COMPUTING SKILLS PROGRESSION MAP

St. Michael's Church of England Primary School

Our school values: Respect • Kindness •Challenge • Forgiveness • Perseverance

NATIONAL CURRICULUM		YEAR 3	YEAR 4	YEAR 5	YEAR 6
Programming	Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems	• Create a sequence of commands using a **block language** to produce a given outcome • Debug errors to accomplish specificgoal	• Plan a program using a **block language** which includes appropriate loops to produce a given outcome • Debug errors in increasingly complex programs to accomplish a specific goal	• Plan a program which includes selection to produce a given outcome • Debug errors in increasingly complex programs to accomplish a specific goal	• Plan a program which includes variables to produce a given outcome • Debug errors in increasingly complex programs to accomplish specific goals

	Solve problems by decomposing them into smaller parts	• Work with others to decompose a problem into smaller steps when planning a project	• Independently decompose a problem into smaller steps when planning a project	• Plan a solution to a problem using decomposition	• Solve problems using decomposition, tackling each part separately
	Use sequence, selection, and repetition in programs; work with variables and various forms of input and output	• Explain the order (**sequence**) of commands can effect the outcome(same commands, different order -> same or different outcome) • Identify that different **sequences** can achieve the same outcome	• Identify patterns (**repetition) in a sequence** • Understand repetition in programming is also called looping • Identify a loop in a program • Understand, identify and justify when to use 'infinite' or 'count-controlled' loops • Explain the importance in instruction order in a loop	• Define that conditional statements (**selection**) are used in computer programs • Explain a loop can stop when a condition is met (number of times or event) • Explain a that program flow can branch according to a condition • Use a condition in an *if…then…* statement to produce a given outcome	• Define 'variable' as something that is changeable • Explain that a variable has a name and a value • Identify a variable in an existing program • Use a variable in a conditional statement to control the flow of a program

Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs	• Explain simple, sequence-based algorithm independently • Use logical reasoning to detect errors in programs	• Explain an algorithm using sequence and repetition independently • Use logical reasoning to detect and correct errors in programs	• Explain an algorithm using sequence, repetition and selection independently • Use logical reasoning to detect errors in increasingly complex programs	• Clearly and concisely explain algorithms using sequence, repetition, selection and variables independently • Use logical reasoning to detect errors in increasingly complex programs

National Curriculum			Year 3	Year 4	Year 5	Year 6
Information Technology	Digital Research	Use search technologies effectively, appreciate how results are selectedand ranked, and be discerning in evaluatingdigital content	• Search for information in a single site • Understand that search engines select pages according to keywords found in the content	• Use a standard search engine to find information • Understand that search engines rank pages according to relevance.	• Use filters to make more effective use of a standard search engine • Understand that search engines use a cached copy of the crawled web to select and rank results	• Use of a range of search engines appropriate to finding information that is required • Understand that search engines rank pages based on the number and quality of in-bound links

Creating Digital Content	**Text**	Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals	• Combine text and images to share a message • Consider how different layouts can suit different purposes • Type with increased confidence and speed using age-appropriate punctuation • Use return to create paragraphs • Change orientation of text • Wrap text around an image • Recognise a document can be formatted with placeholders	Use cross-curricular opportunities to consolidate previous learning from Year 1 –Year 3	Use cross-curricular opportunities to consolidate previous learning from Year 1 – Year 3	• Recognise components of a webpage layout • Create a webpage including text, images, hyperlinks and embedded content • Understand the need for a navigation path

Images		• Change orientation of images	• Use a computer to (further) manipulate images • Recognise images can be changed for different purposes • Use the most appropriate tool for a particular purpose • Consider the impact of changes made on the quality of the image	• Recognise an image is comprised of separate objects • Add, remove, modify and combine objects to create graphical drawing on a computer • Recognise objects are layered • Recognise that objects can be modified in groups • Consider the impact of choices made	• Create 3D graphical objects on a computer • Alter the view of a 3D space • Modify 3D objects • Combine 3D objects to create desired effect • Apply blank 3D objects as placeholders to create holes
Multimedia		• Press/tap buttons to start and stop recordings • Recognise recorded audio is stored as a file • Edit and alter recorded audio • Layer sounds • Save/export an audio file • Consider the results of editing choices made	• Understand animation is a sequence of drawings or photographs • Relate animated movement with a sequence of images • Plan an animation • Review and improve an animation • Evaluate the impact of adding other media to an animation	• Identify the features of a good video • Plan a video production using a story board • Use a computer to make a video • Recognise a video can be improved through editing • Consider the impact of changes made on the quality of the video	Use cross-curricular opportunities to consolidate previous learning from Year 1 –Year 5

| Data Handling | Collecting, analysing, evaluating and presenting data and information | • Identify object attributes needed to collect relevant data
• Create a branching database
• Identify objects using a branching database
• Compare information shown in a pictogram with a branching database
• Explain that data can be used to answer questions | • Collect data using a digital device
• Recognise that a sensor can be used as an input device for data collection
• Use a larger data set to find information
• Use a computer program to sort data by one attribute
• Export information and present data in a table and a graph | • Use a form to collect information
• Navigate a flat-file database
• Apply knowledge of a database to ask and answer real-world questions
• Design a structure for a flat-file database
• Choose tools to select and analyse data to answer questions
• Select an appropriate graph to visually compare data
• Choose suitable ways to present information | • Identify questionsthat can be answered using data
• Create a spreadsheet for a purpose
• Apply a formula that can be used to produce calculated data
• Recognise data can be calculated using different operations
• Evaluate results in comparison to the question asked
• Choose suitable ways to present data |

National Curriculum			Year 3	Year 4	Year 5	Year 6
Digital Literacy	Online Safety	Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	See related document: Online Safety Skills Progression (Education for a Connected World)			

| | Computing Systems and Networks | Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration | • Explain how a computer network can be used to share information
• Explore how digital devices can be connected
• Recognise the physical components of a network
• Explain how digital devices function
• Identify input and output devices | • Describe how networks physically connect to other networks
• Recognise how networked devices make up the internet
• describe how content can be added and accessed on the World Wide Web
• Recognise how the content of the WWW is created and shared by people
• Describe the current limitations of World Wide Web media | • Explain that computers can be connected together to form systems
• Recognise the role of computer systems in our lives
• Recognise how information is transferred over the internet
• Explain how sharing information online lets people in different places work together
• Contribute to ashared project online
• Evaluate different ways of working together online | Continue to develop online searching skills to enhance online communication and collaboration |