Milton Mount Primary School

Computing Planning Summary Document

EYFS, Key Stage 1 & Key Stage 2

(2024 – 2025)

Year 1 Autumn	
Challenge	(A1a) How can I find data that I have created? (1.1) (A1b) How can I sort things into groups? (1.2) (A2a) What does a pictogram do? (1.3) (A2b) What happens when instructions are not in the right order? (1.4)
Knowledge	(A1a) Know that information can be stored in a computer and retrieved at a later date. Know that different buttons (icons) do set jobs such as add images or text. Know that logging out at the end of their session is important. (A1b) Know how to sort items using a range of criteria, how to use software for grouping items. (A2a) Know that computers can be used to create images that display data (pictograms). (A2b) Instructions need to be given and followed in a certain order to be correct. When instructions aren't given correctly, we need to be able to fix (debug) them.
Skills	(A1a) Log on using to the computer and Purple Mash, using their own passwords. Use technology safely and respectfully, keeping personal information private (passwords). Save work into the My Work folder. (A1b) Follow a logical process to categorise objects. Sort various items online using a variety of criteria including items that do not fit a category. (A2a) Discuss and illustrate the modes of transport used for school commutes. Create a simple pictogram. (A2b) compare the effects of adhering strictly to instructions to completing tasks without complete instructions; to consider how the order of instructions affects the result.
Vocabulary	(A1a) Unique login. Purple Mash, mouse, click (as above) save, store, search, Pupil Share, Edit, retrieve (A1b) Criteria, sort, groups, algorithm (A2a) Pictogram, data, information, collate (A2b) instruction, algorithm, computer, program, debug
Year 1 Spring	
Challenge	(Sp1) (1.5) How can you move around a maze? (Sp2) (1.6) How can a computer tell a story?
Knowledge	(Sp 1) Know the function of the direction keys and additional direction keys as part of an algorithm, create and debug a set of simple instructions, how to change and extend the algorithm list (Sp2) Know what ebooks are and how they are different to a traditional book, to know that ebooks can be interactive stories
Skills	(Sp 1) to follow and give simple instructions in a specific order to get an end result. To recognise when a set of simple instructions do not lead to the required end result and debug. (Sp2) To add a picture or an animation to an interactive story, add sound from recordings or music, add backgrounds, add text, use copy and paste.
Vocabulary	(Sp 1) Command, Direction, Route, Instruction, Left and Right, Unit (Sp2) Animation, E-book, Background, Edit, Sound effect, Clip-art gallery, Text, Font
Year 1 Summer	
Challenge	(Su1) How does code help me to create a game? (1.7) (Su2a) What is a spreadsheet? (1.8) (Su2b) What is technology? (1.9)
Knowledge	(Su1) Children know that instructions can be shown as code. They know how to use this to create a scene using objects (Su2a) Know that a spreadsheet stores data and is split into cells. (Su2b) Know that technology exists outside of school and identify examples of this.
Skills	(Su1). Children can create code using code blocks; they can edit a scene by adding, moving and deleting objects. (Su2a) Insert images into cells, move and lock cells. Give images values to allow the spreadsheet to count. (A2b) Explain what is meant by 'technology' and give examples of this.
Vocabulary	(Su1) action, code, event, command, execute, background, input, instructions, properties, scene, object, run, sound, output, scale, when clicked. (S2a) cell, cursor, column, row, spreadsheet, image, delete event, object, action, properties (Su2b) technology, computer

Year 2 Autumn	
Challenge	(A1) How can code help me stop making things bump into each other? (2.1) (A2a) (2.7) How can computers make music? (A2b) (2.8) How can we present ideas in different ways?
Knowledge	(A1) Instructions need to be given and followed in a certain order to be correct; Instructions can be given and followed within a time frame (after 10 seconds, the traffic light will turn yellow, or more broadly, after break, you will line up); Algorithms are a set of instructions for a computer; Buttons can do a given function (job); Different objects have different functions; A range of events can happen using code (A2a) Know how to make forms of music digitally, know how to edit and combine sound and how to refine composed music. (A2b) know different ways in which digital content can be presented, add images, collect, organise and present data in a digital format
Skills	(A1) To understand what an algorithm is; to create a computer program using an algorithm; to create a program using a given design; to understand the collision detection event; to understand that algorithms follow a sequence; to design an algorithm that follows a timed sequence; to understand that different objects have different properties; to understand what different events do in code; to understand the function of buttons in a program; to understand and debug simple programs. (A2a) Edit and combine sounds, refine composed music, speed up and slow down tunes and understand what happens to the tune when sounds are moved. (A2b) To make a quiz, a fact file and a presentation considering how they collect, organise and present data and information.
Vocabulary	(A1) algorithm, collision, debug, time-after, button (A2a) Compose, Beat, Note, Sound Effect, Volume, Speed, Tune (A2b) Fact file, Quiz, Presentation,
Year 2 Spring	
Challenge	(Sp1) (2.4) Questioning (Sp 2) How can I make finding information easier? (2.5)
Knowledge	(Sp 1) Know how to use yes/no questions can be used to separate information, know how a binary database can be separate information, know how to search a database (Sp 2) We can use the internet to find information.
Skills	(Sp 1) Organise data using yes/no questions, construct a binary tree database, search a database to answer more complex questions (Sp 2) Identify the basic parts of a search engine; read a web page for the answer to a question, search the internet for the answer to a question
Vocabulary	(Sp 1) Data, Database, Binary Tree, Question, Sort, Field, Search (Sp 2) internet, search, search engine
Year 2 Summer	
Challenge	(Su1)) What tools on 2Paint help me to create images in the styles of different artists? (2.6) (Su2) How can I use a graph in a spreadsheet? (2.3)
Knowledge	(Su1) Know that there are different 'bushes' that can be used to create digital art. Pointillism uses a small, round dot. Digital art technology can simplify art techniques used many years ago (Su2) Know the meaning of columns and rows. Know that spreadsheets are tables of data
Skills	(Su1) Click and drag to draw a rectangle to replicate Mondrian's style or art, changing its colour as required. Change the size and colour of the 'brush' to create a pointillist piece. Use 2Paint to create a repeating pattern, inspired by William Morris. (Su2) Use copy and paste in spreadsheets. Create totals in rows and columns and use this to solve puzzles/problems. Create block graphs, using their data.
Vocabulary	(Su1) Painting, digital art, brush, size, click and drag, palette (Su2) row, column, cell, data, block graph, total.

Year 3 Autumn	
Challenge	(A1) How can I increase my typing speed? (3.4) (A1a) What kind of simulations are there? (3.7) (A2) How can I present data? (3.3)
Knowledge	(A1) Know the names of each finger. Know that using two hands to type is more (A1a) Know that simulation can represent real and imaginary situations, know advantages and problems (A2) know how to create a table of data, use program to create charts and graphs, how to use various features within a spreadsheet, know how to describe a cell location and find specified locations.
Skills	(A1)Uuse two hands to type with increasing speed. (A1a) use a simple simulation to test predictions, analyse and evaluate simulations and compare with real simulations considering their usefulness. (A2) Use a spreadsheet to automatically create charts and graphs, use more than, less, and equals, use the spin tool
Vocabulary	(A1) Home row, Top row, bottom row, index, middle, ring, little finger, thumb (A1a) Simulation, Evaluation, Decision, Modelling, Analysis (A2) Data, Bar graph, Less than, more than, equals, Columns, Cell Address, Rows, Spin Tool
Year 3 Spring	
Challenge	(Sp 1) How can I make the same thing happen again? (Coding 3.1) (Sp 2) How can questions sort objects? (3.6)
Knowledge	(Sp 1) Know that a flowchart can help to present the chronology of events and that these can form effective plans for coding simple games. (Sp 2) Know how to sort objects using yes/no, to know how to complete a branching database,
Skills	(Sp 1) Use repeat, timer-after and timer-every commands. Run, test and debug simple programmes. Code 2 or more events to happen simultaneously. (Sp 2) sort objects using yes/no, explore how using 'or more' and 'or less' will improve their questioning, edit and adapt (debugging) and create branching database of own choice
Vocabulary	(Sp 1) Run, debug, test, timer-after, timer-every, scene, object, property. (Sp 2) yes/no questions, Tree, Branching database, Debugging, Database, Data
Year 3 Summer	
Challenge	(Su1a) How do I send a virtual message?3.5 (Su2) How do graphs answer questions? (3.8)
Knowledge	(Su1a) Know that communication methods have changed throughout history, noting the benefits and drawbacks. Know that there are rules and etiquette for using email and there are a range of scenarios which they could come across in the future. (Su2) Know how to set up a graph, enter data, know how to select different graph types
Skills	(Su1a) Write emails using 2email using search to find contacts, CC and BCC and when best to use them, and attaching files. Respond to emails in 2Email. (Su2) set up a graph with a given set of criteria, select most appropriate chart type and explain reasoning, assess how sorting can enable easier analysis
Vocabulary	(Su1a) Email, communication, attachment, CC, BCC. (Su2) Axis, Column, Investigation, Tally Chart, Row, Sorting

Year 4 Autumn	
Challenge	(A1a) What is a variable and how are they useful? (4.1) (A2a) What are the parts of a computer? (4.8) (A2b) How can we use Google? (4.7)
Knowledge	(A1) Variables can affect the output created using code; 'if/else' statements can affect the output created with code; variables are part of computer memory; the value of these can affect the output (A2a) Know the names of different parts of hardware used in a desktop computer (A2b) Know that questions and phrases can be used to search the internet, using search engines. Know that not all websites have credible information.
Skills	(A1) To begin to understand selection in computer programming; to understand how an IF statement works; to understand how to use co-ordinates in computer programming; to understand the 'repeat until' command; to understand how an IF/ELSE statement works; to understand what a variable is in programming; to use a number variable; to create a playable game. (A2a) Describe the uses and roles of computer hardware. (A2b) structure queries and questions to gain the information they are looking for, when using a web search engine. Look at web pages to determine the credibility of the information, explain how and why they know this.
Vocabulary	(A1) Debug, alert, code block, command, coordinates, flowchart, If, If/else, variable, prompt. (A2a) Motherboard, CPU, RAM, Graphics card, network, monitor, speakers (A2b) credibility, Search engine, query
Year 4 Spring	
Challenge	(Sp 1) How does onion skinning help me animate? (4.6) (Sp 2) How can a formula wizard change a spreadsheet? (4.3)
Knowledge	(Sp 1) Know how animation are created by hand and computers, know what and how to use onion skinning, know what 'stop-motion' animation is. (Sp 2) Know what cell formatting is and how use formula wizard tools, know that spreadsheet tools can be combined, know how to add a formula to a cell
Skills	(Sp 1) use animation frames and the Onion Skin tool to create an animation, add sounds and backgrounds to frames and evaluate impact, use stop-motion to create animation (Sp 2) Use the number formatting tools within 2Calculte to appropriately format numbers, add a formula to a cell to automatically make a calculation in that cell, use random number, timer and spin tool, create a spreadsheet to explore place value.
Vocabulary	(Sp 1) Animation, FPS (Frames Per Second), Frame, Onion Skinning, Pause, Stop motion (Sp 2) Average, Formula, Budget, Chart, Formula Wizard
Year 4 Summer	
Challenge	(Su1) How does my turtle move? (4.5) (Su2) How can a computer program 'think'(4.10)
Knowledge	(Su1) Know that given instructions have a specified outcome; the outcome of an instruction can be predicted by looking at the code. (Su2)
Skills	(Su1) To learn the structure of the coding language of Logo and input simple instructions. Use the Repeat function to create shapes and use and build procedures in Logo. (Su2)
Vocabulary	(Su1) LOGO commands, grid, multi-line mode, pen up, pen down, procedure (Su2)

Year 5 Autumn	
Challenge	(A1) What do I need to say to make my instructions really clear? (5.1) (A2) What game can I create? (5.5)
Knowledge	(A1) Children can give instructions in their simplest form to result in a desired outcome (A2) Know how to plan a playable game, know how to incorporate and manipulate media
Skills	(A1) Instructions should be given in the simplest form to gain the best outcome; recognise code can be made simpler to gain the same output; decomposition is breaking something down into the smallest possible steps; abstraction is when we remove unnecessary details to get a program functioning (A2) design and create the game environment with a quest to complete, self and peer evaluate effectiveness of game.
Vocabulary	(A1) action, algorithm, abstraction, called, co-ordinates, decomposition, event, function, nesting, simplify, simulation, sequence, physical system, variable (A2) Texture, Perspective, Customise, Interactive
Year 5 Spring	
Challenge	(Sp 1) How can I store information I have gathered? (5.4) (Sp 2) How can we plan a sale? (5.3)
Knowledge	(Sp 1) Know that a database is a collection of information which is stored and can be retrieved at a later date. Information in a database can be filtered to answer a given question (Sp 2) Know how to use formulae to convert measurements, know how to use more advanced formulae, use text variables.
Skills	(Sp 1) Search a database for given information, add information. Create their own database about a given topic (Sp 2) use formulae within a spreadsheet to convert measurements of length and distance, use the count tool to answer hypotheses. Create formulae that use text variables, create a spreadsheet to help plan a sale.
Vocabulary	(Sp 1) binary tree, data, database, sort, group and arrange, statistics and reports, record (Sp 2) Formula Bar, Totalling tool, 'How Many?' Tool, Variable, Format
Year 5 Summer	
Challenge	(Su1a) How can the objects designed in 2Design and Make be turned into 3D objects? (5.6) (Su1b) How does a concept map help share ideas? (5.7) (Su2) Using External Devices (5.9)
Knowledge	(Su1a) Know how modelling software is used and how to design a 3D model. (Su1b) Know the need for visual representation when generating and discussing complex ideas, understand the uses of a 'concept map'. know how a concept map can be used to retell stories and information. (Su2) Know that external devices can be used to control a coded program, can be used as a game controller, that text can be outputted to an external device and an external device can be used to model real life situations.
Skills	(Su1a) Evaluate the effect of moving points when designing, design a 3D model using specific criteria, refine a model (Su1b) use the correct vocabulary to create a concept map, create a concept map and present to an audience. (Su2) Start coding using the new external device code blocks, use the QR code to connect the external device or emulator, complete a partially made game, debug their code if it isn't working, find blocks relating to graphics, choose blocks to output text to the external device, write a program to code text to the device. Find blocks relating to sensors in the external device namely shake, tilt and sound detected. Plan and code their own program
Vocabulary	(Su1a) 2D, 3D, 3D Printing, CAD – Computer aided Design, Design Brief, Template, Pattern Fill (Su1b) Concept, Concept map, Connection, Story Mode, Node, Presentation Mode, (Su2) Chip show text, Emulator/ Simulator, External device, Function, Host, QR code, Sensor

Year 6 Autumn	
Challenge	(A1) Can I follow my own instructions and fix my own mistakes? (6.1) (A2) Blogging (6.4)
Knowledge	(A1) An algorithm is a set of instructions designed to achieve a specified output; these should be given in the smallest possible steps; User input can affect the outcome and this should be factored into any code created. (A2) know the purpose and features of a blog, know how information is presented impacts the reader, know how to contribute to others' blogs, know the importance of an approval process
Skills	(A1) To design a playable game with a timer and a score; to use selection and variables; to understand how the launch command works; to use functions and understand why they are useful; (A2) create a blog and contribute to an existing blog considering the impact of changing the visual properties. Understand importance of commenting on a blog.
Vocabulary	(A1) PRIMM, cpmmand, decomposition, nested, event, simulation, procedure, launch command, tab, string. (A2) Approval, Archive, Blog, Blog post, Collaborate, Commenting, Vlog
Year 6 Spring	
Challenge	(Sp 1) Why is it important to plan a text-based adventure? (6.5) (Sp 2) Why should we be thankful for Tim Berners-Lee? (6.6)
Knowledge	(Sp 1) Know what a text adventure is. Know how to use 2Create (Sp 2) Children know about the risks online including sharing location, secure websites, spoof websites, phishing, and other email scams; Children know about the steps they can take to protect themselves including protecting their digital footprint, where to go for help, smart rules and security software;
Skills	(Sp 1) plan and create a text-based adventure using 2Create that gives the player options, use step through to help debug and improve own game. (Sp 2) Children know there are a range of ways to share information and that these do not ever disappear once they are on the internet. They know there is software available for limiting this.
Vocabulary	(Sp 1) Sprite, Selection, Function, Flow of Control, Step Through (Sp 2) Digital footprint, PEGI rating, spoof, phishing, password, screen time
Year 6 Summer	
Challenge	(Su1) So you think you're smarter than a 10-year-old? (6.7) (Su2) Why are the digits 0 and 1 so important in Computing? (6.8)
Knowledge	(Su1) Children can create a quiz, considering audience and question types (Su2) Children can explain how all data in a computer is saved in the computer memory in a binary format which uses only the integers 0 and 1. Know this is similar to a switch (1 is on, 0 is off).
Skills	(Su1) Quizzes have many forms of questions. Question type can vary based on topic and audience (Su2) To count from 0 in binary, using visual aids, if needed. Convert numbers to binary using the division by two method and check using a converter tool.
Vocabulary	(Su1) Audience, collaboration, concept map, database, quiz (Su2) Internet, world wide web, Network, Local Area Network (LAN), Wide area network (WAN), Router, network cables.

The development of SMSC and the promotion of British Values in the Computing Curriculum

Spiritual	Moral

Children: • Express their feelings and appreciation of ingenuity/innovation/ beauty through different media • Reflect on their own and others' lives and the impact computing has on this • Reflect on their experiences and learn from reflection • Respect the efforts and feedback of others and appreciate different ways in solving problems. • Accommodate the ideas of others and enable others to succeed. • Ask questions, offer ideas and make connections • Gain an appreciation of the innovations and achievements of past Individuals.	Children: • Investigate the impact of digital inclusion, who is it available to, and the digital divide locally, nationally and globally • Consider accessibility issues when evaluating appropriateness of digital products • Develop their understanding of the development of online communities and its implications for an individual's learning, leisure and social interactions • Learn that the growth of social networking has potential risks as well as benefits • Use their knowledge of right and wrong in the media eg violence, bias, images and messages etc. model positive relationships and interactions, fairness, integrity, respect for people • Discover how to select their sources and decide on how much credence can be placed in them
Social Children: • demonstrate personal qualities such as thoughtfulness, honesty, respect for difference, moral principles, independence, inter-dependence • investigate what it means to socialise using digital media – the benefits and the pitfalls to it • discuss the impact of the use of digital devices on the way we interact with others • look at security risks to our personal data and how to reduce these risks • consider the social responsibilities for those using digital devices – responsible for social good	Cultural Children: • Learn about the wider world • Access information about the wider world through the internet • Explore the sights and sounds of other cultures • Create and share information about other cultures eg creating impressionist art (Yr2) • Exploring how computing connects us with and in different environments eg creating music from a different culture (Yr2)

British Values

. Children are taught about:
• Online 'etiquette' – how to engage in online communities positively and how to be a respectful digital citizen (appreciate the viewpoints of others) eg blogging (Yr6)
• How to select information from online sources that reflect different viewpoints (engagement with democracy)
• Dangers of the internet and what to do with any online uncomfortable behaviour or material they see (on line safety across all year groups)
• Cyber bullying and the legal implications