

St Mary's CofE Primary School



Computing Curriculum Overview

Statement of Intent:

At St Mary's, our Computing curriculum inspires children to be curious, creative and confident problem-solvers in an increasingly digital world. We help pupils understand how technology works, use it purposefully and communicate their ideas with care and respect. From practical, screen-light foundations in Early Years to programming, data handling and digital creation in Year 6, children develop the knowledge to make thoughtful choices, persevere when solutions do not work first time and recognise how digital technologies can benefit people and communities. We nurture safe, responsible digital citizens who can participate positively and critically in the world around them.

Aims:

We base our Computing curriculum on Purple Mash, selecting and sequencing units to build secure understanding of computer science, information technology and digital literacy. We aim for pupils to understand algorithms, programming and networks; create, organise and evaluate digital content; and use technology safely and responsibly. Pupils learn to explain their thinking, identify and correct errors, interpret information and choose appropriate tools for different purposes. Our curriculum is inclusive and ambitious, enabling all children to develop practical capability, sound judgement and confidence as respectful communicators and thoughtful world citizens.

How Computing is taught at St Mary's:

Computing is taught through a planned sequence of Purple Mash units, practical challenges and opportunities to apply learning in meaningful contexts. Units vary in length and sometimes span half-terms; teachers follow the intended learning sequence rather than treating each half-term as a fixed unit. Children revisit concepts with increasing complexity, progressing from instructions and simple digital creations to coding with selection and variables, databases, networks and text-based programming. Online safety is reinforced throughout the year through Purple Mash 2BeSafe and short, age-appropriate discussions and activities. In Nursery and Reception, children develop foundational thinking predominantly through hands-on play, talk, movement, patterns and problem-solving; digital tools are introduced sparingly and purposefully, including Bee-Bots in Reception.

Long-term overview

Phase		Provision recorded in the school map		Computing foundations and approach		
Nursery		No discrete Computing unit specified.		Unplugged pattern-making, sorting, sequencing, turn-taking, positional language, cause and effect, problem-solving and noticing everyday technology through play.		
Reception		Spring 1: Bee-Bots.		Give and follow simple directional instructions; predict and check a Bee-Bot route; debug through trial and improvement. Continue screen-light play, pattern recognition, classification and purposeful discussion of familiar digital devices.		
Year group	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1	Introduction to Purple Mash; Creative Computing	Data Explorers	Creating and Following Instructions; Animated Stories	Animated Stories (continued)	Coding	Technology Around Us; Making Beats
Year 2	Creating Pictures; Making Music	Spreadsheets	Route Explorers	Questioning	Coding	Presenting Ideas; The Internet
Year 3	Touch Typing; Email	Route Planners	Spreadsheets	Coding	Presentations	Branching Databases
Year 4	Animation	Unpacking Hardware and Software; Sound Stories	Logo	Effective Searching	Coding	Composing Beats; Introduction to AI
Year 5	Quizzing; Databases	Database / Game Creator	Game Creator / Spreadsheets	Coding	Word Processing	micro:bit
Year 6	Blogging	Networks; Graphing	Graphing (continued); Data Detectives	Coding; 3D Modelling	3D Modelling (continued); Spreadsheets	Spreadsheets (continued); Introduction to Python

EYFS foundations | Nursery and Reception

Area	Nursery — experiences and emerging understanding	Reception — developing and applying
Patterns and sequences	Notice, copy, extend and describe simple patterns in sounds, movement and objects.	Create, explain and correct repeating patterns; put familiar routines into ordered steps.
Instructions and algorithms	Follow simple one- or two-step instructions in play; use positional words.	Give precise instructions to a partner or Bee-Bot; predict the result and adjust a sequence when it does not work.
Sorting and data	Sort objects by a visible feature; explain simple choices.	Sort and classify by more than one attribute; represent choices using objects, marks or simple pictorial records.
Cause, effect and debugging	Explore what happens when a button is pressed or an action is repeated; try another approach.	Predict how actions affect an outcome; test, notice mistakes and improve a route or set of instructions.
Technology and safety	Recognise familiar devices used by adults; ask for help and handle resources with care.	Describe some purposes of everyday technology; use an adult-selected device appropriately and talk about asking a trusted adult for help.

Year 1 | Knowledge and skills progression

Progression focus: Technology is used for different purposes; digital work can be created, saved and shared. Data can be sorted and shown pictorially. An algorithm is a sequence of instructions and code makes actions happen.

Substantive knowledge: what pupils know	Disciplinary knowledge and skills: what pupils can do
Technology is used for different purposes; digital work can be created, saved and shared. Data can be sorted and shown pictorially. An algorithm is a sequence of instructions and code makes actions happen.	Log in and out safely; control a mouse or touch interface; make digital images, games, stories and music; sort and represent data; give, test and improve simple instructions; build a short block-code program.

Unit-level knowledge and application

Taught unit	Substantive knowledge — Purple Mash source extracts	Procedural knowledge — Purple Mash source extracts
Introduction to Purple Mash	It is important to log in to a site, the • Access Purple Mash from home and; An avatar is a virtual representation of a • Make and edit their own avatar.; The 2Do system allows teachers to assign • Open 2Dos.	Log out of Purple Mash.; Give reasons why it is important to keep a; Save 2Dos.
Creative Computing	Art can be created using digital tools. • Select colours and painting effects in; Control a computer mouse.; Use a mouse or finger (device dependent)	
Data Explorers	Items can be grouped using a range of • Identify criteria that can be used to sort; Digital tools can be used to group images of • Complete grouping questions in 2Quiz; Sorting is a way to organise items. • Complete sequencing questions in 2Quiz	Sort items using criteria.; Logically sort items into groups.; Use data grouping and sorting to answer
Creating and Following Instructions	To achieve a specific effect when building • Think carefully about how to word oral; Give clear, precise and concise instructions; Test whether instructions have been	

Animated Stories	There are differences between traditional • Identify differences and similarities; Images can be created within digital book • Use the painting tools within 2Create a; Digital books can have animations. • Apply animation effects to images in	Use picture editing tools such as 'undo' and; Choose effects that make characters; Organise and copy pages in a digital book.
Coding	Computer programs work by following • Create instructions in the form of simple; In 2Code, code is created using coloured • Recognise object code blocks in 2Code are; Code view is the place in 2Code where • Switch to code view.	Interpret what a piece of code means.; Recognise action code blocks in 2Code are; Recognise event code blocks in 2Code are
Technology Around Us	Technology is something that uses scientific • Recognise examples of technology.; Technology is used within many • Identify technology within school, at home; Not all technology is digital technology. • Give examples of digital technology and	Describe the purpose of common types of; Explain how this technology is helpful.; Point out the risks of situations involving
Making Beats	There are differences between music played • Identify differences and similarities; Digital tools such as 2Explore and 2Beat • Compose a melody using 2Explore.; Digital music tools can be used to change • Use digital music tools to change the	Select sounds from the available libraries.; Compose a beat using 2Beat.

Vocabulary progression

device, mouse, keyboard, login, password, avatar, save, data, sort, pictogram, instruction, algorithm, animation, event, code, sound, technology.

Year 2 | Knowledge and skills progression

Progression focus: Digital tools represent pictures, music, data and ideas in different ways. Spreadsheet cells organise information. Programs follow sequences; questions help sort information. The internet connects information and people.

Substantive knowledge: what pupils know	Disciplinary knowledge and skills: what pupils can do
Digital tools represent pictures, music, data and ideas in different ways. Spreadsheet cells organise information. Programs follow sequences; questions help sort information. The internet connects information and people.	Create digital artwork and music; enter and total simple spreadsheet data; plan and check routes; ask questions to organise information; construct, run and debug block-code sequences; present ideas for an audience.

Unit-level knowledge and application

Taught unit	Substantive knowledge — Purple Mash source extracts	Procedural knowledge — Purple Mash source extracts
Creating Pictures	Digital art tools usually have a choice of • Explore the range of painting effects in; Painting effects can be combined to help a • Observe how the painting effects give; The size of an onscreen painting tool brush • Use the brush tool slider to change th...	Produce digital images in traditional art
Making Music	Live, instrumental music is created by real • Identify if sounds are made by real; Music can be made digitally using programs • Open 2Sequence.; Sounds can be incorporated into music • Explore the sounds and instruments	Identify the sound of different instruments;; Listen to a premade composition by; Observe what happens on the screen when
Spreadsheets	A spreadsheet is a program that organises • Identify a cell by its name.; 2Calculate is a type of spreadsheet cells with ease.; Each box in a spreadsheet is called a cell, column.	Enter data into a cell and move between; Explain the difference between a row and; Check and improve their spreadsheet to
Route Explorers	The combination of a direction and a • Input commands in 2Go.; Commands can be input into 2Go to control • Input purposeful commands in 2Go to; Planning a route is important in order to • Use techniques such as finger movements	Reset the turtle to the starting position to

Questioning	Data is information that can be collected, • Collect simple data by asking questions and; A tally chart is a method of counting and • Use tally charts to organise collected data.; Pictograms and bar charts are ways of	Use 2Question to navigate and explore
Coding	In computing, a set of instructions is known • Follow a written algorithm.; The collision detection event is a way to • Identify the collision detection block within; Programs follow a sequence of instructions • Run code and see the sequential effect that	Identify required events, objects and; Use a collision detection block in a program.; Assign two objects within the collision
Presenting Ideas	A presentation is a way to share ideas, • Use a concept map they have created to; A concept map helps organise ideas before • Organise their ideas clearly on a concept; A concept map is made of different nodes. • Place nodes in a logical position and type in	Add nodes around the title to extend their; Change the colour of a node.; Ensure that nodes that are part of the same
The Internet	The Internet is a global network of • Explain the difference between the; An internet connection allows people to • Explain that Wi-Fi describes a wireless; An internet connection can be made using	Give examples of smart devices.

Vocabulary progression

digital image, style, sequence, spreadsheet, cell, row, column, route, direction, question, data, code, presentation, internet.

Year 3 | Knowledge and skills progression

Progression focus: Emails communicate messages digitally and require care. Routes and programs can be represented and refined. Spreadsheets organise and calculate data; branching databases classify using yes/no questions.

Substantive knowledge: what pupils know	Disciplinary knowledge and skills: what pupils can do
Emails communicate messages digitally and require care. Routes and programs can be represented and refined. Spreadsheets organise and calculate data; branching databases classify using yes/no questions.	Type more fluently; compose and manage appropriate emails; plan routes; enter and use spreadsheet data; code and debug with growing independence; create presentations; design and test branching questions.

Unit-level knowledge and application

Taught unit	Substantive knowledge — Purple Mash source extracts	Procedural knowledge — Purple Mash source extracts
Touch Typing	Typing is the action or skill of writing • Use basic touch-typing skills to become quicker; It is important to have a good posture • Check that posture is correct when typing.; Position equipment correctly so that eyes are	
Email	There are different methods of • Explain the advantages and disadvantages; Emails are a form of digital communication. • Make use of 2Email to communicate within; Emails can be sent and received almost • Identify the advantages of instant	Choose an appropriate communication; Recognise the differences between digital; Explain different digital communication
Route Planners	The combination of a direction and a • Input commands in 2Go.; Commands can be input into 2Go to control • Input purposeful commands in 2Go to; The turtle can be set to rotate by angles of • Input commands that rotate the turtle to	Reset the turtle to the starting position to; Anticipate the effect of the repeat and use
Spreadsheets	A spreadsheet is a digital tool used to • Create and open a spreadsheet to record; A sheet is one page within a spreadsheet file • Add, rename, and organise multiple; Cells are the	

	individual boxes where data is • Enter, edit, and delete data accurately	
Coding	Flowcharts are a type of diagram that use • Identify features of a flowchart including; Timers can control when a block of • Code the features of timer after command; Timer commands can be run after a timed nesting of commands.	Follow the flow of the chart and interpret; Use a flowchart as part of a planning; Distinguish between the use of the timer
Presentations (Microsoft, Google and Apple)	You can use Presentation software to • Explain what presentation software is used for.; There is a range of different • Locate and open appropriate presentation; Identify some of the basic layout features of the	
Branching Databases	A database is a collection of data organised • Explain what a database is.; A binary question is one that can be • Explain the differences between a binary; Branching databases are structured using • Identify binary questions that could be	Provide examples of common uses of a; Sort items according to whether the; Identify and fix bugs in a database.

Vocabulary progression

touch typing, email, recipient, attachment, route, plan, cell, formula, algorithm, debug, presentation, slide, branching database, question.

Year 4 | Knowledge and skills progression

Progression focus: Animations are built from frames. Hardware and software have different functions. Logo commands and repetition describe processes. Search results need evaluating. Programs use more complex structures; AI tools have capabilities and limitations.

Substantive knowledge: what pupils know	Disciplinary knowledge and skills: what pupils can do
Animations are built from frames. Hardware and software have different functions. Logo commands and repetition describe processes. Search results need evaluating. Programs use more complex structures; AI tools have capabilities and limitations.	Create and refine animations and sound projects; identify hardware/software; write and debug Logo commands; search effectively; build and test more complex code; compose digital beats; question and discuss AI-generated content.

Unit-level knowledge and application

Taught unit	Substantive knowledge — Purple Mash source extracts	Procedural knowledge — Purple Mash source extracts
Animation	Some animations are created by hand and • Describe how hand drawn animation is; Animation software has specific functions • Use 2Animate to make simple animations; Choices of sound effects, their timing and • Choose appropriate sound effects and	Make a simple flick animation book.; Contrast the process of animating by hand
Unpacking Hardware and Software	The word 'technology' describes using • Identify whether an item is an example of; Electrical, digital and smart technology are • Decide whether an item is an example of; Hardware describes the physical parts of a • Define what is meant by hardware,	Name hardware components of a computer; Describe the function of these different
Sound Stories	An audiobook is a story or book read • Explain the differences between an; As well as being an enjoyable way to • Explain the advantages and disadvantages of; Audiobooks can be made more • Identify where a voice or sound effect might	Recognise the features that makes an; Create a range of sound effects using; Use the library of music and sound effects on

Logo	Logo is a text-based coding language in • Input commands in the Logo tool to make; Commands in Logo consist of directional or • Input directional commands (FD, BK, RT;; Spacing of commands in Logo is important. • Space commands correctly and debug	Use the line commands to achieve desired; Create regular shapes using the repeat; Anticipate the effect of the repeat when
Effective Searching	The internet is a global network of • Recognise and find a search engine on the; We can search for information on the • Explain the uses of a search engine.; A search engine works by collecting and • Explain the different stages of how a	Recognise and name some popular search; Perform a keyword search when looking; Look through search results and evaluate
Coding	There are object types in 2Code; these have • Change object attributes in design view.; Selection in a program means that it has a • Interpret flowcharts depicting selection; Co-ordinates are used in computer • Identify co-ordinates in Design view.	Choose object type with an understanding; Change the co-ordinates of objects within; Read code that includes selection to
Composing Beats	Music is built of different elements which • Recognise, demonstrate and explain the; Rhythm is the pattern of long and short • Identify simple rhythms in everyday life; In digital music, rhythm is made up of • Create their own simple rhythms on Busy	Clap the pulse in a piece of music.; Explain what sounds and instruments; Explain what they like and dislike about a
Introduction to AI	Artificial Intelligence is a type of technology • Explain what AI is and provide some; In order to communicate effectively with AI, • Highlight key parts of an effective prompt.; There are specific behaviours that a user of • Identify common characteristi...	Explain that AI learns from data and; Explain what generative AI is.; Describe the different actions AI can

Vocabulary progression

frame, animation, hardware, software, audio, Logo, command, repeat, search engine, keyword, reliability, variable, selection, AI.

Year 5 | Knowledge and skills progression

Progression focus: Different data structures support different tasks: quizzes, records and fields, spreadsheets and games. Programs use variables, selection and events. A micro:bit processes sensor inputs and produces programmed outputs.

Substantive knowledge: what pupils know	Disciplinary knowledge and skills: what pupils can do
Different data structures support different tasks: quizzes, records and fields, spreadsheets and games. Programs use variables, selection and events. A micro:bit processes sensor inputs and produces programmed outputs.	Design quizzes for a user; create and query databases; build and refine games; analyse data with spreadsheets; code using variables and conditions; format purposeful documents; programme micro:bit inputs and outputs and explain how the code works.

Unit-level knowledge and application

Taught unit	Substantive knowledge — Purple Mash source extracts	Procedural knowledge — Purple Mash source extracts
Quizzing	There are different types of quiz, suitable for • Select the best type of quiz to make for any; Within 2Quiz, there are different types of • Select the most suitable type of quiz; The success of a quiz can be determined by • Design successful quizzes that...	
Databases	A database contains a set of data that can • Use the functionality of the 2Investigate; A table-based database contains records • Identify, create and edit records and fields; Database tools support interpreting data • Sort, group and arrange information in a	Search for information in a database.; Answer questions involving the; Use conditional operators correctly when
Game Creator	There are criteria which determine the • Evaluate the playability of a video game.; 3D games can be made using the 2DIY • Make a 3D game using the key functions of the; To maximise playability, it is important • Use a design document to plan the theme and	
Spreadsheets	A spreadsheet is a digital tool for • Enter data accurately into cells, using rows;; Cells, rows,	

	columns and cell references • Select, navigate and reference cells to build; Formulas allow spreadsheets to • Create and edit formulas (e.g. =A2*B2, =A3+B3)	
Coding	The way that code is written and • Use tags to write code for several objects in; Use tabs to organise code.; Use functions to reduce the need to repeat	
Word Processing	A word processing tool can be used to • Recognise different documents that can be; Open new blank documents and existing; Identify a range of templates that can be used	
micro:bit	Inputs from an accelerometer, button, • Identify event blocks.; Code using an event block to initiate a program.; Nest code that is to be run inside an event block.	

Vocabulary progression

quiz, audience, record, field, database, filter, game, spreadsheet, variable, selection, word processing, micro:bit, sensor, input, output.

Year 6 | Knowledge and skills progression

Progression focus: Networks enable communication and shared resources. Data representations influence interpretation. Programming concepts transfer from block coding to Python, which has rules of syntax. Digital publishing brings responsibility.

Substantive knowledge: what pupils know	Disciplinary knowledge and skills: what pupils can do
Networks enable communication and shared resources. Data representations influence interpretation. Programming concepts transfer from block coding to Python, which has rules of syntax. Digital publishing brings responsibility.	Write and respond appropriately in blogs; explain network components; create and interpret graphs; interrogate data; plan, test and debug programs; construct and evaluate 3D models; use spreadsheet functions; write and debug introductory Python code.

Unit-level knowledge and application

Taught unit	Substantive knowledge — Purple Mash source extracts	Procedural knowledge — Purple Mash source extracts
Blogging	A blog is a regularly updated webpage, • Give examples of topics for existing or; Blogs consist of several blog posts. • Create a blog post.; A well written blog post has certain features • Plan the hook, look and feel, conclusion and	
Networks	A network describes a group of • Identify types of computer networks locally and; Explain the hardware resources that a network; LAN and WAN are different kinds of • Explain the difference between LAN and WAN.	
Graphing	Graphing helps to make sense of datasets • Create a variety of graphs and interpret; There are different types of graphs. The • Create a variety of graph types and; Comparative bar charts can be used to • Create a comparative bar chart using the	
Data Detectives	A database contains data organised in • Identify tables, records and fields.; Query tools exist to help users of a • Use the filter tool to create conditions.; Chart tools can be used to make	Explain the data types contained within each; Identify any format types applied to fields.; Use query tools to find useful information.

	graphs • Use the chart tool to select specific fields	
Coding	Cloning is a process where additional • Write code to clone objects and loop through; Objects can be draggable in 2Code to • Make objects draggable in a program.; Hotspots can be created in 2Code. • Create hotspots and write code that controls	
3D Modelling	Designers use CAD (Computer Aided • Define what a 3D model is.; Identify different industries where CAD is used.; CAD allows designers to create • Identify the benefits of using CAD.	
Spreadsheets (Microsoft, Google and Apple)	There are key features of a • Talk about some uses of a spreadsheet.; Navigate around the front screen of their; Navigate around a sheet using appropriate cell	
Introduction to Python	Python is a text-based coding • Use language syntax correctly for simple; Python has in-built functions that can • Use the print function to output strings, values; A library of functions can be imported • Import the sleep function from the time module	

Vocabulary progression

blog, comment, moderation, network, router, graph, data, evidence, simulation, debug, 3D model, spreadsheet, formula, Python, syntax.

Online safety and digital citizenship | progression thread

Phase	Suggested age-appropriate focus to verify against 2BeSafe and school practice
EYFS	Recognise trusted adults; ask for help with unfamiliar content; treat devices carefully; use technology with adult guidance.
Year 1	Keep login details private; ask an adult for help; use devices respectfully and follow simple safety routines.
Year 2	Know when to seek help online; begin distinguishing private information from information suitable to share; be kind in digital communication.
Year 3	Apply respectful email etiquette; understand that messages can be forwarded or misunderstood; know how to report worries.
Year 4	Use effective searches; question reliability and appropriateness of results; recognise that AI outputs can be inaccurate.
Year 5	Manage privacy and audience in shared digital work; consider data accuracy and responsible creation of games and quizzes.
Year 6	Understand digital footprint, blogging and moderation; evaluate sources and representations of data; communicate safely and responsibly.