Learning at the Heart of the Community

GILES BROOK SCHOOL

Computing Curriculum Overview

Computer Science – Algorithms and Programming, Data and Systems

Information Technology – Digital artefacts and Computing Contexts

Digital Literacy – online safety- Mechanics, Searching/selecting information, E-safety

Year	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Nursery	**Continuous provision:** Interactive whiteboard Games (2paint a picture, Espresso phase 1 activities, Topmarks English and Maths games) Music stereo in music area outside - on, off, play Ipads for photos and videos - hard cases for outdoor ipad use* Beebots - direction - start, go, stop Talking mirrors Stereo with headphones* Walkie Talkies* Remote control toys* Light box*					
	To identify electronic devices e.g. laptop, computer, remote control, camera, torch To know a music stereo plays music To turn a music stereo on and off **Computational Thinking Focus: Tinkering**		To follow the commands start and stop To press a button to start a Beebot To press a button to stop a Beebot With support, control a remote control car using a controller. **Computational Thinking Focus: Pattern**		To move my hand on a touch screen device to create a picture To know a device can take a photo To play number games using an Ipad To know a device can record **Computational Thinking Focus: Logical reasoning**	
Reception	**Continuous provision:** Beebots - direction, free exploration prior to unit 3 teaching, unit 4,5,6 exploring using x 6)* Lightbox Torches- switching on and off, recharging Keyboard/ cameras in role play Digital timer- getting changed/ tidying up/doing a warm up/having a move and shake					

	Sound buttons* for recording self and listening back taught knowledge forwards and backwards Asking questions and working as a class or group to find the answer using the internet Ipad for photos- children taking photos of things they wish to celebrate (ipad tough covers Walkie talkies* for communicating Remote control cars*- use of direction/joystick controlDigital microscope* - photo smaller items Yoto player* for stories - recording stories 2 desktop computers			
	To name devices which take photos To hold an ipad the correct way up To press a button to take photos I can turn a torch on and off To know that you can talk through technology To talk through technology e.g. walkie talkies **Computational Thinking Focus: Tinkering collaboration**	To follow the commands forward and backwards To move a Beebot forwards To move a Beebot backwards To move a remote controlled car forwards and backwards using a remote To record my peers by pressing the button With support, to watch my video back **Computational Thinking Focus: Algorithms/pattern**	to label parts of a computer (e.g. mouse, screen, keyboard) I can move the mouse and follow it on the screen I can click using a mouse I can find the letters of my name on a lower case keyboard **Computational Thinking Focus: Logical reasoning abstraction**	I can log in by typing the number code (generic log in) I can stay in my chair in the computer suite I can click and drag a mouse on paint I can create a rainbow on paint **Computational Thinking Focus: creating/pattern**

1	Computing Systems and Networks **1:1 Technology around us**	Programming A **1.3 Moving a Robot**	Creating Media - **1.2 Digital Pictures**	Data and Information **1.4 Grouping Data**	Creating Media **1.5 Digital Writing**	Programming B **1.6 Programming Animations**
	Digital literacy taught through Project Evolve - See separate progression document					
	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 To use the keyboard to edit text To create rules for using technology responsibly	To explain what a given command will do To act out a given word To combine 'forwards' and 'backwards' commands to make a sequence To combine four direction commands to make sequences To plan a simple program To find more than one solution to a problem **Beebots**	To describe what different freehand tools do To use the shape tool and the line toolsTo explain what a given command will do To make careful choices when painting a digital picture To explain why I chose the tools I used To use a computer on my own to paint a picture To compare painting a picture on a computer and on paper **Digital art**	To label objects To identify that objects can be counted To describe objects in different ways To count objects with the same properties To compare groups of objects To answer questions about groups of objects To answer questions about groups of objects **2graph**	To use a computer to write To add and remove text on a computer To identify that the look of text can be changed on a computer To make careful choices when changing text To explain why I used the tools that I chose To compare typing on a computer to writing on paper	To choose a command for a given purpose To show that a series of commands can be joined together To identify the effect of changing a value To explain that each sprite has its own instructions To design the parts of a project To use my algorithm to create a program **Scratch Jr**

2	Computing systems and networks **2.1 IT around us.**	Programming A **2.3 Robot Algorithms**	Creating Media **2.2 Digital Photography**	Data and Information **2.4 Pictograms**	Programming B **2.6 An introduction to quizzes**	Creating Media **2.5 Digital Music**
	Digital literacy taught through Project Evolve - See separate progression document					
	To recognise the uses and features of information technology 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	To describe a series of instructions as a sequence To explain what happens when we change the order of instructions To use logical reasoning to predict the outcome of a program To explain that programming projects can have code and artwork To design an algorithm To create and debug a program that I have written **Beebots**	To use a digital device to take a photograph To make choices when taking a photograph To describe what makes a good photograph To decide how photographs can be improved To use tools to change an image To recognise that photos can be changed **iPads**	To recognise that we can count and compare objects using tally charts To recognise that objects can be represented as pictures To create a pictogram To select objects by attribute and make comparisons To recognise that people can be described by attributes To explain that we can present information using a computer **2Graph**	To explain that a sequence of commands has a start To explain that a sequence of commands has an outcome To create a program using a given design To change a given design To create a program using my own design To decide how my project can be improved **Scratch Jr**	To say how music can make us feel To identify that there are patterns in music To experiment with sound using a computer To use a computer to create a musical pattern To create music for a purpose To review and refine our computer work **Chrome music Lab**

3	Programming A **3.3 Sequence in music**	Computing Systems and networks **3.1 Connecting computers**	Programming B **3.6 Events and actions**	Creating Media **3.5 Desktop Publishing**	Creating Media **3.2 Animation**	Data and Information **3.4 Branching Databases**
	Digital literacy taught through Project Evolve - See separate progression document					
	To explore a new programming environment To identify that commands have an outcome To explain that a program has a start To recognise that a sequence of commands can have an order To change the appearance of my project To create a project from a task description To create a project from a task description **Scratch**	To explain how digital devices function To identify input and output devices To recognise how digital devices can change the way that we work To explain how a computer network can be used to share information To explore how digital devices can be connected To recognise the physical components of a network	To explain how a sprite moves in an existing project To create a program to move a sprite in four directions To adapt a program to a new context To develop my program by adding features To explain how a sprite moves in an existing project To create a program to move a sprite in four directions **Scratch**	To recognise how text and images convey information To recognise that text and layout can be edited To choose appropriate page settings To add content to a desktop publishing publication To consider how different layouts can suit different purposes To consider the benefits of desktop publishing **Google Docs**	To explain that animation is a sequence of drawings or photographs To relate animated movement with a sequence of image To plan an animation To identify the need to work consistently and carefully To review and improve an animation To evaluate the impact of adding other media to an animation **iPads**	To create questions with yes/no answers To identify the attributes needed to collect data about an object To create a branching database To explain why it is helpful for a database to be well structured To plan the structure of a branching database To create questions with yes/no answers

4	Computing Systems and networks **4.1 The internet**	Creating Media **4.2 Audio Production**	Programming A **4.3 Repetition in shapes**	Data and Information **4.4 Data Logging**	Creating Media **4.5 Photo editing**	Programming B **4.6 Repetition in games**
	Digital literacy taught through Project Evolve - See separate progression document					
	To describe how networks physically connect to other networks 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 To evaluate the consequences of unreliable content	To identify that sound can be recorded To explain that audio recordings can be edited To recognise the different parts of creating a podcast project To apply audio editing skills independently To combine audio to enhance my podcast project To evaluate the effective use of audio **Audacity**	To identify that accuracy in programming is important To create a program in a text-based language To explain what 'repeat' means To modify a count-controlled loop to produce a given outcome To decompose a task into small steps To create a program that uses count-controlled loops to produce a given outcome **Logo**	To explain that data gathered over time can be used to answer questions To use a digital device to collect data automatically To explain that a data logger collects 'data points' from sensors over time To recognise how a computer can help us analyse data To identify the data needed to answer question To use data from sensors to answer questions	To explain that the composition of digital images can be changed To explain that colours can be changed in digital images To explain how cloning can be used in photo editing To explain that images can be combined To combine images for a purpose To evaluate how changes can improve an image **iPads /PaintNet**	To develop the use of count-controlled loops in a different programming environment To explain that in programming there are infinite loops and count-controlled loops To develop a design that includes two or more loops which run at the same time To modify an infinite loop in a given program To design a project that includes repetition To create a project that includes repetition **Logo/Scratch**

5	Data and Information **5.4 Flat-file databases**	Creating Media **5.5 Vector Drawing**	Programming A **5.3 Selection in physical computing**	Creating Media **5.2 Video Editing**	Computing Systems and networks **5.1 Sharing information**	Programming B **5.6 Selection in quizzes**
	Digital literacy taught through Project Evolve - See separate progression document					
	To use a form to record information To compare paper and computer-based databases To outline how you can answer questions by grouping and then sorting data To explain that tools can be used to select specific data To explain that computer programs can be used to compare data visually To use a real-world database to answer questions	To identify that drawing tools can be used to produce different outcomes To create a vector drawing by combining shapes To use tools to achieve a desired effect To recognise that vector drawings consist of layers To group objects to make them easier to work with To apply what I have learned about vector drawings **Google Drawings app**	To control a simple circuit connected to a computer To explain that a loop can be used to repeatedly check whether a condition has been met To explain that a loop can stop when a condition is met To explain that a loop can be used to repeatedly check whether a condition has been met To design a physical project that includes selection To create a program that controls a physical computing project **Crumbles**	To explain what makes a video effective To use a digital device to record video To capture video using a range of techniques To create a storyboard To identify that video can be improved through reshooting and editing To consider the impact of the choices made when making and sharing a video **iPads - video - iMovie**	To explain that computers can be connected together to form systems To recognise the role of computer systems in our lives To identify how to use a search engine To describe how search engines select results To explain how search results are ranked To recognise why the order of results is important, and to whom	To explain how selection is used in computer programs To relate that a conditional statement connects a condition to an outcome To explain how selection directs the flow of a program To design a program that uses selection To create a program that uses selection To evaluate my program **Scratch**

6	Computing Systems and networks **6.1 Internet Communications**	Programming A **6.3 Variables in game**	Data and Information **6.4 Introduction to Spreadsheets**	Creating Media **6.5 3D modelling**	Programming B **6.6 Sensing**	Creating Media **6.2 Web Page creation**
	Digital literacy taught through Project Evolve - See separate progression document					
	To explain the importance of internet addresses To recognise how data is transferred across the internet To explain how sharing information online can help people to work together To evaluate different ways of working together online To recognise how we communicate using technology To evaluate different methods of online communication	To define a 'variable' as something that is changeable To explain why a variable is used in a program To choose how to improve a game by using variables To design a project that builds on a given example To use my design to create a project To evaluate my project **Scratch**	To create a data set in a spreadsheet To build a data set in a spreadsheet To explain that formulas can be used to produce calculated data To apply formulas to data To create a spreadsheet to plan an event To choose suitable ways to present data **Google sheets**	To recognise that you can work in three dimensions on a computer To identify that digital 3D objects can be modified To recognise that objects can be combined in a 3D model To create a 3D model for a given purpose To plan my own 3D model To create my own digital 3D model **Tinkercad**	To create a program to run on a controllable device To explain that selection can control the flow of a program To update a variable with a user input To use an conditional statement to compare a variable to a value To design a project that uses inputs and outputs on a controllable device To develop a program to use inputs and outputs on a controllable device **Micro:bit**	To review an existing website and consider its structure To plan the features of a web page To consider the ownership and use of images To recognise the need to preview pages To outline the need for a navigation path To recognise the implications of linking to content owned by other people **Google Sites**


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