

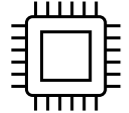


ELT Computing Curriculum Sequence of Knowledge

	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 I understand that algorithms are a set of instructions. I can create simple programs. I can debug simple programs. I understand debugging means to fix an error in an algorithm. I understand algorithms need to be unambiguous. I know unambiguous in computing is a very clear instruction or command. I can predict the behaviour of simple algorithms. 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. 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 I understand and can explain what algorithms are (a set of instructions). I can create and debug simple programs. I know debugging is fixing an error in an algorithm. I know unambiguous means a very clear instruction or command. I can predict an algorithm by saying what I think will happen. I know a program is a set of instructions for a computer. I understand computers, digital devices and robots follow precise, unambiguous instructions. I know repetition is doing an action more than once. I can use repetition in my algorithms by adding e.g. 'x5' to an action. I can use an orange 'repeat' block to create my algorithm. I can read my partners algorithm and correctly act it out. I can identify an error in my partners actions when they're acting out my algorithms (debugging). I can use foam mats to create a simple program with precise and unambiguous instructions. I can look at a foam mat maze and predict what the algorithm should be to get to an end point. I can use logical reasoning to predict the behaviour of a simple algorithm. I know logical reasoning means sensible thinking. Its</p>	<p>I know how to create a set of instructions. I use the term algorithm correctly (a set of instructions). I can predict and explain what an algorithm will do. I can run the code. I can investigate a sequence of instructions and discuss if my predictions were correct. I can fix any mistakes (Debugging) I understand the concept of coding – coding tells computers what to do, developers write code to build their own apps and games. I can use MakeCode editor to construct simple sequences. I can build sequences and understand the importance of orders. I understand what repetition is in coding. I can write an algorithm that uses repetition. I understand what a forever (infinite) loop is used for. I can make an algorithm repeat a set number of times (count-controlled loop). I understand basic conditions in code – if/then. I can understand selection (if / then / else) and can use a logic selection block in my code. I can modify an algorithm by changing part of the code. 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. I can run (execute) the code. I can investigate a sequence of instructions and discuss if my predictions were correct. I can modify an algorithm by changing part of the code. 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. I can use Makecode editor to create a sequence of instructions. 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. I can describe the two types of repetition in coding: I understand what a forever (infinite) loop is used for. 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 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. I can identify, describe and demonstrate different types of repetition and know how to use forever loops and count-controlled loops. 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</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>

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		<p>about knowing the rules and working out what will happen when you follow them.</p> <p>I can use logical reasoning to predict which algorithm will be successful and which will be unsuccessful.</p>		<p>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>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.</p>	<p>focusing on the most important information) and I can use decomposition to break down a problem into smaller tasks.</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 important information) and I can use decomposition to break down a problem into smaller tasks.</p>
<p>Data (use component knowledge to support understanding of data)</p> 	(Not in Year 1 Curriculum)	Not in the Y2 curriculum	<p>I can recognise different connections.</p> <p>I can explain how messages are passed through multiple connections.</p> <p>I can discuss why we need a network switch.</p> <p>I can recognise that a computer network is made up of a number of devices.</p> <p>I can demonstrate how information can be passed between devices.</p> <p>I can explain the role of a switch, server, and wireless access point in a network.</p> <p>I can identify how devices in a network are connected together.</p> <p>I can identify networked devices around me.</p> <p>I can identify the benefits of computer networks.</p>	<p>Networks covered in Y3, Y5 and Y6.</p>	<p>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.</p> <p>I can talk about the benefits of having a computer network.</p> <p>I can describe the internet as a network of networks</p> <p>I can demonstrate how information is shared across the internet</p> <p>I can discuss why a network needs protecting</p> <p>I can take part in a network game and understand my role in the game.</p> <p>I can describe how a computer network operates and how networks communicate with other networks to deliver messages (data).</p> <p>I can describe networked devices and how they connect</p> <p>I can explain that the internet is used to provide many services</p>	<p>I can recognise that data is transferred using agreed methods</p> <p>I can explain that internet devices have addresses</p> <p>I can describe how computers use addresses to access websites</p> <p>I can identify and explain the main parts of a data packet</p> <p>I can explain that data is transferred over networks in packets</p> <p>I can explain that all data transferred over the internet is in packets</p> <p>I can create an algorithm for my Micro:Bit using python programming language.</p> <p>I understand that Python is the language that powers websites and apps</p> <p>I know the difference between visual (blocks) and scripted (text) programming languages</p>



	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
					<p>I can recognise that the World Wide Web is the part of the internet that contains websites and web pages</p> <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 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</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,</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,</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>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</p>





	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	<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 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>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 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>sound/speaker, light sensor, accelerometer for movement/shake).</p> <p>I can control basic features of a physical device</p>	<p>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>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 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>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 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 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>



Information Technology

	Taking Photographs	Data Handling	Multimedia	Multimedia	Podcasting	3D Modelling
	<p>I can turn live pictures on and off</p> <p>I can zoom in and zoom out</p> <p>I can focus on a specific object</p> <p>I can alter the brightness of my photo</p> <p>I can use the timer</p> <p>I can delete unwanted photographs</p> <p>I can identify what is wrong with a photograph</p> <p>I can identify how to take a good photo</p> <p>I can improve a photograph by retaking it</p> <p>I can create digital content in other formats (slo-mo, video, pano, time lapse)</p> <p>I can manipulate photographs</p>	<p>I can organise data by labelling and matching</p> <p>I can organise data by grouping and counting</p> <p>I can collect data (unplugged)</p> <p>I can present data in a bar chart (unplugged)</p> <p>I can recognise how data is organised</p> <p>I can add and remove columns and rows from a table</p> <p>I can input data</p> <p>I can create a bar chart using my data</p> <p>I can present my data and explain its meaning</p>	<p>I can import photos and videos from my device</p> <p>I can create content that includes photos</p> <p>I can create content that includes video</p> <p>I can add voiceover to photos</p> <p>I can use the Ken Burns effect</p> <p>I can reorganise my photos and videos</p> <p>I can add backgrounds and titles to my movie</p> <p>I can add an audio soundtrack</p> <p>I can use a template on Keynote</p> <p>I can add text and use the paintbrush icon to edit</p>	<p>I can use loops in Garageband to create a rap beat</p> <p>I can record voice using different effects</p> <p>I can record voice in small segments</p> <p>I can reorganise voice recordings</p> <p>I can combine software to create a music video</p> <p>I can export my music video to share with others</p>	<p>I can create a script for a podcast</p> <p>I can use the autocue function on Pages</p> <p>I can edit settings to record audio effectively</p> <p>I can add effects to audio</p> <p>I can use augmented loops and select the most appropriate one for a podcast</p> <p>I can critique my podcast and make adjustments</p>	<p>I can add 3D shapes to a project</p> <p>I can view 3D shapes from different perspectives</p> <p>I can move 3D shapes relative to one another</p> <p>I can resize an object in three dimensions</p> <p>I can lift/lower 3D objects</p> <p>I can recolour a 3D object</p> <p>I can rotate objects in three dimensions</p> <p>I can duplicate 3D objects</p> <p>I can group 3D objects</p> <p>I can accurately size 3D objects</p> <p>I can show that placeholders can create holes in 3D objects</p>

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	<p>I can identify why it is important to ask permission before taking a photograph of someone</p> <p>I can manipulate photographs using filters, cropping and rotating</p> <p>I can organise digital content into folders</p>		<p>I can add shapes and photos to a slide</p> <p>I can create a transition between slides</p> <p>I can explain how a search engine works</p> <p>I can identify when a website is secure</p> <p>I can use search engines efficiently to get the most appropriate results</p> <p>I can use my knowledge of Keynote and search engines to create an informative presentation</p>			<p>I can combine a number of 3D objects</p> <p>I can analyse a 3D model</p> <p>I can choose objects to use in a 3D model</p> <p>I can combine objects in a design</p> <p>I can construct a 3D model based on a design</p> <p>I can explain how my 3D model could be improved</p> <p>I can modify my 3D model to improve it</p>
	<p>Clips</p> <p>I can record video</p> <p>I can move clips in the timeline</p> <p>I can delete clips</p> <p>I can take and review photos and digital content</p> <p>I can add audio to a photograph</p> <p>I can manipulate content using stickers</p> <p>I can manipulate content using filters</p> <p>I can manipulate content using emojis</p> <p>I can add a poster to my project</p>	<p>Clips</p> <p>I can add music onto Clips</p> <p>I can add music onto Clips</p> <p>I can add music onto Clips</p> <p>I can create content for an e-book</p> <p>I can organise content for an e-book</p> <p>I can add images to an e-book</p> <p>I can add text to an e-book</p> <p>I can add voice recording to an e-book</p>	<p>Data Handling</p> <p>I can collect and present data (unplugged)</p> <p>I can use a digital device to collect and log live data</p> <p>I can input data and represent it in a graph</p> <p>I can analyse data</p> <p>I can use Keynote or iMovie to document my learning</p> <p>I can record data in a tally chart</p> <p>I can use Office Forms to collect data</p>	<p>Pages, Keynote and Communication</p> <p>I can use email as a form of communication</p> <p>I can compose an email</p> <p>I can add an attachment to an email</p> <p>I can send an email</p> <p>I can use templates to create content to inform</p> <p>I can use transitions</p> <p>I can use Magic Move to create animations</p>	<p>Animation</p> <p>I can create a storyboard for a stop frame animation</p> <p>I can design and create a stop frame animation</p> <p>I can make small adjustments to make my animation as smooth as possible</p> <p>I can combine software to complete my animation</p> <p>I can use objects to share my animation on Halo AR</p> <p>I can create a story using animations</p>	<p>Production</p> <p>I can explain the different ways in which people communicate</p> <p>I can identify that there are a variety of ways to communicate over the internet</p> <p>I can choose methods of communication to suit particular purposes</p> <p>I can collaborate ideas</p> <p>I can add formula and format cells to budget for an event</p> <p>I can design a poster to promote my event</p> <p>I can use iMovie to create and design a video to pitch my event idea</p> <p>I can use green screen</p> <p>I can use transitions</p> <p>I can add audio to photos</p>

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Digital Literacy						
<p>Online Relationships</p> 	<p>I can recognise some ways in which the internet can be used to communicate.</p>			<p>I can give examples of technology-specific forms of communication (e.g. emojis, memes and GIFs).</p>	<p>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.</p>	<p>I can describe how things shared privately online can have unintended consequences for others. e.g. screen-grabs.</p> <p>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.</p>
<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>

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Health Well-being and Lifestyle 	I can explain rules to keep myself safe when using technology both in and beyond the home	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	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).			
Managing Online Information 	I can talk about how to use the internet as a way of finding information online. I can give simple examples of how to find information using digital technologies, e.g. search engines, voice activated searching. I can use simple keywords in search engines	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).	I can demonstrate how to use key phrases in search engines to gather accurate information online. 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.		I can explain what autocomplete is and how to choose the best suggestion. 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.	
Privacy & Security 	I can recognise more detailed examples of information that is personal to someone (e.g where someone lives and goes to school, family names). I can explain why it is important to always ask a trusted adult before sharing any personal information online, belonging to myself or others.	I can explain how passwords can be used to protect information, accounts and devices. I can explain how passwords are used to protect information, accounts and devices. I can explain and give examples of what is meant by 'private' and 'keeping things private'. I can describe and explain some rules for keeping personal information private (e.g. creating and protecting passwords).	I can describe simple strategies for creating and keeping passwords private. I can describe strategies for keeping personal information private, depending on context. I can explain what a strong password is and demonstrate how to create one. I can describe effective ways people can manage passwords (e.g. storing them securely or saving them in the browser). I can explain what to do if a password is shared, lost or stolen.	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. I can describe how connected devices can collect and share anyone's information with others. 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.	I can describe how and why people should keep their software and apps up to date, e.g. auto updates. I can describe simple ways to increase privacy on apps and services that provide privacy settings.	
Copyright and Ownership 		I can name my work so that others know it belongs to me. 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).	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.	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. I can give some simple examples of content which I	I can demonstrate the use of search tools to find and access online content which can be reused by others. I can demonstrate how to make references to and acknowledge sources I have used from the internet.	

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		I understand that work created by others does not belong to me even if I save a copy		must not use without permission from the owner, e.g. videos, music, images.		
Self-Image & Identity 	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.			I can explain how identity online can be copied, modified or altered. I can explain how my online identity can be different to my offline identity. I can describe positive ways for someone to interact with others online and understand how this will positively impact on how others perceive them. I can explain that others online can pretend to be someone else, including my friends, and can suggest reasons why they might do this.	I can demonstrate how to make responsible choices about having an online identity, depending on context	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.
Online Bullying 			I can describe appropriate ways to behave towards 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.	I can describe ways people can be bullied through a range of media (e.g. image, video, text, chat).	I can describe how to capture bullying content as evidence (e.g. screen-grab, URL, profile) to share with others who can help me.	