



A love of learning
A desire for God

Progression Map



Catholic Multi Academy Trust

Computing

Concept	Strand	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Computer Science	Hardware	<ul style="list-style-type: none"> I can explore and tinker with hardware to find out how it works. I understand that computers and devices around us use inputs and outputs, and I can identify some of these. I know where keys are located on the keyboard Learning how to operate a camera. 	<ul style="list-style-type: none"> I understand what a computer is and that it's made up of different components. I recognise that buttons cause effects and that technology follows instructions. I recognise how we know that technology is doing what we want it to do via its output. I am using greater control when taking photos with tablets or computers. I am developing confidence with the keyboard and the basics of touch typing. 	<ul style="list-style-type: none"> I understand what the different components of a computer do and how they work together. I can draw comparisons across different types of computers. I know what a server does. 	<ul style="list-style-type: none"> I know the purpose of routers. 	<ul style="list-style-type: none"> I know that that external devices can be programmed by a separate computer. I know the difference between ROM and RAM. I know how the size of RAM affects the processing of data. I understand the fetch, decode, execute cycle. 	<ul style="list-style-type: none"> I know the history of computers and how they have evolved over time. I can use the understanding of historic computers to design a computer of the future. I know how barcodes, QR codes and RFID work. I know about some of the methods which cause data corruption.
	Networks and Data Representation			<ul style="list-style-type: none"> I know what a network is and its purpose. I can identify the key components within a network, including whether they are wired or wireless. I can recognise links between networks and the internet. I know how data is transferred. 	<ul style="list-style-type: none"> I am continuing to develop my understanding of the key components of a network. I know that websites & videos are files that are shared from one computer to another. I know the role of packets. I know that computer networks provide multiple services, such as the World Wide Web, and opportunities for communication and collaboration. 	<ul style="list-style-type: none"> I know the vocabulary associated with data: data and transmit. I know how the data for digital images can be compressed. I can recognise that computers transfer data in binary and understand simple binary addition. I can relate binary signals (Boolean) to the simple character-based language, ASCII. I know that messages can be sent by binary code, reading binary up to 8 characters and carry out binary calculations. I understand how bit patterns represent images as pixels. 	<ul style="list-style-type: none"> I know that computer networks provide multiple services.
	Computational Thinking	<ul style="list-style-type: none"> I know that decomposition means breaking a problem down into smaller parts. I can use decomposition to solve unplugged challenges. I can use logical reasoning to predict the behaviour of simple programs. 	<ul style="list-style-type: none"> I can articulate what decomposition is. I can decompose a game to predict the algorithms used to create it. I can use decomposition to decompose a story into smaller parts. 	<ul style="list-style-type: none"> I can use decomposition to explain the parts of a laptop computer. I can use decomposition to explore the code behind an animation. I can use repetition in programs. 	<ul style="list-style-type: none"> I can solve unplugged problems by decomposing them into smaller parts. I can use decomposition to understand the purpose of a script of code. I can use decomposition to help solve problems. 	<ul style="list-style-type: none"> I can decompose animations into a series of images. I can decompose a program without support. I can decompose a story to be able to plan a program to tell a story. 	<ul style="list-style-type: none"> I can decompose a program into an algorithm. I can use past experiences to help solve new problems. I am writing increasingly complex algorithms for a purpose.

		<ul style="list-style-type: none"> • I am developing the skills associated with sequencing in unplugged activities. • I know that learning that an algorithm is a set of step by step instructions used to carry out a task, in a specific order. • I can follow a basic set of instructions. • I can assemble instructions into a simple algorithm. 	<ul style="list-style-type: none"> • I know what abstraction is. • I know that there are different levels of abstraction. • I can explain what an algorithm is. • I can follow an algorithm. • I can create a clear and precise algorithm. • I know that computers use algorithms to make predictions. • I know that programs execute by following precise instructions. • I can incorporate loops within algorithms. 	<ul style="list-style-type: none"> • I can understand that computers follow instructions. • I can use an algorithm to explain the roles of different parts of a computer. • I can use logical reasoning to explain how simple algorithms work. • I can explain the purpose of an algorithm. • I can form algorithms independently. 	<ul style="list-style-type: none"> • I can identify patterns through unplugged activities. • I can use past experiences to help solve new problems. • I can use abstraction to identify the important parts when completing both plugged and unplugged activities. • I can create algorithms for a specific purpose. 	<ul style="list-style-type: none"> • I can predict how software will work based on previous experience. • I can write more complex algorithms for a purpose. 	
	Programming	<ul style="list-style-type: none"> • I can programme a Bee-bot/Blue-bot to follow a planned route. • I am beginning to debug instructions when things go wrong. • I am developing a how to video to explain how the Vee-bot/ Blue-bot works. • I am learning to debug an algorithm in an unplugged scenario. 	<ul style="list-style-type: none"> • I can use logical thinking to explore software, to predict, test and explain what it does. • I can use an algorithm to write a basic computer program. • I know what loops are. • I can incorporate loops to make code more efficient. 	<ul style="list-style-type: none"> • I can use logical thinking to explore more complex software; predicting, testing and explaining what it does I can incorporate loops to make code more efficient. • I can remix existing code. • I can use a more systematic approach to debugging code and justify what is wrong and how it can be corrected. 	<ul style="list-style-type: none"> • I understand that websites can be altered by exploring the code beneath the site. • I can code a simple game. • I can use abstraction and pattern recognition to modify code. 	<ul style="list-style-type: none"> • I can program an animation I can iterate and develop my programming as I work. • I am beginning to use nested loops (loops within loops). • I can debug my own code. • I can write code to create a desired effect. • I can use a range of programming commands. • I can use repetition within a program. • I can amend code within a live scenario. 	<ul style="list-style-type: none"> • I can debug quickly and effectively to make a program more efficient. • I can remix existing code to explore a problem. • I can use and adapt nested loops. • I can programme using the language Python. • I can change a program to personalise it. • I can evaluate code to understand its purpose. • I can predict code and adapt it to a chosen purpose. • I can alter a website's code to create changes.
Information Technology	Using Software	<ul style="list-style-type: none"> • I can use a basic range of tools within graphic editing software. • I can take and edit photographs. • I understand how to create digital art using an online paint tool. • I am developing control of the mouse through dragging, clicking and resizing of images to create different effects. • I am developing an understanding of different software tools. 	<ul style="list-style-type: none"> • I am developing word processing skills, including altering text, copying and pasting and using keyboard shortcuts. • I can use word processing software to type and reformat text. • I can use software to create story animations. • I can create and label images. 	<ul style="list-style-type: none"> • I can take photographs and recording video to tell a story. • I can use software to edit and enhance my video and add music, sounds and text on screen with transitions. 	<ul style="list-style-type: none"> • I can build a webpage and create content for it. • I can design and create a webpage for a given purpose. • I can use Google online software for documents, presentations, forms and spreadsheets. • I can work collaboratively with others. 	<ul style="list-style-type: none"> • I can use logical thinking to explore software more independently, making predictions based on my previous experience. • I can use Sonic Pi to create music. • I can use animation software: Stop Motion to create video animation. • I can identify ways to improve and edit final products. • I know how to use 3D design software package TinkerCAD. 	<ul style="list-style-type: none"> • I can use logical thinking to explore software independently, iterating ideas and testing continuously. • I can use search and word processing skills to create a presentation. • I can plan, record and edit a radio play. • I can create and edit sound recordings for a specific purpose. • I can create and edit videos, adding multiple elements: music, voiceover, sound, text and transitions to create a video advert. • I can use design software TinkerCAD to design a product. • I can create a website with embedded links and multiple pages.

	Using Email and the Internet	<ul style="list-style-type: none"> I can search and download images from the internet safely. 		<ul style="list-style-type: none"> I know how to log in and out of an email account. I can write an email including a subject, 'to' and 'from'. I can send an email with an attachment. I can reply to an email. 		<ul style="list-style-type: none"> I am developing searching skills to help find relevant information on the internet. I know how to use search engines effectively to find information, focussing on keyword searches and evaluating search returns. 	<ul style="list-style-type: none"> I understand how search engines work.
	Using Data	<ul style="list-style-type: none"> I can represent data in tables, charts and pictograms. I can sort data and create branching databases. I can Identify where digital content can have advantages over paper when storing and manipulating data. 	<ul style="list-style-type: none"> I can collect and input data into a spreadsheet. I can interpret data. 	<ul style="list-style-type: none"> I know the vocabulary associated with databases: field, record, data. I know the pros and cons of digital versus paper databases. I can sort and filter databases to easily retrieve information. I can create and interpret charts and graphs to understand data. 	<ul style="list-style-type: none"> I can design a weather station which gathers and records sensor data. 	<ul style="list-style-type: none"> I understand how data is collected. 	<ul style="list-style-type: none"> I understand how barcodes, QR codes and RFID work. I can gather and analyse data in real time. I can create formulas and sort data within spreadsheets.
	Wider use of technology	<ul style="list-style-type: none"> I can recognise common uses of information technology, including beyond school. I can recognise uses of technology beyond school. 	<ul style="list-style-type: none"> I know how computers are used in the wider world. 	<ul style="list-style-type: none"> I know the purpose of emails. 	<ul style="list-style-type: none"> I understand that software can be used collaboratively online to work as a team. 	<ul style="list-style-type: none"> I know what a search engine is. 	<ul style="list-style-type: none"> I know about the Internet of Things and how it has led to 'big data'. I know how 'big data' can be used to solve a problem or improve efficiency.
Digital Literacy		<ul style="list-style-type: none"> I can log in and out and save work in my own account. I understand the importance of a password. I know what to do if I come across something that worries or upsets me. 	<ul style="list-style-type: none"> I know how to stay safe when talking to people online. I know not to share personal information and what to do if I see or hear something online that makes me feel upset or uncomfortable. 	<ul style="list-style-type: none"> I know how to be a responsible digital citizen; understanding my responsibilities to treat others respectfully. I recognise when digital behaviour is unkind. I know about cyberbullying. I know that not all emails are genuine and recognise when an email might be fake and what to do about it. 	<ul style="list-style-type: none"> I recognise what appropriate behaviour is when collaborating with others online. I can recognise that information on the Internet might not be true or correct and that some sources are more trustworthy than others. 	<ul style="list-style-type: none"> I can identify possible dangers online and learn how to stay safe. I can create an animation about digital safety. I can recognise that information on the Internet might not be true or correct and I am learning ways of checking validity. I know how to use an online community safely. 	<ul style="list-style-type: none"> I understand the importance of secure passwords and how to create them. I can use search engines safely and effectively. I recognise that updated software can help to prevent data corruption and hacking.