



Goldenhill Primary Academy

Curriculum Progression Map - Computing

Strand	Aspects / Concept	Nursery (Barefoot Computing focussing on ELG with a computational thinking focus)	Reception (Barefoot Computing focussing on ELG with a computational thinking focus)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Digital Literacy	Online Safety	Online Relationships Online Bullying Privacy & Security Self-Image & Identity Managing Online Information Health Wellbeing & Lifestyle Online Reputation Copyright & Ownership See separate progression map for progression of online safety units.							
	Computing Systems and Networks			Computing Systems and Networks- Technology Around Us To identify technology To identify a computer and its main parts To use a mouse in different ways To use a keyboard to type on a computer	Computing Systems and Networks- IT around Us To recognise the uses and features of information technology eg. Examples of computers and describe uses of computers To identify the uses of information technology in the school To identify information technology beyond school To explain how information technology helps us To explain how to use information technology safely To recognise that choices are made when using information technology and use IT for different activities/in different ways	Computing Systems and Networks- Connecting Computers To explain how digital devices function. Eg, inputs, outputs, process. To identify input and output devices and a design a digital device To recognise how digital devices can change the way that we work and suggest differences between digital/non-digital devices To explain how a computer network can be used to share information, recognise connections, explain how messages are passed through multiple connections and discuss why we need a network switch To explore how digital devices can be connected To recognise the physical components of a network I can identify the benefits of computer networks	Computing Systems and Networks- The Internet To describe how networks physically connect to other networks and discuss why a network needs protecting To recognise how networked devices, make up the internet To outline how websites can be shared via the World Wide Web (WWW) To describe how content can be added and accessed on the World Wide Web (WWW) To recognise how the content of the WWW is created by people, who owns the content on websites and explain that there are rules to protect content. To evaluate the consequences of unreliable content, explaining that not everything on the WWW is true	Computing systems and networks— Systems and Searching To explain that computers can be connected together to form systems using a number of parts and can describe the input, process, and output of a digital system and explain that computer systems communicate with other devices To recognise the role of computer systems in our lives including how to keep personal information safe To identify how to use a search engine by finding specific information, refining my web search, comparing results and recognising trustworthy websites. To describe how search engines, select results by recognising the role of web crawlers in creating an index and relating a search term to the search engine's index To explain how search results are ranked To recognise why the order of results is important, and to whom I can explain how search engines make money	



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Computer Science	Physical Computing In KS1 Physical Computing Units are taught before coding. In KS2 Physical Computing Units are taught after coding.			Programming Beebots (Introducing and understanding algorithms)	Programming Beebots	Micro:Bits	Micro:Bits	Micro:Bits	Micro:Bits
				To explain what a given command will do: predict and run a program To combine 'forwards' and 'backwards' commands to make a sequence To combine four direction commands to make sequences To plan and debug a simple program To find more than one solution to a problem I can use two different programs to get to the same place	To describe a series of instructions as a sequence To explain what happens when we change the order of instructions- same instruction, different algorithm To use logical reasoning to predict the outcome of a program To explain that programming projects can have code and artwork To design and create an algorithm, explain what an algorithm should achieve and use that algorithm to create a program To create and debug a program that I have written I can put together the different parts of my program	Children can explain that the micro:bit is a tiny computer. Children can give the micro:bit instructions in code to make a name badge using the LED display output. Children can create a micro:bit animation using a sequence of images in a loop. Children can explain that the order or sequence of instructions is important. Children can make the micro:bit show different pictures on the LED display output depending on which button input is pressed. Children can explain that inputs are data sent to a computer. Children can explain that outputs are data sent from a computer Children can use the music editor to create sounds and music. Children can explain that accelerometer is a sensor, an input that senses movement. Children can create code that makes sounds play using different movement gestures.	Children can turn a micro:bit into a step counter using the accelerometer and variables.. Children can explain that variables are containers for storing data which can be accessed and updated. Children can code a micro:bit to make a light that switches on when it gets dark using sensors and logic. Children can explain that logic is how computers make decisions in code based on whether things are true or false Children can code a micro:bit rock, paper, scissors game using inputs, random numbers, variables and logic. (if/else statements) Children can explain how combining inputs, random numbers, variables, and logic can make a computer simulation of a real-world game. Children can code a micro:bit dice using inputs, random numbers, variables and logic. Children can explain how combining inputs, random numbers, variables, and logic can make a computer simulation of a real dice	Children can code a story telling game using a 'when gesture' event, random numbers, variables and logic IF/THEN commands. Children can explain how a computer uses IF/THEN logic statements to select which image to display. Children can program a micro:bit to display the temperature measured by the sensor. Children can program IF/THEN statements to introduce selection in their code to make things happen based on changing temperature. Children can program the 'when gesture: faceup' command to start the code running. Children can code a micro:bit Magic 8 Ball using gesture inputs, random numbers, variables and logic. Children can explain that variables are named areas in device memory and are used in programming to keep track of data. Children can program a simulation of a football match using a 'when pin' event command, variables and text output commands to update and display goals scored. Children can explain that variables are named areas in device memory and are used in programming to keep track of data. The data can be accessed and updated.	



Coding				Yr1 programming B Scratch JR (Programming Animation)	Yr2 programming B Scratch JR (Programming Quizzes)	Purple Mash Coding		Purple Mash Game Creator	Purple Mash Coding
				To choose a command for a given purpose	To explain that a sequence of commands has a start	Children can read and explain a flowchart and can use a flowchart to create a computer program		Children can review and analyse a computer game and can describe some of the elements that make a successful game.	Children can plan and follow a program which includes a timer and a score.
				To show that a series of commands can be joined together and run a program	To explain that a sequence of commands has an outcome, predict the outcome/match 2 sequences with the same outcome/change the outcome of a sequence of command	Children can create a computer program that uses click events and timers.		Children can begin the process of designing their own game	Children can debug when things do not run as expected.
				To identify the effect of changing a value	To create a program using a given design, work out the actions of a sprite in an algorithm	Children can create a program that uses a timer-after and repeat command		Children can upload images or use the drawing tools to create the walls, floor, and roof.	Children can create a program that makes use of multiple functions.
				To explain that each sprite has its own instructions	To change a given design choosing backgrounds and characters and create a program based on the new design	Children can create a program that uses a timer-every command		Children can design characters for their game.	Children can explain how their code executes when their program is run
				I can create an algorithm for each sprite To use my algorithm to create a program	To create a program using my own design, choosing images, building sequences of blocks and creating an algorithm	Children understand there can be different ways to solve a problem		Children can decide upon, and change, the animations and sounds that the characters make	Children can follow flowcharts to create and debug code.
				I can test the programs I have created	To decide how my project can be improved by adding features and debugging where necessary	Children can run, test and debug their programs.		Children can make their game more unique by selecting the appropriate options to maximise the playability.	Children can create flowcharts for procedures.
						Children can consider nesting when debugging their programs		Children can write informative instructions for their game so that other people can play it.	Children can be creative with the way they code to generate novel visual effects.
						Children can use the properties table to set the properties of objects.		Children can evaluate my their own and peers’ games to help improve their design for the future	Children can code programs that take text input from the user and use this in the program.
						Children can plan their scene and code before they create their program.			Children can attribute variables to user input.
									Children are aware of the need to code for all possibilities when using user input.
									Children can follow through the code of how a text adventure can be programmed in 2Code.
									Children can design their own text-based adventure game based on one they have played.
									Children can adapt an existing text adventure so it reflects their own ideas



Information Technology	Data Handling			Pictograms I can discuss and I can contribute to the collection of class data. I have used illustrations to create a simple pictogram. I can contribute to a I can collect data from and record the results as a pictogram	Questioning I understand that the information on pictograms cannot be used to answer more complicated questions. I have used a range of yes/no questions to separate different items. I understand what is meant by a binary tree. I have designed a binary tree to sort pictures of children. I understand that questions are limited to ‘yes’ and ‘no’ in a binary tree. I understand that the user cannot use 2Question to find out answers to more complicated questions. Children have matched 2Simple item pictures to names using a binary tree I understand what is meant by a database. I have used a database to answer simple and more complex search questions.	Branching Databases Children understand how YES/NO questions are structured and answered. Children have used YES/NO questioning to play a simple game with a friend. Children can explain why they choose a particular question to split their database. Children have completed a branching database and edit to accommodate new entries Children can select and save appropriate images. Children can create a branching database on a suitable topic. Children know how to use and debug their own and others branching databases. Simulations Children know that a computer simulation can represent real and imaginary situations. Children can give some examples of simulations used for fun and for work. Children can give suggestions of advantages and problems of simulations Children can use a simulation to try out different options and to test predictions. Children can begin to evaluate simulations by comparing them with real situations and considering their usefulness. Children can analyse choices made using a branching database. Children can recognise patterns within simulations and make and test predictions. Children can identify the relationships and rules on which the simulations are based.		
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	Data Handling Spreadsheets						Spreadsheets (1-3) To collect, enter and structure a data set in a spreadsheet To build a data set in a spreadsheet, choosing an appropriate format for a cell and applying it. To explain that formulas can be used to produce calculated data and construct a formula To explain which data types can be used in calculations I can identify that changing inputs changes outputs	Spreadsheets (4-6) To apply formulas to data I can calculate data using different operations To create a formula which includes a range of cells To apply a formula to multiple cells by duplicating it To create a spreadsheet to plan an event and use a spreadsheet to answer questions I can apply a formula to calculate the data I need to answer questions To choose suitable ways to present data by producing a chart and using the chart to show the answer to a question	
	Artificial Intelligence						Artificial Intelligence Children can define artificial intelligence in their own words and identify at least three examples of artificial intelligence. Children can understand where AI can help us in our daily lives Children can use critical thinking and creativity in envisioning the future of AI. Children can express their ideas about the future of AI in a creative manner. Children can try and establish which creative compositions are done by humans and which are done by artificial intelligence. Children can use artificial intelligence to create images and music		



	Creating Media									3D Modelling To recognise that you can work in three dimensions on a computer I can add 3D shapes to a project, view 3D shapes from different perspectives and move 3D shapes relative to one another To identify that digital 3D objects can be modified To recognise that objects can be combined in a 3D model, rotate, duplicate, group, combine To create a 3D model for a given purpose and I can accurately size 3D objects I can show that placeholders can create holes in 3D objects To plan, analyse, choose and combine objects for my own 3D model To create my own digital 3D model and evaluate and improve/modify it
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	Creating Media			Animated Stories I understand what an e-book is. I can use the different drawing tools to create a picture on the page. I can add text, images, sound (voice recording, music), animation and a background to a page. I can make simple edits to my e-book by changing the font. I can use the copy and paste function to add more pages to my animated e-book.	Making Music I can use the different sounds within 2Sequence to create a tune. I can slow down and speed up tunes. I know what happens to the tune when sounds are moved I can add sounds to a tune they have already created to change it. I have considered how music can be used to express feelings. I can change the volume of the background sounds. I can create tunes to depict feelings/ I can create, upload and use my own recorded sound. I can create my own tune using some of the chosen sounds.		Audio Production To identify that sound can be recorded, identify inputs and output devices and use a computer to record audio. To explain that audio recordings can be edited I can inspect the soundwave view to know where to trim my recording To recognise the different parts of creating a podcast project eg combining sounds. To apply audio editing skills independently to improve my recording To combine audio to enhance my podcast project arranging multiple sounds to create and effect. To evaluate the effective use of audio I can choose appropriate edits to improve my podcast		Video Production To explain what makes a video effective To use a digital device to record video identify features, experimenting with different camera angles and making use of the microphone To capture video using a range of techniques To identify that video can be improved through reshooting and editing To explain how to improve a video by reshooting and editing and select the correct tools to make edits to my video to improve the final outcome To consider the impact of the choices made when making and sharing a video To evaluate and share my views



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						Presenting PPT Children can add text to a page and format it. Children can add shapes to a page Children can change the design of the slides and insert a new slide. Children can insert and edit pictures, video and audio. Children can use animations and transitions in a presentation. Children can add timings to a presentation. Children can present effectively using PowerPoint Children can create a presentation including formatted text. .		Word Processing Children will be able to create a word processing document altering the look of the text and navigating around the document. Children know how to add images to a word document and can edit images to reduce their file size. Children know the correct way to search for images that they are permitted to reuse and know how to attribute the original artist of an image. Children can edit their images within Word to best present them alongside text . Children understand wrapping of images and text. Children can add appropriate text to their document, formatting in a suitable way. Children can use a style set in Word. Children can use bullet points and numbering. Children can add text boxes and shapes. Children can consider paragraph formatting such as line spacing, drop capitals. Children can add hyperlinks to an external website. Children can add an automated contents page Children can add tables to present information . Children can edit properties of tables including borders, colours, merging cells, adding and removing rows and columns. Children can add word art for a heading Children can use a Word template and edit it appropriately. Children can format a page using a combination of images, headers and columns	
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