Computing Curriculum Map & Progression of Curriculum

Whole School Overview

	Understanding Computers, Systems & Networks	Data and Information	Programming and Control: Algorithms, programming, design and development		Creating Media, Design & development	
R	**Technology in School** Exploration of broken technology.	**Positional Language** Using our bodies and remote cars	**Sorting Objects** Exploration how to summarise sorting with numerical values	**Instruction Programming** Using voice recorder to create instructions.	**Digital Mark Making** Pupils use basic tools to make marks on a page	**Digital Writing** Pupils create sequence of events within the story being studied.
1	**Technology around us** Recognise technology in school, at home and using it responsibly	**Grouping Data** Explore object labels, sorting objects and grouping objects	**Moving a robot** Write short algorithm and programs for floor robots	**Intro to Animation** Move a character on screen to tell stories	**Digital painting** Use tools in a program to create art, comparing to non-digital pictures	**Digital writing** Create and format text, compare digital to non-digital writing
2	**Information technology around us** Identify IT and how its responsible use improves our world in school and beyond	**Pictograms** Collect data in charts, organise and present data on a computer.	**Robot Algorithms** Create and debug programs, use logical reasoning to make predictions	**Programming quizzes** Design algorithms and programs that use events to trigger sequences of code to make an interactive quiz	**Digital Photography** Capture and change digital photographs for different purposes	**Making music** Use a computer to explore rhythms, melodies and create own composition
3	**Connecting Computers** Identifying that digital devices have inputs, processes, and outputs, and how devices can be connected to make networks.	**Branching Databases** Build and use branching database to group objects using yes/no questions	**Sequence In Music** Creating sequences in a block-based programming language to make music	**Events and actions in programming** Writing algorithms and programs that use a range of events to trigger sequences of actions	**Stop Frame Animation** Capturing and editing digital still images to produce a stop-frame animation that tells a story	**Desktop publishing** Create documents by modifying text, images and page layouts for a specific purpose
4	**The internet** Recognising the internet as a network of networks including the WWW, and why we should evaluate online content.	**Data Logging** Collect data using data loggers, over time and recognise why this is useful	**Repetition in shapes** Using a text-based programming language to explore count-controlled loops when drawing shapes	**Repetition in games** Using a block-based programming language to explore count-controlled and infinite loops when creating a game.	**Audio Editing** Capturing and editing audio to produce a podcast, ensuring that copyright is considered.	**Photo Editing** Manipulation digital images, reviewing impact and changes to fit purpose. Green Screen
5	**Sharing Information** Identifying and exploring how information is shared between digital systems.	**Flat-file database** Using a database to order data and create charts to answer questions.	**Selection in physical computing** Exploring conditions and selection using a programmable microcontroller.	**Selection in quizzes** Exploring selection in programming to design and code an interactive quiz.	**Video Editing** Planning, capturing, and editing video to produce a short film – can use greenscreen	**Vector drawing** Creating images in a drawing program by using layers and groups of objects.
6	**Internet Communication** Recognising how the WWW can be used to communicate and be searched to find information.	**Introduction to Spreadsheets** Answering questions by using spreadsheets to organise and calculate data.	**Variables in games** Exploring variables when designing and coding a game.	**Sensing** Designing and coding a project that captures inputs from a physical device.	**Webpage creation** Designing and creating webpages, considering copyright, aesthetics, and navigation.	**3d modelling** Planning, developing, and evaluating 3D computer models of physical objects.

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Year R

Understanding Computers, Systems & Networks: **Computers around us**	Data and Information	Programming and Control: Algorithms & Programming, Design and Development		Creating Media, Design & development	
TECHNOLOGY IN SCHOOL: To identify technology and how it helps us. To identify broken parts of technology and what they are used for. To create a monster out of the technology. To understand that we live in a throw away society.	**POSITIONAL LANGUAGE:** To be able to give a set of directions. To be explore movement through their bodies. To direct each other using positional language to move around the course.	**SORTING OBJECTS:** To be able to sort objects into groups. To be able to discuss sorting objects into groups. To identify numbers in groups and sort them accordingly.	**INSTRUCTION PROGRAMMING:** To create a set of simple instructions. To experiment with voice recorders. To use a voice recorder to record a set of instructions. To use the voice recordings of each other and follow a sequence of instructions.	**Digital Mark Making** To experiment with making marks on digital software. To create a series of pictures using simple mark making. To be able to create marks using various tools on paint.	**Digital Writing** To use a computer to select words. To use a camera to create a sequence of events from a story. To print the pictures and order them into a sequence..
Resources: Broken technology	Link to another curriculum area: Science, maths	BeeBots	Scratch Jr, laptops or iPads required	Paint or similar	Word or similar – 2simple
Vocabulary:					

Computing Curriculum Map & Progression of Curriculum

Year 1

Understanding Computers, Systems & Networks: **Computers around us**	Data and Information	Programming and Control: Algorithms & Programming, Design and Development		Creating Media, Design & development	
KNOW PARTS OF A COMPUTER: To identify technology and how it helps us To identify a computer and its main parts To use a mouse in different ways To use a keyboard to edit text To create rules to use technology responsibly	GROUP DATA: 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	MOVING A ROBOT: 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	INTRO TO SCRATCH: 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 I know that an algorithm is a set of instructions or commands To use my algorithm to create a program	PAINT A PICTURE: To describe what different freehand tools do To use the shape tool and the line tools 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	WRITING: 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
Resources:	Link to another curriculum area: Science, maths	BeeBots	Scratch Jr, laptops or iPads required	Paint or similar	Word or similar – 2simple
Vocabulary:					

Computing Curriculum Map & Progression of Curriculum

Year 2

Understanding Computers, Systems & Networks: **Computers around us**	Data and Information	Programming and Control: Algorithms & Programming, Design and Development		Creating Media, Design & development	
IT AROUND US: 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	PICTOGRAMS: 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	PLANNING A ROBOT: 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 (series of commands) To explain that programming projects can have code and artwork To design an algorithm To create and debug a program that I have written	INTRODUCTION TO QUIZZES: 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	PHOTOGRAPHY: 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	MAKING MUSIC: To say how music can make us feel To identify that there are patterns in music To show how music is made from a series of notes To show how music is made from a series of notes To create music for a purpose To review and refine our computer work
Resources:	J2data Pictogram	Blue BeeBots, Tactiles and ipads	Scratch Jr (recaps on Year 1), laptops or iPads required	Digital Cameras	Chrome Music Lab or similar
Vocabulary:					

Computing Curriculum Map & Progression of Curriculum

Year 3

Understanding Computers, Systems & Networks: **Computers around us**	Data and Information	Programming and Control: Algorithms & Programming, Design and Development		Creating Media, Design & development	
CONNECTING COMPUTERS: To explain how digital devices function To identify input and output devices To recognise how digital devices can change the way 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	BRANCHING DATABASES: To create questions with yes/no answers To identify the object attributes needed to collect relevant data To create a branching database To explain why it is helpful for a database to be well structured To identify objects using a branching database	SEQUENCES IN MUSIC: 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 compare the information shown in a pictogram with a branching database	EVENTS AND ACTIONS: 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 identify and fix bugs in a program To design and create a maze-based challenge	ANIMATION: To explain that animation is a sequence of drawings or photographs To relate animated movement with a sequence of images 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	DESKTOP PUBLISHING: 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
Resources:	J2Data Branch and Pictogram	Scratch	Scratch	Zu3D	Adobe Spark
Vocabulary:					

Year 4

Understanding Computers, Systems & Networks: **Computers around us**	Data and Information	Programming and Control: Algorithms & Programming, Design and Development		Creating Media, Design & development	
THE INTERNET: 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	DATA LOGGING: 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 use data collected over a long duration to find information To identify the data needed to answer questions To use collected data to answer questions	REPITITION IN SHAPES: 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	REPITITION IN GAMES: 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	AUDIO EDITING: To identify that sound can be digitally recorded To use a digital device to record sound To explain that a digital recording is stored as a file To explain that audio can be changed through editing To show that different types of audio can be combined and played together To evaluate editing choices made	PHOTO EDITING: To explain that digital images can be changed To change the composition of an image To describe how images can be changed for different uses To make good choices when selecting different tools To recognise that not all images are real To evaluate how changes can improve an image
	Data Loggers and software	FMS Logo	Scratch	Audacity	Paint and greenscreen software

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Year 5

Understanding Computers, Systems & Networks: **Computers around us**	Data and Information	Programming and Control: Algorithms & Programming, Design and Development		Creating Media, Design & development	
SHARING INFORMATION: To explain that computers can be connected together to form systems To recognise the role of computer systems in our lives To recognise how information is transferred over the internet To explain how sharing information online lets people in different places work together To contribute to a shared project online To evaluate different ways of working together online	FLAT-FILE DATABASES: To use a form to record information To compare paper and computer-based databases To outline how grouping and then sorting data allows us to answer questions To explain that tools can be used to select specific data To explain that computer programs can be used to compare data visually To apply my knowledge of a database to ask and answer real-world questions	SELECTION IN PHYSICAL COMPUTING: To control a simple circuit connected to a computer To write a program that includes count-controlled loops 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	SELECTION IN QUIZZES: 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 which uses selection To create a program which uses selection To evaluate my program	VIDEO EDITING: To explain what makes a video effective To identify digital devices that can 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	VECTOR DRAWING: 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 evaluate my vector drawing
Resources:	J2data Database	Crumble or Lego control	Scratch	Microsoft Photos and greenscreen software	Google drawings or other vector software
Vocabulary:					

Computing Curriculum Map & Progression of Curriculum

Year 6

Understanding Computers, Systems & Networks: **Computers around us**	Data and Information	Programming and Control: Algorithms & Programming, Design and Development		Creating Media, Design & development	
COMMUNICATION: 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 recognise how we communicate using technology To evaluate different methods of online communication	SPREADSHEETS: To identify questions which can be answered using data To explain that objects can be described using data To explain that formulas can be used to produce calculated data To apply formulas to data, including duplicating To create a spreadsheet to plan an event To choose suitable ways to present data	VARIABLES IN GAMES: 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	SENSING: 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	WEB PAGE CREATION: 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 (copyright) 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	3D MODELLING: To use a computer to create and manipulate three-dimensional (3D) digital objects To compare working digitally with 2D and 3D graphics To construct a digital 3D model of a physical object To identify that physical objects can be broken down into a collection of 3D shapes To design a digital model by combining 3D objects To develop and improve a digital 3D model
Resources:	Excel	Scratch	Microbit or lego control	Web	Tinkercad or similar
Vocabulary:					