Guston CE Primary School Computing Progression Map

	Year 1	Year 2	Cheshire Cats	Hiccups	Potters
Computing systems and networks • KS1 - Understand what algorithms are: how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions • KS2 - Use logical reasoning to explain how simple algorithms work and detect and correct errors in algorithms and programs					
Concept	• To explain that technology is something that can help us • To identify examples of technology • To explain how examples of technology help us • To recognise that a computer is an example of technology • To recognise that choices are made when using technology • To explain why rules are needed when using technology	• To recognise different types of computers used in school • To identify that a computer is a part of information technology • To recognise the features of information technology • To talk about uses of information technology • To say how rules for using information technology can help us • To explain how information technology benefits us • To recognise that choices are made when using information technology	• To describe what an input is • To explain that a process acts on the inputs • To explain that an input is produced by the process • To explain how computer systems can change the way that we work • To identify how changing the process can affect the output • To recognise that a digital device is made up of several parts • To recognise that computers can be connected to each other • To identify how devices in a network are connected with one another • To recognise that a network is made up of a number of components • To explain how information is passed through multiple connections	• To describe how networks connect to other networks • To outline how information can be shared via the World Wide Web • To recognise that the World Wide Web is part of the internet • To explain that the global interconnection of networks is the internet • To recognise the need for security on the internet • To describe how to access the World Wide Web • To describe the types of content/media that can be added, created, and shared on the World Wide Web • To explain how the content of the World Wide Web is created, owned, and shared by people • To explain that the internet enables us to view to World Wide Web • To describe the current limitations of World Wide Web media • To evaluate the reliability of content and the consequences of unreliable content • To explain the benefits of the World Wide Web	• To recognise that data is transferred across networks using agreed protocols (methods) • To recognise that connections between computers allow access to shared stored files • To explain that data is transferred in packets • To recognise computers connected to the internet allow people in different places to work together • To discuss the opportunities that technology offers for communication and collaboration • To explain which types of media can be shared through the internet • To explain that communicating and collaboration using the internet can be public or private •
Skill	• To choose a piece of technology to do a job • To recognise that some technology can be used in different ways • To identify the main parts of a computer • To use a mouse in different ways • To use a keyboard to type	• To describe some uses of computers • To identify information technology in school • To identify information technology beyond school • To show how to use information technology safely	• To identify input and output devices • To explain that a computer system accepts an input and processes it to produce an output • To explain how a computer network can be used to share information • To explain the role of a switch, server		• To outline methods of communicating and collaborating using the internet • To choose methods of internet communication and collaboration for given purposes • To evaluate different methods of online communication and collaboration

	• To use the keyboard to edit text • To show how to use technology safely		• To identify the benefits of computer networks and wireless access point in a network • To identify network devices around me • To explain how networks can be connected to other networks		• To decide what you should and should not share online
Creating Media • Create and debug simple programs: • Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts					
Concept	• To explain what different freehand tools do • To recognise computers can be used to create art • To recognise a tool can be adjusted to suit my need • To decide when it's appropriate to use each tool • To consider impact of choices made • To compare painting using a computer with painting using brushes	• To recognise that some digital devices can capture images using a camera • To talk about how to take a photograph • To recognise that photographs can be saved and viewed later • To make choices when composing my photograph • To recognise features of 'good' photographs • To identify how a photograph could be improved • To explain the effect of light on a photograph • To recognise that photographs can be change after they have been taken • To recognise that some images are not accurate	• To explain that an animation is made up of a sequence of images • To identify that a capturing device needs to be fixed in a position • To recognise that smaller movements create smoother animation • To explain the need for consistency in working • To explain the impact of adding other media to an animation • To explain that a project must be exported so it can be shared	• To identify that sound can be recorded • To identify that an input device is needed to record sound • To identify that output devices are needed to play audio • To recognise that recorded audio can be stored on a computer • To recognise that sound can be represented visually as a waveform • To recognise that audio can be edited • To recognise that audio can be layered so that multiple sounds can be played at the same time • To consider the results of editing choices made	• To recognise the relationship between HTML and visual display • To recognise that a website is a set of hyperlinked web pages • To recognise that web pages are written by people • To recognise that web pages can contain different media types • To recognise components of a web page layout • To consider the ownership and use of images (copyright) • To recognise the need to preview pages (different screens / devices) • To recognise the need for a navigation path • To recognise the implications of linking to content owned by others
Skills	• To create a picture using freehand tools • To use shape and line tools when precision is needed • To use a range of paint colours • To use the fill tool to colour an enclosed area • To use the undo button to correct a mistake • To combine a range of tools to create a piece of artwork	• To capture a digital image • To take photographs in both landscape and portrait format • To view photographs on a digital device • To decide which photographs to keep • To hold the camera still to take a clear photograph • To use zoom to change the composition of a photograph • To consider lighting before taking a photograph • To use simple editing tools to change the appearance of a photograph	• To set up the work area with an awareness of what will be captured • To plan an animation using a storyboard • To capture an image • To use onion skinning tool to review subject position • To move a subject between captures • To review a captured sequence of frames as an animation • To remove frames to improve animation • To add media to enhance an animation • To review a completed project	• To record sound using a computer • To play recorded audio • To import audio into a project • To delete a section of audio • To change the volume of tracks in a project	• To review an existing website (navigation bars, header To create a new blank web page To add text to a web page To set the style of text on a web page To change the appearance of text To embed media in a web page • To add web pages to a website • To preview a web page (different screen sizes) • To insert hyperlinks between pages • To insert hyperlinks to another site

		• To improve a photograph by retaking it			
• Programming • Use logical reasoning to predict the behaviour of simple programs: • Use sequence and repetition in programs; work with variables and various forms of input and output • KS1 - Use technology purposefully to create, organise, store, manipulate and retrieve digital content • KS2 - Use search technologies effectively, appreciate how results are selected and ranked and be discerning in evaluating digital content					
Concept	• I can recall words that can be acted out • To explain what a given command does • To match a command to an outcome • To understand that a program is a set of commands that can run a computer • To recall that a series of instructions can be issued before they are enacted	• To describe that a series of instructions is a sequence • To recall that a series of instructions can be issued before they are enacted • To explain what happens when we change the order of instructions • To recognise that you can predict the outcome of a program	• To explain that programs start because of an input • To explain what a sequence is • To identify that a program includes sequences of commands • To identify that the sequence of a program is a process • To explain that the order of commands can affect a program's output • To identify that different sequences can achieve the same output • To identify that different sequences can achieve different outputs •	• To relate what 'repeat' means • To identify everyday tasks that include repetition as part of a sequence, eg brushing teeth, dance moves • To explain that we can use a loop command in a program to repeat instructions • To identify patterns in a sequence • To identify a loop within a program To explain that in programming there are indefinite loops and count-controlled loops • To explain that an indefinite loop will run until the program is stopped • To explain that you can program a loop to stop after a specific number of times • To identify patterns in a sequence, eg 'step 3 times' means the same as 'step, step, step' • To justify when to use a loop and when not to • To explain the importance of instruction order in a loop • To recognise that not all tools enable more than one process to be run at once	• To define a 'variable' as something that is changeable • To identify examples of information that is variable, for example, a football score during a match • To explain that a variable can be used in a program, eg 'score' • To define a program variable as a placeholder in memory for a single value • To explain that a variable has a name and a value • To recognise that the value of a variable can be used by a program • To recognise that the value of a variable can be updated • To define the way that a variable is changed • To recognise that a variable can be set as a constant (fixed value) • To identify that variables can hold numbers (integers) or letters (strings) • To explain the importance of setting up a variable at the start of a program (initialisation) • To explain that there is only one value for a variable at any one time

					• To explain that if you change the value of a variable, you cannot access the previous value (cannot undo) • To explain that if you read a variable, the value remains • To explain that the name of a variable is meaningless to the computer • To explain that the name of a variable needs to be unique
Skill	• To act out a given word • To predict the outcome of a command on a device • To list which commands can be used on a given device • To run a command on a floor robot • to choose a series of words that can be enacted as a program • to choose a series of commands that can be run as a program • to combine commands in a program • To predict the outcome of a command on a device • To choose a command for a given purpose • To build a sequence of commands in steps • To combine commands in a program • To run a program on a device	• To choose a series of words that can be enacted as a sequence • To choose a series of instructions that can be run as a program • To create a program • To trace a sequence to make a prediction • To run a program on a device • To debug a program that I have written	• To build a sequence of commands • To combine commands in a program • To order commands in a program • To create a sequence of commands to produce a given outcome	• To list an everyday task as a set of instructions including repetition • To use an indefinite loop to produce a given outcome • To use a count-controlled loop to produce a given outcome • To plan a program that includes appropriate loops to produce a given outcome • To recognise tools that enable more than one process to be run at the same time (concurrency) • To create two or more sequences that run at the same time	• To identify a variable in an existing program • To experiment with the value of an existing variable • To choose a name that identifies the role of a variable to make it easier for humans to understand it • To decide where in a program to set a variable • To update a variable with a user input • To use an event in a program to update a variable • To use a variable in a conditional statement to control the flow of a program • To use the same variable in more than one location in a program
Data and Information – Select use and combine a variety of software on a range of digital devices to design and create a range of programs, systems and that accomplish given goals, including collecting, analysing, evaluating and presenting data and information •					
Concept	• To identify that objects can be counted • To recognise that information can be presented in different way • To recognise that information can be presented	• To use a tally chart to collect data • To compare objects that have been grouped by attribute • To suggest appropriate headings for tally charts and pictograms • To use a computer program to present information in different ways • To explain that we can present information using a computer	• To investigate questions with yes/no answers • To identify attributes that you can ask yes/no questions about • To select an attribute to separate objects into two similarly sized groups • To explain that a branching database is an identification tool	• To suggest questions that can be answered using a table of data • To identify data that can be logged over time • To identify that sensors are input devices	• To identify questions that can be answered using spreadsheet data • To explain what an item of data is in a spreadsheet • To explain how the data type determines how a spreadsheet can process the data

		• To construct (complete) a given comparison question • To give simple examples of why some information should not be shared	• To recognise that a data set can be structured using yes/no questions • To explain that a well-structured branching database will enable you to identify objects using fewer questions • To relate two levels of a branching database using AND • To suggest real-world applications for branching databases	• To recognise that a sensor can be used as an input device for a data collection • To explain that a data logger captures 'data points' from sensors over time	• To outline that there are different software tools to work with data • To explain that formulas can be used to produce calculated data • To recognise cells can be linked • To recognise that a cell's value automatically updates when the value in a linked cell is changed • To explain why data should be organised in a spreadsheet • To evaluate results in comparison to the question asked
Skill	• To choose options to achieve a desired effect • To change the appearance of text on a computer • To identify some attributes of an object • To collect simple data • To show that collected data can be counted • To describe the properties of an object • To choose an attribute to group objects by • To group objects to answer questions • To explain that objects can be grouped by similarities • To describe a group of objects	• To show I can enter data onto a computer • To recognise that people, animals and objects can be described by attributes • To use a computer to view data in different formats • To use pictograms to answer single-attribute questions • To use a computer to answer comparison questions (graphs, tables)	• To create questions with yes/no answers • To choose questions that will divide objects into evenly sized subgroups • To repeatedly create subgroups of objects • To identify an object using a branching database • To retrieve information from different levels of the branching database	• To use a digital device to collect data automatically • To chose an appropriate timeframe when collecting data automatically • To use a set of logged data to find information • To use a computer program to sort data by one attribute • To export information in deferent formats	• To calculate data using a formula for each operation • To use functions to create new data • To use existing cells within a formula • To choose suitable ways to present spreadsheet data
Creating Media • Recognise common uses of information beyond the school • 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					
Concept	• To recognise that a keyboard is used to enter text into a computer • To recognise that the Shift Key changes the output of a Key • To recognise that text can be changed • To recognise that text can be edited • To recognise that the appearance of text can be changed • To consider the impact of choices made	• To identify that computers can be used to play sounds of different instruments • To identify that the same pattern can be represented in different ways • To compare playing music on instruments with making music on a computer	• To recognise how text and images can be used together to convey information • To define landscape and portrait as two different page orientations • To consider how different layouts can suit different purposes • To recognise that DTP pages can be structured with placeholders • To recognise how different font styles and effects are used for particular purposes	• To use an application to change the whole of a digital image • To change the composition of a digital image by rotating and flipping • To change the composition of a digital image by cropping • To adjust colours of a digital image • To apply filters to a digital image • To apply effects to a digital image • To use an application to change part of a digital image • To select part of a digital image	• To explain that 3D models can be created on a compute • To recognise that a 3D environment can be viewed from different perspectives • To recognise that digital tools can be used to manipulate 3D objects • To show how placeholders can create holes in 3D objects • To recognise that artefacts can be broken down into a collection of 3D objects

			• To consider the benefits of using a DTP application	• To use clone, copy, and paste to change the composition of a digital image • To use cloning to retouch a digital image • To use an application to add to the composition of a digital image • To add text to a digital image	
Skills	• To use letter, number and Space keys to enter text into a computer • To use punctuation and special characters • To select text • To use the Backspace key to remove text • To position the text cursor in a chosen location • To use undo	• To experiment with musical patterns on a computer • To experiment with different sounds on a computer • To use a computer to create a musical pattern • To use a computer to play the same music in different ways (e.g. tempo) • To use a computer to compose a rhythm and a melody on a given theme • To evaluate a musical composition created on a computer • To improve a musical composition created on a compute	• To show that page orientation can be changed • To add text to a placeholder • To move resize and rotate images • To choose fonts and apply effects to text • To define landscape and portrait as two different page orientations • To organise text and image placeholders in a page layout • To add and remove images to and from placeholders • To edit text in a placeholder • To review a document	• To recognise that digital images can be manipulated • To recognise that digital images can be changed for different purposes • To choose the most appropriate tool for a particular purpose • To consider the impact of changes made on the quality of the image	• To position 3D shapes relative to one another • To use digital tools to modify 3D objects • To combine objects to create a 3D digital artefact • To use digital tools to accurately size 3D objects • To construct a 3D model which reflects a real world object
• Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies • Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact					
	• To identify rules to keep us safe and healthy when we are using technology in and beyond the home. • To give examples of some of these rules • To discuss how we benefit from these rules."	• To list different uses of information technology. • To talk about different rules for using IT. • To say how rules can help keep me safe • I can recognise which photos have been changed. • I can identify which photos are real and which have been changed.	• To explain what is meant by the term "identity" (e.g., based on what they are doing online such as gaming, using an avatar, social media). • To explain how people can represent themselves in different ways online	• To explain that not everything on the World Wide Web is true. • To explain why some information I find online may not be honest, accurate, or legal. • To explain why I need to think carefully before I share or reshare content.	• To 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. • To know and be able to give examples of how to get help, both recognizing that issues online could make anyone feel sad, worried, uncomfortable, or frightened. • To explain the importance of asking until I get the help I need.