Computing Medium Term Plan

Saint Augustine Webster CATHOLIC VOLUNTARY ACADEMY

OUR LADY OF LOURDES CATHOLIC MULTI-ACADEMY TRUST

EYFS			
Three and Four-Year-Olds	Personal, Social and Emotional Development		• Remember rules without needing an adult to remind them.
	Physical Development		• Match their developing physical skills to tasks and activities in the setting.
	Understanding the World		• Explore how things work.
Reception	Personal, Social and Emotional Development		• Show resilience and perseverance in the face of a challenge. • Know and talk about the different factors that support their overall health and wellbeing: • Recognise sensible amounts of 'screen time'.
	Physical Development		• Develop their small motor skills so that they can use a range of tools competently, safely and confidently.
	Understanding the World		• Explore, use and refine a variety of artistic effects to express their ideas and feelings.
ELG	Personal, Social and Emotional Development	Self-Regulation	• Give focused attention to what the teacher says, responding appropriately even when engaged in activity, and show an ability to follow instructions involving several ideas or actions.
		Managing Self	• Be confident to try new activities and show independence, resilience and perseverance in the face of challenge. • Explain the reasons for rules, know right from wrong and try to behave accordingly.
	Expressive Arts and Design	Creating with Materials	• Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

Year 1	Advent	Lent	Pentecost	Pentecost

	Improving Mouse Skills	Algorithms Unplugged	Programming Beebots	Introduction to Data
Core Knowledge	Learning how to login and navigate around a computer; developing mouse skills; learning how to drag, drop, click and control a cursor to create works of art 1. To log into a computer and access a website 2. To develop mouse skills 3. To use mouse skills to draw and edit shapes 4. To draw a scene from a story using digital tools 5. To create a self-portrait using digital techniques	Algorithms, decomposition and debugging are made relatable to familiar contexts, following directions, learning why instructions need to be specific. 1. To understand what an algorithm is 2. To follow instructions precisely to carry out an action 3. To understand that computers and devices around us use inputs and outputs 4. To understand and be able to explain what decomposition is 5. To know how to debug an algorithm	Introducing programming through the use of a Bee-Bot and exploring its functions. 1. To explore a new device 2. To create a demonstration video 3. To plan and follow a set of instructions precisely 4. To program a device 5. To create a program	Learning what data is and the different ways it can be represented. Learning why data is useful and the ways it can be gathered and recorded. 1. To represent data in different ways 2. To use technology to represent data in different ways 3. To collect and record data 4. To sort data 5. To design an invention to gather data
Previous Learning	EYFS • To be able to understand what a computer keyboard is and recognise some letters and numbers. • To know that a mouse can be used to click, drag and create simple drawings. • To know that to use a computer you need to log in to it and then log out at the end of your session.	EYFS • To know that being able to follow and give simple instructions is important in computing. • To understand that it is important for instructions to be in the right order. • To understand why a set of instructions may have gone wrong.	EYFS • To know that you can program a Bee-Bot with some simple commands. • To understand that debugging means how to fix some simple programming errors. • To understand that an algorithm is a set of clear and precise instructions.	EYFS • To know that sorting objects into various categories can help you locate information. • To know that using yes/no questions to find an answer is known as a branching database. • To know that a pictogram is a way of showing information
Computing Skills	<u>Computer Science</u>	<u>Computer Science</u>	<u>Computer Science</u>	<u>Computer Science</u>

	• Learning how to explore and tinker with hardware to find out how it works. • Learning where keys are located on the keyboard. **Information Technology** • Using a basic range of tools within graphic editing software. • Developing control of the mouse through dragging, clicking and resizing of images to create different effects. • Developing understanding of different software tools. • Recognising devices that are connected to the internet. **Digital Literacy** • Logging in and out and saving work on their own account.	• Recognising that some devices are input devices and others are output devices. • Learning that decomposition means breaking a problem down into smaller parts. • Using decomposition to solve unplugged challenges. • Developing the skills associated with sequencing in unplugged activities. • Following a basic set of instructions. • Assembling instructions into a simple algorithm. • Learning to debug instructions when things go wrong. • Learning to debug an algorithm in an unplugged scenario.	• Learning how to explore and tinker with hardware to find out how it works. • Learning how to operate a camera to take photos and videos. • Using decomposition to solve unplugged challenges. • Using logical reasoning to predict the behaviour of simple programs • Developing the skills associated with sequencing in unplugged activities. • Following a basic set of instructions. • Assembling instructions into a simple algorithm. • Programming a floor robot to follow a planned route. • Learning to debug instructions when things go wrong. • Using programming language to explain how a floor robot works. • Learning to debug an algorithm in an unplugged scenario. **Information Technology** • Taking and editing photographs.	• Learning how to explore and tinker with hardware to find out how it works. • Recognising that some devices are input devices and others are output devices. • Learning where keys are located on the keyboard. **Information Technology** • Developing control of the mouse through dragging, clicking and resizing of images to create different effects. • Developing understanding of different software tools. • Recognising devices that are connected to the internet. • Understanding that technology can be used to represent data in different ways: pictograms, tables, pie charts, bar charts, block graphs etc. • Using data representations to answer questions about data. • Using software to explore and create pictograms and branching databases.

Vocabulary	account, click, ctrl, cursor, drag, drag and drop, digital photograph, drop, duplicate, keyboard, layers, log on/ in, log out/ off, menu, mouse, mouse pointer, password, right click, screen (monitor), software, tool, username	algorithm, automatic, bug, chunks, clear, code, debug, decompose, decomposition, device, directions, input, instructions, manageable, motion, order, organise, output, precise, programming, problem, robot, sensor, sequence, solution, specific, steps, tasks, virtual assistant	algorithm, artificial intelligence, Bee-Bot, clear, code, debug, demonstration, filming, inputting, instructions, pause, precise, predict, program, tinker, video, video recording (Option 2 only: emulator, virtual)	bar chart, block graph, branching database, categorise, chart, click and drag, compare, count, data, data collection, data record, data representation, edit, input, keyboard, line graph, mouse, information, label, pictogram, pie chart, process, record, resize, sort, table, tally, values

Year 2	Advent What is a computer?	Lent Algorithms and Debugging	Pentecost Word Processing	Pentecost International Space Station
Core Knowledge	When picturing a computer, thoughts are often of a screen, mouse and keyboard. This unit explores exactly what a computer is by identifying and learning how inputs and outputs work, how computers are used in the wider world and designing their own computerised invention 1. To recognise the parts of a computer 2. To recognise how technology is controlled 3. To recognise technology 4. To create a design for an invention 5. To understand the role of computers	This combination of unplugged and plugged-in activities develop an understanding of; what algorithms are, how to program them and how they can be developed to be more efficient, introduction of loops 1. To decompose a game to predict the algorithms that are used 2. To understand that computers can use algorithms to make predictions (machine learning) 3. To plan algorithms that will solve problems 4. To understand what abstraction is 5. To understand what debugging is	Learn about word processing and how to stay safe online as well developing touch typing skills. Introduce important keyboard shortcuts, as well as simple editing tools within a word processor including: bold, italics, underline and font colour as well as how to import images. 1. To begin to learn to touch type. 2. To understand how to use a word processor. 3. To understand how to add images to a text document. 4. To create a poetry book using sources from the internet. 5. To create a digital piece of writing.	The International Space Station (ISS) is a fascinating real-world setting for teaching how data is collected, used and displayed as well as the scientific learning of the conditions needed for plants and animals, including humans, to survive. 1. To understand how computers can help humans survive in space 2. To create a digital drawing of essential items for life in space 3. To understand the role of sensors on the ISS 4. To create an algorithm for growing a plant in space 5. To interpret data

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Previous Learning	**Year 1** • To know that "log in and log out" means to begin and end a connection with a computer. • To know that a computer and mouse can be used to click, drag, fill and select and also add backgrounds, text, layers, shapes and clip art. • To know that passwords are important for security.	**Year 1** • To understand that an algorithm is when instructions are put in an exact order. • To know that input devices get information into a computer and that output devices get information out of a computer. • To understand that decomposition means breaking a problem into manageable chunks and that it is important in computing. • To know that we call errors in an algorithm 'bugs' and fixing these 'debugging'.		**Year 1** • To know how that charts and pictograms can be created using a computer. • To understand that a branching database is a way of classifying a group of objects. • To know that computers understand different types of 'input'.
Computing Skills	**Computer Science** • Understanding what a computer is and that it's made up of different components. • Recognising that buttons cause effects and that technology follows instructions. • Learning how we know that technology is doing what we want it to do via its output. • Using greater control when taking photos with	**Computer Science** • Developing confidence with the keyboard and the basics of touch typing. • Articulating what decomposition is. • Decomposing a game to predict the algorithms used to create it. • Learning that there are different levels of abstraction. • Explaining what an algorithm is. • Following an algorithm.	**Computer Science** • Developing confidence with the keyboard and the basics of touch typing. **Information Technology** • Developing word processing skills, including altering text, copying and pasting and using keyboard shortcuts. • Using word processing software to type and reformat text.	**Computer Science** • Developing confidence with the keyboard and the basics of touch typing. **Information Technology** • Creating and labelling images. • Collecting and inputting data into a spreadsheet. • Interpreting data from a spreadsheet. • Learning how computers are used in the wider world.

	cameras, tablets or computers. **Information Technology** • Developing word processing skills, including altering text, copying and pasting and using keyboard shortcuts. • Using word processing software to type and reformat text. • Creating and labelling images. • Learning how computers are used in the wider world.	• Creating a clear and precise algorithm. • Learning that programs execute by following precise instructions. • Incorporating loops within algorithms. • Using logical thinking to explore software, predicting, testing and explaining what it does. • Using an algorithm to write a basic computer program. **Information Technology** • Developing word processing skills, including altering text, copying and pasting and using keyboard shortcuts.	• Searching for appropriate images to use in a document. • Understanding what online information is. **Digital Literacy** • Identifying whether information is safe or unsafe to be shared online.	
Vocabulary	battery, buttons, camera, computer, desktop, device, digital, digital recorder, electricity, function, input, invention, keyboard, laptop, monitor, mouse, output, paying till, scanner, screen, system, tablet, technology, video, wires	abstraction, algorithm, artificial intelligence, bug, clear, correct, data, debug, decompose, error, key features, loop, predict, unnecessary	backspace, bold, copy, copyright, cut, delete, forward button, highlight, home row, home screen, image, import, italics, keyboard, keyboard character, keyword, layout, navigate, paste, redo, search, space bar, text, text effects, touch typing, underline, undo, word processing	algorithm , astronaut, data, digital, digital content, experiment, galaxy, insulation, interactive map, International Space Centre, International Space Station, interpret, laboratory, monitor, planet, satellite, sensor, space, temperature, thermometer, water reservoir

Year 3	Advent Networks and the internet	Advent Programming Scratch	Lent Journey inside a computer	Pentecost Video Trailers

Core Knowledge	Introduction to the concept of networks, learning how devices communicate. Identifying components, learning how information is shared and exploring examples of real-world networks. 1. To understand what a network is and understand our school network 2. To understand how information moves around a network and begin to recognise real world networks 3. To understand how the Internet works and explain a website's journey 4. To explore the role of routers 5. To understand the role of packets	Building on the use of the 'ScratchJr' application in Year 2, progress to using the more advanced computer-based application called 'Scratch', learning to use repetition or 'loops' and building upon skills to program; an animation, a story and a game 1. To explore a programming application 2. To use repetition (a loop) in a program 3. To program an animation 4. To program a story 5. To program a game	Assuming the role of computer parts and creating paper versions of computers helps to consolidate an understanding of how a computer works, as well as identifying similarities and differences between various models. 1. To recognise basic inputs and outputs 2. To decompose a laptop 3. To understand the purpose of computer parts 4. To understand the purpose of computer parts 5. To decompose a tablet computer	Developing filming and editing video skills through the storyboarding and creation of book trailers. 1. To plan a book trailer 2. To take photos or videos to tell a story 3. To edit a video 4. To add text and transitions to a video 5. To evaluate video editing
Previous Learning	Year 2 • To know the difference between a desktop and laptop computer • To know that people control technology. • To know some input devices that give a computer an instruction about what to do (output). • To know that computers often work together.	Year 2 • To understand what machine learning is and how it enables computers to make predictions. • To know that loops in programming are where you set a certain instruction (or instructions) to be repeated multiple times. • To know that abstraction is the removing of	Year 2 • To know the difference between a desktop and laptop computer • To know that people control technology. • To know some input devices that give a computer an instruction about what to do (output). • To know that computers often work together.	Year 2 • To know that touch typing is the fastest way to type. • To know that I can make text a different style, size and colour. • To know that "copy and paste" is a quick way of duplicating text.

		unnecessary detail to help solve a problem.		
Computing Skills	**Computer Science** • Learning about the purpose of routers. • Understanding the role of the key components of a network. • Understanding that websites & videos are files that are shared from one computer to another. • Learning about the role of packets. • Understanding how networks work and their purpose. • Identifying the key components within a network, including whether they are wired or wireless • Recognising links between networks and the internet. • Learning how data is transferred.	**Computer Science** • Using decomposition to explore the code behind an animation. • Using repetition in programs. • Using logical reasoning to explain how simple algorithms work. • Explaining the purpose of an algorithm. • Forming algorithms independently. • Using logical thinking to explore more complex software; predicting, testing and explaining what it does. • Incorporating loops to make code more efficient. • Continuing existing code. • Making reasonable suggestions for how to debug their own and others' code.	**Computer Science** • Understanding what the different components of a computer do and how they work together. • Drawing comparisons across different types of computers • Using decomposition to explain the parts of a laptop computer. • Explaining the purpose of an algorithm.	**Computer Science** • Using logical thinking to explore more complex software; predicting, testing and explaining what it does **Information Technology** • Taking photographs and recording video to tell a story. • Using software to edit and enhance their video adding music, sounds and text on screen with transitions.
Vocabulary	cables, component, connection, corrupted, data, desktop, device, DSL (digital subscriber line), fibre, file, internet, laptop, network, network map, network switch, packets, radio waves, router, server, submarine cables, tablet, text map, The Cloud, web server,	algorithm, animation, application, code, code block, coding application, debug, decompose, interface, game, loop, predict, program, remixing code, repetition code, review, Scratch, sprite, tinker	algorithm, assemble, CPU (central processing unit), data, decompose, desktop, disassemble, GPU (graphics processing unit), hard drive, HDD (hard disk drive), infinite loop, input, keyboard, laptop, memory, microphone, monitor, mouse, output, photocopier,	application, camera angle, clip, edit, film editing software, graphics, import, key events, photo, plan, recording, sound effects, storyboard, time code, trailer, transition, video, voiceover (Option 1 - as above, plus: cross blur, cross fade, cross zoom, desktop, digital

	website, website trackers, WiFi, wired, wireless, Wireless Access Points, World Wide Web		program, QR code, RAM (random access memory), ROM (read only memory), storage, tablet device, technology, touchscreen, touchpad	device, dip to black, directional wipe, laptop) (Option 2 - as above, plus: cross dissolve, fade to black/white , slide, wipe)

Year 4	Advent Collaborative Learning	Advent Further coding	Pentecost HTML	Pentecost Computational Thinking
Core Knowledge	Working collaboratively in a responsible and considerate way as well as looking at a range of collaborative tools. 1. To understand that software can be used to work online collaboratively 2. To understand how to contribute to someone else's work effectively 3. To understand how to create a digital survey 4. To create and share a Microsoft Form 5. To analyse data	Using variables in coding. 1. To recall the key features of Scratch 2. To understand how a Scratch game works by using decomposition to identify key features 3. To understand what a variable is and how to make one 4. To understand how to make a variable in Scratch 5. To use knowledge of how variables work to create a quiz	Editing the HTML and CSS of a web page to change the layout of a website and the text and images. 1. To understand and identify examples of HTML tags 2. To change HTML code for a specific purpose 3. To change the HTML and CSS to alter the appearance of an object on the web 4. To understand and explore more complex components of a web page 5. To alter key elements on a webpage including text and images	Plugged and unplugged activities to develop the four areas of computational thinking. 1. To understand that computational thinking is made up of four key strands 2. To understand what decomposition is and how to apply it to solve problems 3. To understand what pattern recognition and abstraction mean 4. To understand how to create an algorithm and what it can be used for 5. To combine computational thinking skills to solve a problem
Previous Learning	Year 3 • To understand what a network is and how a school network might be organised.	Year 3 • To know that Scratch is a programming language and some of its basic functions.	Year 3 • To know that different types of camera shots can make my photos or videos look more effective	Year 3 • To know that Scratch is a programming language and some of its basic functions.

	• To know that a server is central to a network and responds to requests made. • To know how the internet uses networks to share files. • To know that a router connects us to the internet • To know what a packet is and why it is important for website data transfer.	• To understand how to use loops to improve programming. • To understand how decomposition is used in programming. • To understand that you can remix and adapt existing code.	• To know that I can edit photos and videos using film editing software. • To understand that I can add transitions and text to my video	• To understand how to use loops to improve programming. • To understand how decomposition is used in programming • To understand that you can remix and adapt existing code.
Computing Skills	<u>Computer Science</u> • Understanding that computer networks provide multiple services, such as the World Wide Web, and opportunities for communication and collaboration. <u>Information Technology</u> • Use online software for documents, presentations, forms and spreadsheets • Using software to work collaboratively with others. • Understanding that software can be used collaboratively online to work as a team. <u>Digital Literacy</u> • Recognising what appropriate behaviour is when collaborating with others online.	<u>Computer Science</u> • Using decomposition to solve a problem by finding out what code was used. • Using decomposition to understand the purpose of a script of code. • Creating algorithms for a specific purpose. • Coding a simple game. • Incorporating variables to make code more efficient. • Remixing existing code. <u>I</u>	<u>Computer Science</u> • Remixing existing code. <u>Information Technology</u> • Building a web page and creating content for it. • Understanding that information found by searching the internet is not all grounded in fact. <u>Digital Literacy</u> • Recognising that information on the Internet might not be true or correct and that some sources are more trustworthy than others.	<u>Computer Science</u> • Using decomposition to solve a problem by finding out what code was used. • Using decomposition to understand the purpose of a script of code. • Identifying patterns through unplugged activities. • Using past experiences to help solve new problems. • Using abstraction to identify the important parts when completing both plugged and unplugged activities. • Creating algorithms for a specific purpose. • Using abstraction and pattern recognition to modify code.

Vocabulary	animations, average, bar chart, collaboration, comment, conditional formatting, contribution, data, edited, email account, format, freeze, icon, images, insert, link, multiple choice, numerical data, pie chart, presentations, resolved, reviewing comments, share, slides, software, spreadsheets, suggestions, survey, teamwork, themes, transitions (Microsoft version add in: rating)	broadcast block, code blocks, conditional, coordinates, decomposition, features, game, information, negative numbers, orientation, parameters, position, program, project, script, sprite, stage, tinker, variables	code, component, content, copyright, CSS, end tag, fake news, hacking, heading, headline, hex code, HTML, input, internet browser, output, paragraph, permission, remixing, script, start tag,tags, text, URL, webpage	abstraction, algorithm, code, computational thinking, decomposition, input, logical reasoning, output, pattern recognition, script, sequence, variable

Year 5	Advent Search engines	Lent Programming Music	Lent Mars Rover
Core Knowledge	Using keywords and phrases, identifying inaccurate information, learning page rank works as well. 1. To understand what a search engine is and how to use it 2. To be aware that not everything online is true 3. To search effectively 4. To create an informative poster 5. To understand how search engines work	Applying programming skills to create sounds and melodies leading to a battle of the bands performance 1. To tinker with a new piece of software 2. To create a program that plays themed music 3. To plan a soundtrack program 4. To program a soundtrack 5. To program music for a specific purpose	Data transfer and binary code 1. To identify how and why data is collected from space. 2. To read and calculate numbers using binary code. 3. To identify the computer architecture of the Mars Rovers. 4. To use simple operations to calculate bit patterns. 5. To represent binary as text.
Previous Learning	Year 4 • To understand that software can be used collaboratively online to work as a team	Year 4 • To know that combining computational thinking skills can help you to solve a problem. • To understand that pattern recognition means identifying patterns	Year 4 • To know that computers can use different forms of input to sense the world around them so that they can record and respond to data ('sensor data').

	• To know what type of comments and suggestions on a collaborative document can be helpful. • To know that you can use images, text, transitions and animation in presentation slides.	to help them work out how the code works. • To understand that algorithms can be used for a number of purposes e.g. animation, games design etc.	• To know that a weather machine is an automated machine that respond to sensor data. • To understand that weather forecasters use specific language, expression and pre-prepared scripts to help create weather forecast films.
Computing Skills	**Information Technology** • Developing searching skills to help find relevant information on the internet • Learning how to use search engines effectively to find information, focussing on keyword searches and evaluating search returns • Learn about different forms of communication that have developed with the use of technology. **Digital Literacy** • Recognising that information on the Internet might not be true or correct and learning ways of checking validity.	**Computer Science** • Predicting how software will work based on previous experience. • Writing more complex algorithms for a purpose. • Iterating and developing their programming as they work. • Confidently using loops in their programming. • Using a more systematic approach to debugging code, justifying what is wrong and how it can be corrected. • Writing code to create a desired effect. • Using a range of programming commands. • Using repetition within a program. • Amending code within a live scenario. **Information Technology** • Using logical thinking to explore software more independently, making predictions based on their previous experience. • Using a software programme (Sonic Pi/Scratch) to create music. • Identify ways to improve and edit programs, videos, images etc.	**Computer Science** • Learning that external devices can be programmed by a separate computer. • Recognising how the size of RAM affects the processing of data. • Learning the vocabulary associated with data: data and transmit. • Recognising that computers transfer data in binary and understanding simple binary addition. • Relating binary signals (Boolean) to the simple character-based language, ASCII. • Learning that messages can be sent by binary code, reading binary up to eight characters and carrying out binary calculations. **Information Technology** • Understanding how data is collected in remote or dangerous places. • Understanding how data might be used to tell us about a location • Learn about different forms of communication that have developed with the use of technology.
Vocabulary	algorithm, appropriate, copyright, correct, credit, data leak, deceive, fair, fake,	beat, bugs, coding, command, debug, decompose, error, instructions, loop,	8-bit binary, addition, ASCII, binary code, boolean, byte, communicate, construction,

	inappropriate, incorrect, index, information, keywords, network, privacy, rank, real, search engine, TASK, web crawler, website	melody, mindmap, music, output, performance, pitch, play, predict, programming, rhythm, tempo, timbre, tinker, tutorials, typing (Sonic Pi version add in: buffer, format, live loops, rehearsal, repetition, sleep, Sonic Pi, soundtrack, spacing, typo) (Scratch version add in: plan, repeat, scratch, soundtrack, spacing)	CPU, data transmission, decimal numbers, design, discovery, distance, hexadecimal, input, instructions, internet, Mars Rover, moon, numerical data, output, planet, radio signal, RAM, research, scientist, sequence, signal, simulation, space, subtraction, technology, transmit

Year 6	Advent Bletchley Park	Lent Python	Pentecost Big Data
Core Knowledge	Code breaking and password hacking 1. To understand that there are lots of different types of secret codes 2. To understand the importance of having a secure password 3. To understand the importance of Bletchley Park to the World War II war effort 4. To understand about some of the historical figures that contributed to technological advances in computing 5. To research and present information about historical figures in computing	Using the programming language of Python 1. To tinker with a new piece of software 2. To understand nested loops 3. To understand basic Python commands 4. To use loops when programming 5. To understand the use of random numbers	Barcodes, QR codes and RFID 1. To identify how barcodes and QR codes work. 2. To know how infrared waves transmit data. 3. To recognise how RFID is used. 4. To input and analyse real-world data. 5. To analyse and evaluate data.
Previous Learning	<u>Year 5</u> • To know how search engines work. • To understand that anyone can create a website and therefore we should take steps to check the validity of websites. • To know that web crawlers are computer programs that crawl through the internet. • To understand what copyright is.	Year 5 • To know that a soundtrack is music for a film/video and that one way of composing these is on programming software. • To understand that using loops can make the process of writing music simpler and more effective. • To know how to adapt their music while performing.	Year 5 • To know that Mars Rover is a motor vehicle that collects data from space by taking photos and examining samples of rock. • To know what numbers using binary code look like and be able to identify how messages can be sent in this format.

			• To understand that RAM is Random Access Memory and acts as the computer's working memory. • To know what simple operations can be used to calculate bit patterns.
Computing Skills	Computer Science • Learning about the history of computers and how they have evolved over time. • Using past experiences to help solve new problems. • Writing increasingly complex algorithms for a purpose. • Debugging quickly and effectively to make a program more efficient • Remixing existing code to explore a problem. • Changing a program to personalise it. • Evaluating code to understand its purpose. • Predicting code and adapting it to a chosen purpose. Information Technology • Using search and word processing skills to create a presentation. • Understanding how search engines work. Digital Literacy • Understanding the importance of secure passwords and how to create them. • Using search engines safely and effectively	Computer Science • Decomposing a program into an algorithm. • Writing increasingly complex algorithms for a purpose. • Debugging quickly and effectively to make a program more efficient. • Remixing existing code to explore a problem. • Using and adapting nested loops. • Programming using the language Python. • Changing a program to personalise it. • Evaluating code to understand its purpose. Information Technology • Using logical thinking to explore software independently, iterating ideas and testing continuously.	Computer Science • Understanding and identifying barcodes, QR codes and RFID. • Identifying devices and applications that can scan or read barcodes, QR codes and RFID. Information Technology • Understanding how barcodes, QR codes and RFID work. • Gathering and analysing data in real time. • Creating formulas and sorting data within spreadsheets. • Learning how 'big data' can be used to solve a problem or improve efficiency.
Vocabulary	acrostic code, brute force hacking, caesar cipher, chip and pin system, cipher, code,	algorithm, code, command, design, import, indentation, input, instructions,	algorithms, barcode, binary, Boolean, brand, chips, commuter, contactless, data,

	combination, contribute, convince, date shift cipher, discovery, hero, invention, Nth Letter Cipher, password, Pig Latin, Pigpen cipher, present, scrambled, secret, secure, technological advancement, trial and error	loop, output, patterns, random, remix, repeat, shape	encrypted, infrared, MagicBand, privacy, proximity, QR code, QR scanner, radio waves, RFID, signal, systems/data analyst, transmission, wireless