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Catton Grove Primary School Computing Long Term Plan

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Autumn - Computing Systems and Networks			**Unit Title:** Technology Around Us	**Unit Title:** IT Around Us	**Unit Title:** Connecting computers	**Unit Title:** The internet	**Unit Title:** Sharing information	**Unit Title:** Internet Communication
			Enquiry Question: What is the most important part of a computer?	**Enquiry Question:** How quick does technology develop?	**Enquiry Question:** Are computers always online to be connected?	**Enquiry Question:** How much information shared on the internet is true?	**Enquiry Question:** How can sharing information online help people?	**Enquiry Question:** Why is privacy important when communicating online?
			Concepts: Computing systems Algorithms	**Concepts:** Networks Computing systems	**Concepts:** Networks Computing systems	**Concepts:** Networks Safety and security	**Concepts:** Networks Effective use of tools	**Concepts:** Networks Effective use of tools
			Misconceptions: Technology is difficult to use.	**Misconceptions:** All technology is expensive and time consuming.	**Misconceptions:** Computers need to be connected via wires.	**Misconceptions:** All information online is true.	**Misconceptions:** Sharing all information online can be helpful.	**Misconceptions:** Closing windows keeps information private.
			Powerful Knowledge: Technology is something that has been made with a specific	**Powerful Knowledge:** Information technology is a computer or something that has been	**Powerful Knowledge:** Technology can be both non-digital and digital devices. Computers can	**Powerful Knowledge:** Data is routed around the internet. The world wide web is one of many	**Powerful Knowledge:** Information can be transferred through systems and devices. This can be small	**Powerful Knowledge:** Search engines select and rank results and can be influenced.

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			purpose to help other people.	designed to work with computers. Technology is rapidly developing and can fit into many different categories.	be connected to one another and this is known as a network.	services provided over the internet. False and inaccurate information can be shared over the internet.	scale or large scale systems.	
			Key Vocab: computer, mouse, trackpad, keyboard, screen, double click, typing	**Key Vocab:** information technology. computer, barcode, scanner	**Key Vocab:** input, process, output, connection, network, server, wireless	**Key Vocab:** internet, network, router, network security, server, wireless, website, world wide web, ownership, permission	**Key Vocab:** system, connection, process, output, protocol, collaboration	**Key Vocab:** index, crawler, search engine, communication
			Cultural Capital:	**Cultural Capital:**	**Cultural Capital:**	**Cultural Capital:**	**Cultural Capital:**	**Cultural Capital:**
			Pedagogical Content Knowledge (PCK): Culturally relevant pedagogy	**Pedagogical Content Knowledge (PCK):** Culturally relevant pedagogy	**Pedagogical Content Knowledge (PCK):** Semantic waves	**Pedagogical Content Knowledge (PCK):** Peer instruction	**Pedagogical Content Knowledge (PCK):** Peer instruction	**Pedagogical Content Knowledge (PCK):** Project based learning
Spring 1 - Programming A	**Unit Title:**	**Unit Title:**	**Unit Title:** Moving a robot	**Unit Title:** Robot Algorithms	**Unit Title:** Sequence in music	**Unit Title:** Repetition in shapes	**Unit Title:** Selection in physical computing	**Unit Title:** Variables in games
	Enquiry Question:	**Enquiry Question:**	**Enquiry Question:**	**Enquiry Question:**	**Enquiry Question:**	**Enquiry Question:**	**Enquiry Question:** How can a computer solve	**Enquiry Question:**

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			Is there a 'best' way to move the robot?	What problems can computers solve?	What could I create using Scratch?	Why use repetition when coding?	real-life problems?	What makes an effective algorithm?
	Concepts:	**Concepts:**	**Concepts:** Programming Algorithms	**Concepts:** Programming Algorithms	**Concepts:** Effective use of tools Creating media	**Concepts:** Programming Algorithms	**Concepts:** Programming Computer systems	**Concepts:** Programming Design development
	Misconceptions:	**Misconceptions:**	**Misconceptions:**	**Misconceptions:**	**Misconceptions:**	**Misconceptions:**	**Misconceptions:**	**Misconceptions:**
	Powerful Knowledge:	**Powerful Knowledge:**	**Powerful Knowledge:** Algorithms are a set of clear, precise and ordered instructions which we use computers to implement. Understanding and reading code enables us to predict what will happen. There are four levels to describe a coding project, this is known as abstraction.	**Powerful Knowledge:** Algorithms are a set of clear, precise and ordered instructions which we use computers to implement. Understanding and reading code enables us to predict what will happen. There are four levels to describe a coding project, this is known as abstraction.	**Powerful Knowledge:** The order of a sequence is important when programming.	**Powerful Knowledge:** Repeating commands and actions is known as a loop. Loops can be set for a set number of times, these are called 'count-controlled loops'.	**Powerful Knowledge:** Real world objects can be programmed and controlled using commands.	**Powerful Knowledge:** There are four levels of abstraction: task, design, code, running the code. Variables allow us to set and change code throughout a program.
	Key Vocab:	**Key Vocab:**	**Key Vocab:** commands, instructions,	**Key Vocab:** instructions, sequence,	**Key Vocab:** programming, command,	**Key Vocab:** programming, commands,	**Key Vocab:** microcontroller, components,	**Key Vocab:** variable, value, design,

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			directions, algorithm, program, route	unambiguous, algorithm, program, debugging	motion, sequence, code, debug	algorithm, design, debug, pattern, value, count-controlled, decomposed, procedure	output, repetition, input, selection,debug	algorithm, code, improve, evaluate, share
	Cultural Capital:	**Cultural Capital:**	**Cultural Capital:** Day with Robo - Scout Senario	**Cultural Capital:** Day with Robo - Reptile Bot	**Cultural Capital:** Program & Build Day - Lego Mindstorm	**Cultural Capital:** Program & Build Day - Lego Mindstorm	**Cultural Capital:** Program & Build Day - Lego Mindstorm	**Cultural Capital:** Program & Build Day - Lego Mindstorm
	Pedagogical Content Knowledge (PCK): PRIMM	**Pedagogical Content Knowledge (PCK):** PRIMM	**Pedagogical Content Knowledge (PCK):** Pair programming	**Pedagogical Content Knowledge (PCK):**	**Pedagogical Content Knowledge (PCK):**	**Pedagogical Content Knowledge (PCK):**	**Pedagogical Content Knowledge (PCK):**	**Pedagogical Content Knowledge (PCK):**
Spring 2 - Programming B	**Unit Title:**	**Unit Title:**	**Unit Title:** Introduction to Animation	**Unit Title:** Introduction to Quizzes	**Unit Title:** Events and Actions	**Unit Title:** Repetition in games	**Unit Title:** Selection in quizzes	**Unit Title:** Sensing
	Enquiry Question:	**Enquiry Question:**	**Enquiry Question:**	**Enquiry Question:**	**Enquiry Question:**	**Enquiry Question:**	**Enquiry Question:**	**Enquiry Question:**
	Concepts:	**Concepts:**	**Concepts:** Programming Design and development	**Concepts:** Programming Design and development	**Concepts:** Programming Design and development	**Concepts:** Programming Design and development	**Concepts:** Algorithms Programming	**Concepts:** Programming Computer Systems
	Misconceptions:	**Misconceptions:**	**Misconceptions:**	**Misconceptions:**	**Misconceptions:**	**Misconceptions:**	**Misconceptions:**	**Misconceptions:**
	Powerful Knowledge:	**Powerful Knowledge:**	**Powerful Knowledge:** Algorithms are a set of clear, precise and ordered instructions which we use	**Powerful Knowledge:** Algorithms are a set of clear, precise and ordered instructions which we use	**Powerful Knowledge:** A sequence is made up of various which are linked. Events and actions have an	**Powerful Knowledge:** Loops can be repeated indefinitely. This is known as 'infinite	**Powerful Knowledge:**	**Powerful Knowledge:**

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			computers to implement. Understanding and reading code enables us to predict what will happen. There are four levels to describe a coding project, this is known as abstraction.	computers to implement. Understanding and reading code enables us to predict what will happen. There are four levels to describe a coding project, this is known as abstraction.	impact on the outcome of a program.			
	Key Vocab:	**Key Vocab:**	**Key Vocab:** command, programming, compare, algorithm, predict	**Key Vocab:** sequence, command, outcome, program, modify, design, compare, evaluate	**Key Vocab:** motion, algorithm, design, event, action, debugging, error	**Key Vocab:** programming, code, loop, value, infinite loop, repetition, modify, algorithm, evaluate	**Key Vocab:** selection, condition, algorithm, program, debug, outcome, evaluate, construction	**Key Vocab:** micro:bit, process, selection. condition, variable, sensing, navigation, code, debug
	Cultural Capital: Computing Unplugged Session - Programming with Mr Beck	**Cultural Capital:** Computing Unplugged Session - Programming with Mr Beck	**Cultural Capital:** Computing Unplugged Session - Programming with Mr Beck	**Cultural Capital:** Computing Unplugged Session - Programming with Mr Beck	**Cultural Capital:** Computing Unplugged Session - Programming with Mr Cook	**Cultural Capital:** Computing Unplugged Session - Programming with Mr Cook	**Cultural Capital:** Computing Unplugged Session - Programming with Mr Cook	**Cultural Capital:** Computing Unplugged Session - Programming with Mr Cook
	Pedagogical Content Knowledge (PCK):	**Pedagogical Content Knowledge (PCK):**	**Pedagogical Content Knowledge (PCK):**	**Pedagogical Content Knowledge (PCK):**	**Pedagogical Content Knowledge (PCK):**	**Pedagogical Content Knowledge (PCK):**	**Pedagogical Content Knowledge (PCK):**	**Pedagogical Content Knowledge (PCK):**