Computing Long Term Plan 2026-27 (Cycle B)

Class	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Mars Reception/Y1	Online Safety (Y1) Computing Systems and Networks: Improving Mouse Skills (Y1)	Computing Systems and Networks 1: Using a Computer (EY) Programming 1: Commands Unplugged (Y1)	Programming 1: All About Instructions (EY) Skills Showcase: Rocket to the Moon (Y1)	Computing Systems and Networks 2: Exploring Hardware (EY) Programming 2: Beebots (Y1)	Programming 2: Programming Beebots (EY) Creating Media: Digital Imagery (Y1)	Data Handling: Introduction to Data (EY and Y1)
Venus Y2/Y3	Online Safety (Y2 and Y3) Computing Systems and Networks 1: What is a Computer?	Programming 1: Algorithms and Debugging	Programming 2: Make Code	Computing Systems and Networks 2: Word Processing	Microsoft Office 365 Computing Systems and Networks 2: Emailing	Data Handling: Comparison Cards Databases
Saturn Y4/Y5	Online Safety (Y4, Y5, Y6) Google Computing Systems and Networks: Collaborative Learning	Programming 1: Further Coding with Scratch	Data Handling: Mars Rover 1	Programming 2: BBC Micro:Bit	Stop-Motion Animation: Using Stop Motion Studio	Skills Showcase: Inventing a Product
Jupiter Y5/Y6	Online Safety (Y4, Y5, Y6) Google Computing Systems and Networks: Collaborative Learning	Programming 1: Further Coding with Scratch	Data Handling: Mars Rover 1	Programming 2: BBC Micro:Bit	Stop-Motion Animation: Using Stop Motion Studio	Skills Showcase: Inventing a Product

Mars shared contexts: use a computer safely in Autumn 1; give instructions and explore computer control in Autumn 2. Plan a rocket mission in Spring 1; explore hardware and control a floor robot in Spring 2. Program and photograph a robot journey in Summer 1; sort and represent a class dataset in Summer 2.

Saturn and Jupiter use the same core explanation, task brief and vocabulary. Year 4, Year 5 and Year 6 outcomes differ in complexity, reasoning and independence. Teachers agree Year 5 examples across both classes. Online safety continues through practical routines, discussion and application.

Computing knowledge and skills progression

Cycle B 2026 to 2027

EYFS to Year 6

Children develop an understanding of digital systems, learn to create purposeful programs and content, and become safer, more discerning technology users. This guide connects the three progression strands with the school's Cycle B teaching sequence. It explains the knowledge, practical skills and evidence of learning expected at each age.

Strand	What children learn	Where to find it
Computer science	How systems work; how algorithms become programs; how data are represented.	Systems and programming progression, plus the knowledge and code outcomes in each topic.
Information technology	How to select and use software, organise information, create media and answer questions with data.	Content and data progression, then purposeful products and evidence in the topic maps.
Digital literacy	How to use technology safely, respectfully and critically, including privacy, permission and trustworthy information.	Safety progression, explicit Autumn 1 teaching and continuing application in every unit.

Computer science systems and networks

Year group	Knowledge children develop	Application and evidence in Cycle B
Reception	Technology has controls and can perform different jobs. Familiar keys, buttons and mouse actions have effects.	Explore hardware and a floor robot; describe an action and its result in Mars shared activities.
Year 1	Inputs get information into a device; outputs communicate or act on it. Humans give robots instructions.	Explain a button and robot action; use mouse controls and cameras purposefully.
Year 2	A computer has components that work together; technology is used for many purposes beyond school.	Identify familiar inputs and outputs in What is a computer and use software and managed messaging.
Year 3	Components have roles; connected devices can exchange information and use services.	Explain an input, processing and output model and a simple network link; connect it with emailing.
Year 4	Networks support collaboration; a programmable device can use an input or sensor and produce an output.	Explain shared document access and a supported micro:bit input to output response.
Year 5	Networks provide services; remote and physical systems collect and respond to data.	Explain collaborative permissions and rover data collection; program and test a physical response in either older class.
Year 6	System choices affect function, access, reliability and responsible use. The internet and web are different concepts.	Justify a product's input and output choices, compare model and device behaviour and evaluate access or privacy decisions.

Computer science algorithms and programming

Year group	Knowledge and skills	Cycle B evidence of progression
Reception	Follow and give simple instructions; order actions and change a step when an outcome differs from the intention.	A supported floor robot command or instruction game, with a simple prediction.
Year 1	Build a precise sequence; distinguish a plan from the commands entered; predict and debug a short route.	An unplugged algorithm, rocket mission plan and floor robot route, with an explained change.
Year 2	Explain an algorithm, create a simple program and use repetition. Predict, test and correct sequence or missing-step errors.	A short Make Code program using events, sequence and repeat, linked to a clear plan.
Year 3	Decompose a goal; explain repetition and begin using a simple condition or variable with support. Test small code sections.	An adapted program that meets a goal, plus a prediction, test and reasoned debugging explanation.
Year 4	Use events, repetition, selection and changing values within a scaffold; connect code with observed behaviour.	A supported Scratch or micro:bit program; explain a condition and the cause of a fault.
Year 5	Plan purposeful programs combining repetition, selection and variables. Explain inputs and outputs and debug systematically.	A tested Scratch program and a physical response, with a recorded improvement; same standard in Saturn and Jupiter.
Year 6	Independently decompose a demanding brief, justify structure, use nested loops where useful and test varied inputs.	A refined program or product with evidence of edge-case testing and evaluation of alternative solutions.

Sequence is order; repetition repeats instructions; selection chooses according to a condition. A variable stores a value that can change. Debugging involves comparing the intended and actual behaviour and locating a cause. Test logic and inputs as well as checking the code; an unexpected result may also involve a device, connection or mistaken test assumption.

Information technology content and software

Year group	Knowledge and skills	Cycle B application and evidence
Reception	Use a simple drawing tool or camera with support; recognise that a device can record an experience.	Help record a model mission or robot journey and talk about what the image shows.
Year 1	Control a mouse, use simple graphic tools, take and edit images, and save or retrieve work with appropriate support.	A digital plan or edited journey image; explain why an image was chosen.
Year 2	Enter and format text, copy and paste, use images and organise a saved document. Compose a practice message.	A clear word processed document and respectful email scenario response.
Year 3	Refine content for an audience, organise files and send an appropriate attachment in a managed environment.	A revised document and a reply with an attachment, explaining suitability and safety.
Year 4	Use shared documents and presentations; storyboard, capture and edit a coherent animation.	A useful collaborative contribution and a stop motion sequence improved after feedback.
Year 5	Explore software with increasing independence; plan and edit media and combine tools for a brief.	An audience-focused animation and a tested product presentation with reasons for revisions, in either older class.
Year 6	Independently select and combine tools, evaluate content and refine it against purpose and audience.	A justified media or product design, with a distinction between a functional result and a concept illustration.

Digital work is assessed through both the result and the decisions behind it. A polished product made by following every click does not demonstrate independent tool choice. Use approved image and audio sources, acknowledge reused material and explain how editing can change a message.

Information technology data and representation

Year group	Knowledge and skills	Cycle B application and evidence
Reception	Sort objects, notice categories, contribute to a physical pictogram and follow a yes or no game.	An oral explanation of a sorting choice or an answer from a class pictogram.
Year 1	Use pictograms and simple branching structures to represent information and answer questions.	A digital representation linked to a clear question; explain what a symbol or branch means.
Year 2	Use consistent fields on comparison cards; sort and compare values.	A set of organised cards and an answer based on their data rather than a guess.
Year 3	Understand record, field and value; retrieve information through sorting and filtering a database.	A checked dataset, a query and an explanation of which records meet the criteria.
Year 4	Begin representing information with agreed bit patterns or pixels and use sensor values in a supported program.	A small binary or pixel example and a description of what it represents.
Year 5	Use an eight-bit place value model for unsigned numbers; explain pixel patterns and remote data collection.	Encode and decode a checked example and explain how rover data describe a place; common standard across both older classes.
Year 6	Evaluate encoding, resolution and data quality; interpret sensor evidence and justify what a representation can show.	Explain a representation tradeoff, detect a data inconsistency and qualify a product claim using test evidence.

A field is one category of information; a record is the collection of fields for one item. Sorting changes order; filtering selects entries that match a rule. A bit is a binary digit. Eight bits can encode 256 patterns; in the unsigned whole number model they represent 0 to 255. Other agreed encodings give the same bits different meanings.

Digital literacy and online safety progression

Year group	Knowledge and practical judgement	Evidence teachers can look for
Reception	Use devices with an adult, take turns and recognise when to ask for help.	Tell a trusted adult about something worrying and follow an agreed classroom routine.
Year 1	Keep personal information private; passwords help protect access. Ask before taking or sharing an image.	Choose a safe response in a simple scenario, explain whom to tell and use an approved saving routine.
Year 2	Distinguish safe and unsafe sharing; use strong private passwords and respect permission. Not all online information is true.	Explain a sharing decision, show respect and check an unexpected message with an adult.
Year 3	Distinguish facts, beliefs and opinions; begin judging sources and recognising suspicious email. Online behaviour can affect mood and others.	Explain why a message needs checking, select an appropriate reply and know a help or reporting route.
Year 4	Recognise advertising, unreliable claims and respectful collaboration; reflect on distraction and time online.	Identify a persuasive feature, comment constructively and explain when to pause or seek help.
Year 5	Evaluate online communication, check information and understand permissions, online bullying and effects of sharing.	Justify access and source choices; explain a safe supportive response, consistently in Saturn and Jupiter.
Year 6	Evaluate reputation, scams, secure access and misleading or generated content. Updates help reduce known security risks but cannot guarantee safety.	Weigh a claim against evidence, justify a sharing decision and explain appropriate reporting and support.

Use unique school approved credentials and teach pupils to keep them private. Respect someone's refusal to be photographed or included. If online bullying occurs, seek adult help; preserve appropriate evidence through school procedures without further circulation of harmful content. Practise constructive digital citizenship alongside reporting concerns.

The 5 strands mapped to the cycle B topics in teaching order:

Computing in Mars Class (Reception and Year 1) autumn and early spring

One shared topic and teacher input with distinct age-related outcomes

Half term topics and shared activity	Essential knowledge	Age related application and evidence	Digital literacy and vocabulary
Autumn 1 **Online Safety (Y1)** **Computing Systems and Networks: Improving Mouse Skills (Y1)** **Shared activity: Use a computer safely**	A mouse or touchpad moves a pointer; clicking selects and dragging moves an item. Hardware is equipment and software gives it tasks. School accounts help organise access; ask a trusted adult about worries and keep personal information private.	Reception: explore pointing, clicking and a simple drawing with support. Year 1: click, drag and select with control; save and retrieve work with appropriate support and explain a safe routine. Evidence: a saved digital creation and observed device use.	Adult models safe access, helps with concerns and checks any shared content. Vocabulary: mouse, pointer, click, drag, hardware, save
Autumn 2 **Computing Systems and Networks 1: Using a Computer (EY)** **Programming 1: Commands Unplugged (Y1)** **Shared activity: Give instructions and explore computer control**	Instructions need a clear order. An input causes an action or output. Humans decide what a computer or robot should do. Explore computer controls alongside practical instruction games; a mistaken sequence can be changed.	Reception: follow and give a simple instruction and explore a key or mouse action. Year 1: assemble a clear sequence for a practical task, predict the outcome and correct a missing or misplaced step. Evidence: explain a before and after instruction sequence.	Take turns, handle devices carefully and seek help when the result is unexpected. Vocabulary: instruction, input, output, order, algorithm, debug
Spring 1 **Programming 1: All About Instructions (EY)** **Skills Showcase: Rocket to the Moon (Y1)** **Shared activity: Plan a rocket mission**	Break a rocket mission challenge into smaller steps. A plan records what should happen; a digital image or document can communicate it. Instructions, pictures and labels serve a purpose and can be revised after testing.	Reception: give a short sequence for a model mission and help record it. Year 1: sequence and test mission instructions, create a simple digital plan or labelled image and save the revised version. Evidence: a plan, its test and an explained change.	Use teacher selected images and share work within the agreed classroom space. Vocabulary: plan, sequence, step, design, label, improve

Computing in Mars Class (Reception and Year 1) late spring and summer

One shared topic and teacher input with distinct age-related outcomes

Half term topics and shared activity	Essential knowledge	Age related application and evidence	Digital literacy and vocabulary
Spring 2 **Computing Systems and Networks 2: Exploring Hardware (EY)** **Programming 2: Beebots (Y1)** **Shared activity: Explore hardware and control a floor robot**	Buttons are inputs; a robot carries out programmed commands. Forward or backward movement and turns are different actions. The order of commands affects the route; reset or clear old instructions before a fresh test when needed.	Reception: identify a control and predict a simple robot action. Year 1: plan a short route, enter commands, compare the result with the plan and debug an error. Evidence: a route, code sequence and explanation of a correction.	Use a clear shared floor space, careful handling and agreed turn taking. Vocabulary: button, command, route, turn, program, test
Summer 1 **Programming 2: Programming Beebots (EY)** **Creating Media: Digital Imagery (Y1)** **Shared activity: Program and photograph a robot journey**	A robot journey can be programmed and represented in images. A camera captures a selected view; holding it still, framing, angle and light affect the result. Digital images can be selected, cropped and edited.	Reception: enter simple robot commands and help capture a meaningful moment. Year 1: sequence a short journey, take and select clear photographs, edit an image for a purpose and save it. Evidence: the journey and an ordered image record with a reason for an edit.	Ask permission before photographing people or sharing their images; use approved subjects and locations. Vocabulary: camera, photograph, frame, image, crop, sequence
Summer 2 **Data Handling: Introduction to Data (EY and Y1)** **Shared activity: Sort and represent a class dataset**	Sorting into categories helps answer questions. A pictogram represents quantities with pictures. A yes or no question can divide a group and begin a branching database. The data and categories need to match the question.	Reception: sort objects, contribute to a physical pictogram and follow a yes or no sorting game. Year 1: use a simple digital pictogram or branching structure, explain a category and answer a question from the data. Evidence: a representation and an oral answer.	Use non-sensitive examples such as toys or shapes and check before recording information about people. Vocabulary: data, sort, category, pictogram, question, yes, no

Computing in Venus Class (Years 2 and 3) autumn and early spring

One shared topic and teacher input with distinct age-related outcomes

Half term topics and shared activity	Essential knowledge	Age related application and evidence	Digital literacy and vocabulary
Autumn 1 **Online Safety (Y2 and Y3)** **Computing Systems and Networks 1: What is a computer?** **Shared activity: Computers, components and safe use**	Computers take inputs, process information and produce outputs. Recognise computers in different forms and uses beyond school. Components have different roles. Online information and contacts require care; private information and passwords need protection.	Year 2: identify familiar inputs and outputs, explain a computer use and choose a safe response to a scenario. Year 3: explain how components work together and begin connecting a device with a network or online service. Evidence: a labelled model and reasoned scenario answers.	Year 2 identifies information not to share and asks permission. Year 3 checks facts, opinions and sources and knows how to seek help. Vocabulary: computer, input, output, process, component, private
Autumn 2 **Programming 1: Algorithms and Debugging** **Shared activity: Algorithms and debugging**	An algorithm sets out precise steps; a program expresses instructions in a language a device can execute. Sequence changes results. Decomposition breaks a problem into parts; repetition can avoid rewriting the same instructions.	Year 2: predict and follow an algorithm, use a simple repeat and correct a sequencing or missing-step error. Year 3: form an algorithm for a goal, explain how repetition works and test small sections to locate an error. Evidence: an algorithm, test result and explained fix.	Give respectful feedback on a partner's work and credit a shared starting idea. Vocabulary: algorithm, program, sequence, repeat, bug, debug
Spring 1 **Programming 2: Make Code** **Shared activity: Make Code programming**	Visual blocks represent instructions, events and repetition. Compare a plan with what happens when the program runs. Conditions can choose between actions and a variable can store a changing value, introduced where the project requires them.	Year 2: build and test a short program using events, sequence and a repeat. Year 3: decompose a goal, use repetition efficiently and adapt a simple condition or variable with guidance. Evidence: saved code, a prediction and tests of the intended response.	Use the school selected Make Code environment and approved sharing route; no public posting is needed. Vocabulary: event, block, loop, condition, variable, test

Computing in Venus Class (Years 2 and 3) late spring and summer

One shared topic and teacher input with distinct age-related outcomes

Half term topics and shared activity	Essential knowledge	Age related application and evidence	Digital literacy and vocabulary
Spring 2 **Computing Systems and Networks 2: Word Processing** **Shared activity: Word processing for an audience**	Text can be entered, edited, formatted, copied and moved. A document should communicate clearly for its audience. Images and layout affect meaning; files need useful names, saving and retrieval. Reuse images appropriately and credit sources.	Year 2: type and edit text, change style or size, insert a suitable image and save the file. Year 3: organise a document for a purpose, refine layout and explain why choices help the reader. Evidence: original and improved versions with a brief explanation.	Use suitable images, avoid unnecessary personal information and acknowledge borrowed material. Vocabulary: document, format, edit, copy, paste, file, source
Summer 1 **Microsoft Office 365 Computing Systems and Networks 2: Emailing** **Shared activity: Emailing within a managed environment**	Email is electronic mail. Messages have recipients, a subject and a body; a file can be attached. Messages can be misleading or unwanted. Check recipients and content before sending and seek help about suspicious messages or links.	Year 2: compose a respectful practice message with the correct fields and explain a safe choice. Year 3: reply appropriately, attach a suitable file and explain why a suspicious message should be checked. Evidence: a simulated or school managed message and scenario response.	Use simulated inboxes or approved school contacts. Do not use unknown addresses or open unexpected links or attachments. Vocabulary: email, recipient, subject, reply, attachment, suspicious
Summer 2 **Data Handling: Comparison Cards Databases** **Shared activity: Comparison cards and databases**	A database is an organised collection of records. A field holds one type of information, such as height or category. Consistent values help compare records; sorting orders them and filtering selects records that meet a rule.	Year 2: create comparison cards with consistent fields, sort them and answer a simple question. Year 3: enter or check digital records, sort or filter by criteria and use results to answer a more precise question. Evidence: records, a query result and a justified answer.	Use suitable non-sensitive datasets and check accuracy; do not collect unnecessary personal information. Vocabulary: database, record, field, value, sort, filter

Saturn Class (Years 4/5) and Jupiter Class (Years 5/6) autumn computing

Saturn Years 4 and 5 | Jupiter Years 5 and 6 | Same topic and timing | Same Year 5 standard

Shared topic knowledge and vocabulary	Year 4 application	Year 5 in either class	Year 6 application
Autumn 1 **Online Safety (Y4, Y5, Y6)** **Google Computing Systems and Networks: Collaborative Learning** **Online documents can be shared through network services. Permissions control who can view or edit; comments support discussion and version history can help track changes. The internet links networks; the web is one service using it. Agree respectful collaboration and help routes.** **Vocabulary: permission, network, internet, web, comment, version**	Use a shared document, make a useful comment and explain an input, output or network service with prompts. Identify advertising, respectful behaviour and when to stop and seek help.	Organise a shared file, manage an agreed role, give useful feedback and explain access permissions. Check a source or communication before trusting or sharing it; explain a suitable response to online bullying.	Justify sharing choices, review a group's changes and explain how collaboration depends on services and access. Evaluate reputation, scams and misleading claims, including a teacher supplied AI example where relevant.
Autumn 2 **Programming 1: Further Coding with Scratch** **Events start actions. Sequence, repetition, selection and variables work together in a purposeful program. A condition selects an action; a variable stores a value that can change. Decompose the task, predict behaviour and test parts of the code systematically.** **Vocabulary: event, loop, selection, condition, variable, debug**	Adapt a scaffold to use an event, loop, condition and changing value where needed. Predict what a short section does and explain one bug and correction.	Plan and create a purposeful program combining repetition, selection and variables. Explain inputs and outputs and test systematically against success criteria; refine an inefficient section.	Independently decompose a more demanding brief, justify structure and use a nested loop when useful. Test normal and unusual inputs, explain failures and compare alternative solutions.

Saturn Class (Years 4/5) and Jupiter Class (Years 5/6) spring computing

Saturn Years 4 and 5 | Jupiter Years 5 and 6 | Same topic and timing | Same Year 5 standard

Shared topic knowledge and vocabulary	Year 4 application	Year 5 in either class	Year 6 application
Spring 1 **Data Handling: Mars Rover 1** **A rover uses sensors and cameras to collect information remotely. Computers represent data using binary digits, 0 and 1. Agreed bit patterns can represent numbers or pixels. A representation needs an agreed interpretation; a rover simulation is a model of real data collection.** **Vocabulary: sensor, data, transmit, binary, bit, pixel**	Explain why remote data collection is useful. Read or create a small agreed binary or pixel pattern with support and compare it with what it represents.	Encode and decode unsigned whole numbers using an eight-bit place value model, create a simple pixel representation and explain how data can describe a remote place. Check a result against the agreed code.	Justify an encoding choice, detect and explain an inconsistency and evaluate how image resolution affects data amount when other factors are fixed. Explain a limitation of the classroom rover model.
Spring 2 **Programming 2: BBC Micro:Bit** **A Micro:bit is a programmable device with inputs, a processor and outputs. Buttons or sensors can trigger a response. Use events, repetition, selection and variables to control a physical outcome; compare simulation results with the actual device where available.** **Vocabulary: input, sensor, output, processor, threshold, variable**	Use a supported starter to make an input change an output. Explain a simple condition, test the program and correct a fault with guidance.	Plan and program an input to output response using a condition and changing value for a purpose. Test in the simulator and on the device, record a fault and explain the correction.	Independently refine a physical system for a stated user, test a range of inputs and justify thresholds or parameters. Explain any difference between the simulation and device and improve reliability.

Saturn Class (Years 4/5) and Jupiter Class (Years 5/6) summer computing

Saturn Years 4 and 5 | Jupiter Years 5 and 6 | Same topic and timing | Same Year 5 standard

Shared topic knowledge and vocabulary	Year 4 application	Year 5 in either class	Year 6 application
Summer 1 **Stop-Motion Animation: Using Stop Motion Studio** **Stop motion creates the impression of movement from successive still frames. Small changes, stable framing and timing affect continuity and pace. Storyboards break a production into parts. Editing, sound and titles can improve meaning; images and audio need appropriate permission or licences.** **Vocabulary: frame, storyboard, continuity, pace, edit, copyright**	Use a storyboard, capture a coherent sequence and improve a visible continuity problem. Explain why smaller changes or stable camera position improve the result.	Plan, capture and edit an animation for an audience, deliberately control pace and refine it after feedback. Use media appropriately and explain the effect of an editing decision.	Independently combine chosen visual and audio elements, justify timing and design, and evaluate the finished piece against audience and purpose. Distinguish editing for effect from misleading presentation.
Summer 2 **Skills Showcase: Inventing a Product** **A product brief identifies a user, purpose and success criteria. Combine appropriate software, a design or model, data and programming to develop an idea. A prototype may be functional or represent a concept; claims should be supported by tests and clearly state limitations.** **Vocabulary: brief, user, prototype, criterion, test, evaluate**	Develop an idea from an agreed brief, create a digital design and adapt a simple program or model. Record a test and use feedback to improve a feature.	Decompose a brief, select and combine suitable software, create a purposeful prototype and present evidence of testing. Explain a revision and how the product serves its user.	Independently justify tool choices and design tradeoffs, combine evidence from tests and feedback, and refine a solution. Evaluate promotional claims, privacy implications and what the prototype actually demonstrates.