5' to an action.</p> <p>I can use an orange 'repeat' block to create my algorithm.</p> <p>I can read my partners algorithm and correctly act it out.</p> <p>I can identify an error in my partners actions when they're acting out my algorithms (debugging).</p> <p>I can use foam mats to create a simple program with precise and unambiguous instructions.</p> <p>I can look at a foam mat maze and predict what the algorithm should be to get to an end point.</p> <p>I can use logical reasoning to predict the behaviour of a simple algorithm.</p> <p>I know logical reasoning means sensible thinking. Its about knowing the rules and</p>	<p>I know how to create a set of instructions.</p> <p>I use the term algorithm correctly (a set of instructions).</p> <p>I can predict and explain what an algorithm will do.</p> <p>I can run the code.</p> <p>I can investigate a sequence of instructions and discuss if my predictions were correct.</p> <p>I can fix any mistakes (Debugging)</p> <p>I understand the concept of coding – coding tells computers what to do, developers write code to build their own apps and games.</p> <p>I can use MakeCode editor to construct simple sequences.</p> <p>I can build sequences and understand the importance of orders.</p> <p>I understand what repetition is in coding. I can write an algorithm that uses repetition.</p> <p>I understand what a forever (infinite) loop is used for.</p> <p>I can make an algorithm repeat a set number of times (count-controlled loop).</p> <p>I understand basic conditions in code – if/then.</p> <p>I can understand selection (if / then / else) and can use a logic selection block in my code.</p> <p>I can modify an algorithm by changing part of the code.</p> <p>I can make my own algorithms based on what I have previously learned.</p>	<p>I can predict and explain what an algorithm will do.</p> <p>I can run (execute) the code.</p> <p>I can investigate a sequence of instructions and discuss if my predictions were correct.</p> <p>I can modify an algorithm by changing part of the code.</p> <p>I can make my own algorithms based on what I have previously learned.</p> <p>I know that an algorithm is a set of instructions and the sequence of the instructions is important.</p> <p>I can use Makecode editor to create a sequence of instructions.</p> <p>I can use my debugging skills to detect and correct errors in my algorithms.</p> <p>I understand what repetition is in coding. I can write an algorithm that uses repetition.</p> <p>I can describe the two types of repetition in coding:</p> <p>I understand what a forever (infinite) loop is used for.</p> <p>I can make an algorithm repeat a set number of times (count-controlled loop).</p> <p>I understand selection (if / then / else) and can use a logic selection block in my code. I can use conditional statements for different contexts. I can combine selection with the inputs and outputs of a Micro:bit.</p> <p>I can create a variable using Makecode editor. I can use my variable in my program.</p> <p>I understand that a variable is data stored within a computer</p>	<p>I can predict, run (execute) and investigate a sequence of instructions and discuss if my predictions were correct. I can modify an algorithm and use new learning to make my own algorithms.</p> <p>I know the definition of algorithm and I can use logical reasoning to explain how some simple algorithms work. I can work with my partner to detect and correct errors in algorithms and programs. (debugging)</p> <p>I can identify, describe and demonstrate how to use sequence, repetition, variables and selection within the same program.</p> <p>I can identify, describe and demonstrate different types of repetition and know how to use forever loops and count-controlled loops.</p> <p>I can use selection (if/then/else) in various contexts.</p> <p>I can create my own variables for different scenarios. I understand that a variable is data stored within a computer program. This data can be changed, recalled or used in my program.</p> <p>I can use the Makecode editor to design, write and debug programs that accomplish specific goals.</p> <p>When I make my own algorithms, I can use abstraction (Identifying and focusing on the most</p>	<p>I can predict, run, investigate and modify an algorithm and use new learning to make my own algorithms.</p> <p>I am confident using logical reasoning to explain how an algorithm works and I can detect and correct errors in algorithms. I can use logical reasoning to explain what an algorithm does and why an algorithm is not working.</p> <p>I can define, identify and demonstrate how to use sequence, repetition, selection and variables in programs.</p> <p>I can define, identify and demonstrate how to use count-controlled and infinite loops within my programs.</p> <p>I can create an algorithm with a logic if/then/else block inside a white nested loop within a forever loops. (reaction game lesson)</p> <p>I am developing my knowledge and can identify nested loops and how to use them effectively.</p> <p>I can identify when I need to create a variable within a program and understand that a variable is data stored within a computer program. This data can be changed, recalled or used in my program. (data loggers)</p> <p>I can use the Makecode editor to design, write and</p>

		working out what will happen when you follow them. I can use logical reasoning to predict which algorithm will be successful and which will be unsuccessful.		program. This data can be changed, recalled or used in my program. When I make my own algorithms: I can use abstraction (Identifying and focusing on the most important information) and I can use decomposition to break down a problem into smaller tasks.	important information) and I can use decomposition to break down a problem into smaller tasks.	debug programs that accomplish specific goals. When I make my own algorithms, I can use abstraction (Identifying and focusing on the most important information) and I can use decomposition to break down a problem into smaller tasks.
Data (use component knowledge to support understanding of data) 	(Not in Year 1 Curriculum)	Not in the Y2 curriculum	I can recognise different connections . I can explain how messages are passed through multiple connections. I can discuss why we need a network switch. I can recognise that a computer network is made up of a number of devices . I can demonstrate how information can be passed between devices. I can explain the role of a switch, server, and wireless access point in a network . I can identify how devices in a network are connected together. I can identify networked devices around me. I can identify the benefits of computer networks.	Networks covered in Y3, Y5 and Y6.	I understand and can describe how our school network operates. I can explain how the following devices contribute to our school network: Server, Switch, Wireless Access Point (WAP), Router, Touch Screen, Printers, iPads, Laptops, Desktop PCs. I can identify if a device is wired or wireless. I can talk about the benefits of having a computer network. I can describe the internet as a network of networks I can demonstrate how information is shared across the internet I can discuss why a network needs protecting I can take part in a network game and understand my role in the game. I can describe how a computer network operates and how networks communicate with other networks to deliver messages (data). I can describe networked devices and how they connect I can explain that the internet is used to provide many services I can recognise that the World Wide Web is the part of the internet that contains websites and web pages	I can recognise that data is transferred using agreed methods I can explain that internet devices have addresses I can describe how computers use addresses to access websites I can identify and explain the main parts of a data packet I can explain that data is transferred over networks in packets I can explain that all data transferred over the internet is in packets I can create an algorithm for my Micro:Bit using python programming language. I understand that Python is the language that powers websites and apps I know the difference between visual (blocks) and scripted (text) programming languages


					<p>I can explain the types of media that can be shared on the WWW</p> <p>I can describe where websites are stored when uploaded to the WWW</p> <p>I can describe how to access websites on the WWW</p> <p>I can explain what media can be found on websites</p> <p>I can recognise that I can add content to the WWW</p> <p>I can explain that internet services can be used to create content online</p> <p>I can explain that websites and their content are created by people</p> <p>I can suggest who owns the content on websites</p> <p>I can explain that there are rules to protect content</p> <p>I can explain that not everything on the internet is true</p> <p>I can explain why some information I find online may not be honest, accurate, or legal</p> <p>I can explain why I need to think carefully before I share or reshare content online</p>	
<p>Systems (input, output and process)</p> 	<p>I can find the commands to move a sprite</p> <p>I can use commands to move a sprite</p> <p>I can compare different programming tools</p> <p>I can use more than one block by joining them together</p> <p>I can use a Start block in a program</p> <p>I can run my program</p> <p>I can find blocks that have numbers</p> <p>I can change the value</p> <p>I can say what happens when I change a value</p> <p>I can show that a project can include more than one sprite</p> <p>I can delete a sprite</p> <p>I can add blocks to each of my sprites</p> <p>I can choose appropriate artwork for my project</p>	<p>I can identify the start of a sequence</p> <p>I can identify that a program needs to be started</p> <p>I can show how to run my program</p> <p>I can predict the outcome of a sequence of commands</p> <p>I can match two sequences with the same outcome</p> <p>I can change the outcome of a sequence of commands</p> <p>I can work out the actions of a sprite in an algorithm</p> <p>I can decide which blocks to use to meet the design</p> <p>I can build the sequences of blocks I need</p> <p>I can choose backgrounds for the design</p> <p>I can choose characters for the design</p> <p>I can create a program based on the new design</p>	<p>I understand how use Bluetooth connections to attach my Micro:bit to my iPad (or use USB if working on Windows).</p> <p>I understand the different ways to connect a Micro:bit to a device to run my code.</p> <p>I can flash my algorithm to a Micro:bit.</p> <p>I am resilient and troubleshoot any issues that may arise when connecting my Micro:bit.</p> <p>I am starting to understand various methods of input and output - (buttons, LEDs, sound/speaker, light sensor, accelerometer for movement/shake).</p> <p>I can control basic features of a physical device</p>	<p>I understand how use Bluetooth connections to attach my Micro:bit to my iPad (or use USB if working on Windows).</p> <p>I understand the different ways to connect a Micro:bit to a device to run my code.</p> <p>I can flash my algorithm to a Micro:bit.</p> <p>I am becoming more resilient and can troubleshoot any issues that may arise when connecting my Micro:bit.</p> <p>I have a clear understanding of various methods of input and output - (buttons, LEDs, sound/speaker, light sensor, accelerometer for movement/shake).</p> <p>I know that input devices can be used to send data to the computer. (E.g. buttons)</p>	<p>NC (Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems).</p> <p>I know how to create a variable to: count the number of steps on a step counter, keep a score and high score in a game, rewrite the high score if current score is greater and use 'receivednumber' variable during sending and receiving radio messages.</p> <p>I can change the sensitivity of the accelerometer (mg strength) to make my step counter more accurate. I can create my own melody (and change the tempo) to create a sound used for a timer.</p>	<p>NC (Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems).</p> <p>I know how to create a variable to: change a timer by 1 second, reset a timer, instruct Micro:bit to start a game, count data in a data logger program.</p> <p>I can create an algorithm that controls the inbuilt speaker on a Micro:bit to turn it on and off during a game.</p> <p>I can use the accelerometer to reset a timer.</p> <p>I can identify and describe the GPIO (General Purpose Digital Input and Output) pins</p>




	<p>I can decide how each sprite will move</p> <p>I can create an algorithm for each sprite</p> <p>I can use sprites that match my design</p> <p>I can add code blocks based on my algorithm</p> <p>I can test the code I have created</p>	<p>I can choose the images for my own design</p> <p>I can create an algorithm</p> <p>I can build sequences of blocks to match my design</p> <p>I can compare my project to my design</p> <p>I can improve my project by adding features</p> <p>I can debug my program</p>		<p>I know that output devices that can be used to present data that has been generated to a computer. (E.g. LEDs)</p> <p>I can identify the inputs and outputs on my Micro:bit.</p> <p>I know that an LED is a Light Emitting Diode.</p> <p>I know that the accelerometer is a sensor that can be used to measure if the Micro:Bit is moving, (on shake block).</p>	<p>I can create a program for two Micro:bits to communicate using radio waves.</p> <p>I can identify each component on a Micro:bit and describe if it is an input or an output.</p>	<p>on a Micro:bit (0, 1, 2, 3V, GND). I connect crocodile clips to the pins to create a reaction game.</p> <p>I can identify each component on a Micro:bit and describe if it is an input or an output.</p> <p>I can create an algorithm to log data. I can label columns with individual values. I can reconnect my Micro:bit to my device and analyse the data that I have collected. I can use the data collected and choose a relevant graph to display my data.</p>
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Information Technology

			I can use my knowledge of Keynote and search engines to create an informative presentation			I can explain how my 3D model could be improved I can modify my 3D model to improve it
	Clips I can record video I can move clips in the timeline I can delete clips I can take and review photos and digital content I can add audio to a photograph I can manipulate content using stickers I can manipulate content using filters I can manipulate content using emojis I can add a poster to my project	Clips I can add music onto Clips I can add music onto Clips I can create content for an e-book I can organise content for an e-book I can add images to an e-book I can add text to an e-book I can add voice recording to an e-book	Data Handling I can collect and present data (unplugged) I can use a digital device to collect and log live data I can input data and represent it in a graph I can analyse data I can use Keynote or iMovie to document my learning I can record data in a tally chart I can use Office Forms to collect data	Pages, Keynote and Communication I can use email as a form of communication I can compose an email I can add an attachment to an email I can send an email I can use templates to create content to inform I can use transitions I can use Magic Move to create animations	Animation I can create a storyboard for a stop frame animation I can design and create a stop frame animation I can make small adjustments to make my animation as smooth as possible I can combine software to complete my animation I can use objects to share my animation on Halo AR I can create a story using animations	Production I can explain the different ways in which people communicate I can identify that there are a variety of ways to communicate over the internet I can choose methods of communication to suit particular purposes I can collaborate ideas I can add formula and format cells to budget for an event I can design a poster to promote my event I can use iMovie to create and design a video to pitch my event idea I can use green screen I can use transitions I can add audio to photos

Digital Literacy

Online Relationships 	I can recognise some ways in which the internet can be used to communicate.			I can give examples of technology-specific forms of communication (e.g. emojis, memes and GIFs).	I can explain how someone can get help if they are having problems and identify when to tell a trusted adult. I can describe strategies for safe and fun experiences in a range of online social environments (e.g. livestreaming, gaming platforms) I can give examples of how to be respectful to others online and describe how to recognise healthy and unhealthy online behaviours.	I can describe how things shared privately online can have unintended consequences for others. e.g. screen-grabs. I can explain that taking or sharing inappropriate images of someone (e.g. embarrassing images), even if they say it is okay, may have an impact for the sharer and others; and who can help if someone is worried about this.
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<p>Online Reputation</p> 	<p>I can identify ways that I can put information on the internet.</p>	<p>I can recognise that information can stay online and could be copied.</p>				<p>I can explain how to search for information about others online</p> <p>I can describe how to find out information about others by searching online</p> <p>I can explain ways that some of the information about anyone online could have been created, copied or shared by others.</p> <p>I can search for information about an individual online and summarise the information found.</p> <p>I can describe ways that information about anyone online can be used by others to make judgments about an individual and why these may be incorrect.</p> <p>I can explain strategies anyone can use to protect their 'digital personality' and online reputation, including degrees of anonymity.</p>
<p>Health Well-being and Lifestyle</p> 	<p>I can explain rules to keep myself safe when using technology both in and beyond the home</p>	<p>I can explain simple guidance for using technology in different environments and settings e.g. accessing online technologies in public places and the home environment. I can say how those rules / guides can help anyone accessing online technologies</p>	<p>I can explain why some online activities have age restrictions, why it is important to follow them and know who I can talk to if others pressure me to watch or do something online that makes me feel uncomfortable (e.g. age restricted gaming or web sites).</p>			
<p>Managing Online Information</p> 	<p>I can talk about how to use the internet as a way of finding information online.</p> <p>I can give simple examples of how to find information using digital technologies, e.g. search engines, voice activated searching.</p> <p>I can use simple keywords in search engines</p>	<p>I can demonstrate how to navigate a simple webpage to get to information I need (e.g. home, forward, back buttons; links, tabs and sections).</p>	<p>I can demonstrate how to use key phrases in search engines to gather accurate information online.</p> <p>I can explain the difference between a 'belief', an 'opinion' and a 'fact. and can give examples of how and where they might be shared online, e.g. in videos, memes, posts, news stories etc.</p>		<p>I can explain what autocomplete is and how to choose the best suggestion.</p> <p>I can explain the benefits and limitations of using different types of search technologies e.g. voice-activation search engine. I can explain how some technology can limit the information I am presented with.</p>	

<p>Privacy & Security</p> 	<p>I can recognise more detailed examples of information that is personal to someone (e.g. where someone lives and goes to school, family names).</p> <p>I can explain why it is important to always ask a trusted adult before sharing any personal information online, belonging to myself or others.</p>	<p>I can explain how passwords can be used to protect information, accounts and devices.</p> <p>I can explain how passwords are used to protect information, accounts and devices.</p> <p>I can explain and give examples of what is meant by 'private' and 'keeping things private'.</p> <p>I can describe and explain some rules for keeping personal information private (e.g. creating and protecting passwords).</p>	<p>I can describe simple strategies for creating and keeping passwords private.</p> <p>I can describe strategies for keeping personal information private, depending on context.</p> <p>I can explain what a strong password is and demonstrate how to create one.</p> <p>I can describe effective ways people can manage passwords (e.g. storing them securely or saving them in the browser).</p> <p>I can explain what to do if a password is shared, lost or stolen.</p>	<p>I can give reasons why someone should only share information with people they choose to and can trust. I can explain that if they are not sure or feel pressured then they should tell a trusted adult.</p> <p>I can describe how connected devices can collect and share anyone's information with others.</p> <p>I can explain how many free apps or services may read and share private information (e.g. friends, contacts, likes, images, videos, voice, messages, geolocation) with others.</p>	<p>I can describe how and why people should keep their software and apps up to date, e.g. auto updates.</p> <p>I can describe simple ways to increase privacy on apps and services that provide privacy settings.</p>	
<p>Copyright and Ownership</p> 		<p>I can name my work so that others know it belongs to me.</p> <p>I can save my work under a suitable title or name so that others know it belongs to me (e.g. filename, name on content).</p> <p>I understand that work created by others does not belong to me even if I save a copy</p>	<p>I can explain why copying someone else's work from the internet without permission isn't fair and can explain what problems this might cause.</p>	<p>When searching on the internet for content to use, I can explain why I need to consider who owns it and whether I have the right to reuse it.</p> <p>I can give some simple examples of content which I must not use without permission from the owner, e.g. videos, music, images.</p>	<p>I can demonstrate the use of search tools to find and access online content which can be reused by others.</p> <p>I can demonstrate how to make references to and acknowledge sources I have used from the internet.</p>	
<p>Self-Image & Identity</p> 	<p>I can give examples of issues online that might make someone feel sad, worried, uncomfortable or frightened; I can give examples of how they might get help.</p>			<p>I can explain how identity online can be copied, modified or altered.</p> <p>I can explain how my online identity can be different to my offline identity.</p> <p>I can describe positive ways for someone to interact with others online and understand how this will positively impact on how others perceive them.</p> <p>I can explain that others online can pretend to be someone else, including my friends, and can suggest reasons why they might do this.</p>	<p>I can demonstrate how to make responsible choices about having an online identity, depending on context</p>	<p>I can identify and critically evaluate online content relating to gender, race, religion, disability, culture and other groups, and explain why it is important to challenge and reject inappropriate representations online.</p>
<p>Online Bullying</p>			<p>I can describe appropriate ways to behave towards</p>	<p>I can describe ways people can be bullied through a</p>	<p>I can describe how to capture bullying content as evidence</p>	



other people online and why this is important.

I can give examples of how bullying behaviour could appear online and how someone can get support.

range of media (e.g. image, video, text, chat).

(e.g screen-grab, URL, profile) to share with others who can help me.