St Mary of the Angels Catholic Primary School Computing Progression Map

Recognising and celebrating the presence of Christ in one another.

All learning objectives for key stages 1 and 2 have been mapped to the National Centre for Computing Education's taxonomy of ten strands, which ensures that units build on each other from one key stage to the next. At St Mary of the Angels, every year group learns through units within the same four themes (computing systems and networks, programming, data and information and creating media). This approach allows us to use the spiral curriculum approach to progress skills and concepts from one year group to the next. Themes are revisited regularly through different units (at least once in each year group), enabling children to build on prior learning within each theme. This style of curriculum design reduces the amount of knowledge lost through forgetting, as topics are revisited yearly, helping our children make connections and to know and remember more.

Computing and Online Safety Curriculum Overview:

	Autumn 1 (Privacy and Security)	Autumn 2 (Health, wellbeing, and lifestyle)	Spring 1 (Online reputation)	Spring 2 (Self-image and identity)	Summer 1 (Managing online information)	Summer 2 (Copyright & ownership and Online relationships)
Year 1	**Technology around us** Recognising technology in school and using it responsibly. *(Computing systems and networks)*	**Digital painting** Choosing appropriate tools in a program to create art and making comparisons with working non-digitally. *(Creating media)*	**Moving a robot** Writing short algorithms and programs for floor robots and predicting program outcomes. *(Programming)*	**Grouping data** Exploring object labels, then using them to sort and group objects by properties. *(Data and information)*	**Digital writing** Using a computer to create and format text, before comparing to writing non-digitally. *(Creating media)*	**Programming animations** Designing and programming the movement of a character on screen to tell stories. *(Programming)*

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Year 2	**Digital photography** Capturing and changing digital photographs for different purposes. (Creating media)	**Information technology around us** Identifying IT and how its responsible use improves our world in school and beyond. (Computing systems and networks)	**Robot algorithms** Creating and debugging programs and using logical reasoning to make predictions. (Programming)	**Pictograms** Collecting data in tally charts and using attributes to organise and present data on a computer. (Data and information)	**Programming quizzes** Designing algorithms and programs that use events to trigger sequences of code to make an interactive quiz. (Programming)	**Digital music** Using a computer as a tool to explore rhythms and melodies, before creating a musical composition. (Creating media)
Year 3	**Desktop publishing** Creating documents by modifying text, images, and page layouts for a specified purpose. (Creating media)	**Connecting computers** Identifying that digital devices have inputs, processes, and outputs, and how devices can be connected to make networks. (Computing systems and networks)	**Branching databases** Building and using branching databases to group objects using yes/no questions. (Data and information)	**Sequencing sounds** Creating sequences in a block-based programming language to make music. (Programming)	**Events and actions in programs** Writing algorithms and programs that use a range of events to trigger sequences of actions. (Programming)	**Audio production** Capturing and editing audio to produce a podcast, ensuring that copyright is considered. (Creating media)

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Year 4	**The internet** Recognising the internet as a network of networks including the WWW, and why we should evaluate online content. *(Computing systems and networks)*	**Repetition in shapes** Using a text-based programming language to explore count-controlled loops when drawing shapes. *(Programming)*	**Photo editing** Manipulating digital images, and reflecting on the impact of changes and whether the required purpose is fulfilled. *(Creating media)*	**Data logging** Recognising how and why data is collected over time, before using data loggers to carry out an investigation. *(Data and information)*	**Repetition in games** Using a block-based programming language to explore count-controlled and infinite loops when creating a game. *(Programming)*	**Stop-frame animation** Capturing and editing digital still images to produce a stop-frame animation that tells a story. *(Creating media)*
Year 5	**Introduction to vector graphics** Creating images in a drawing program by using layers and groups of objects. *(Creating media)*	**Selection in quizzes** Exploring selection in programming to design and code an interactive quiz. *(Programming)*	**Flat-file databases** Using a database to order data and create charts to answer questions. *(Data and information)*	**Systems and searching** Recognising IT systems in the world and how some can enable searching on the internet. *(Computing systems and networks)*	**Video production** Planning, capturing, and editing video to produce a short film. *(Creating media)*	**Inputs and outputs** Using inputs and outputs to make a physical device work. *(Programming)*

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Year 6	**Communication and collaboration** Exploring how data is transferred by working collaboratively online. (Computing systems and networks)	**Variables in games** Exploring variables when designing and coding a game. (Programming)	**Webpage creation** Designing and creating webpages, giving consideration to copyright, aesthetics, and navigation. (Creating media)	**Introduction to spreadsheets** Answering questions by using spreadsheets to organise and calculate data. (Data and information)	**3D modelling** Planning, developing, and evaluating 3D computer models of physical objects. (Creating media)	**Sensing movement** Designing and coding a project that captures inputs from a physical device. (Programming)

National Curriculum aims:

The national curriculum for computing aims to ensure that all pupils:

➢ can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms, and data representation

➢ can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems

➢ can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems

➢ are responsible, competent, confident and creative users of information and communication technology

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National Curriculum Coverage – Years 1 and 2	1.1 Technology around us	1.2 Digital painting	1.3 Moving a robot	1.4 Grouping data	1.5 Digital Writing	1.6 Programming animations	2.1 Digital photography	2.2 Information technology around us	2.3 Robot algorithm	2.4 Pictograms	2.5 Programming quizzes	2.6 Digital music
Understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions			✓			✓			✓		✓	
Create and debug simple programs			✓			✓			✓		✓	
Use logical reasoning to predict the behaviour of simple programs			✓			✓			✓		✓	
Use technology purposefully to create, organise, store, manipulate, and retrieve digital content	✓	✓		✓	✓		✓	✓		✓	✓	✓
Recognise common uses of information technology beyond school	✓	✓					✓	✓				
Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies	✓		✓	✓			✓	✓	✓	✓		

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National Curriculum Coverage – Years 3 and 4	3.1 Desktop publishing	3.2 Connecting computers	3.3 Branching database	3.4 Sequencing sounds	3.5 Events and actions in pictograms	3.6 Audio production	4.1 The internet	4.2 Repetition in shapes	4.3 Photo editing	4.4 Data logging	4.5 Repetition in games	4.6 Stop-frame animation
Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts				✓	✓			✓			✓	
Use sequence, selection, and repetition in programs; work with variables and various forms of input and output		✓		✓	✓			✓		✓	✓	
Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs				✓	✓			✓			✓	
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		✓					✓					
Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content	✓					✓	✓		✓			
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, including collecting, analysing, evaluating and presenting data and information	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact			✓			✓	✓		✓			✓

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National Curriculum Coverage – Years 5 and 6	5.1 Introduction to vector graphics	5.2 Selection in quizzes	5.3 Flat-file databases	5.4 Systems and searching	5.5 Video production	5.6 Inputs and outputs	6.1 Communication and collaboration	6.2 Variables in games	6.3 Webpage creation	6.4 Introduction to spreadsheets	6.5 3D modelling	6.6 Sensing movements
Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts		✓				✓	✓	✓				✓
Use sequence, selection, and repetition in programs; work with variables and various forms of input and output		✓				✓		✓				✓
Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs		✓				✓		✓				✓
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				✓			✓					
Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content			✓		✓				✓			
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, including collecting, analysing, evaluating and presenting data and information	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓
Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact				✓	✓		✓	✓			✓	