How learning builds in Computing

A guide for parents and carers | Years 3 to 6

Children learn how digital systems work and use technology to solve problems and create content. They revisit key ideas in new contexts, working with greater confidence, accuracy and independence.

Area	Year 3	Year 4	Year 5	Year 6
Computing systems and networks	Identify inputs, processes and outputs. Explore how digital devices connect in a network to share information and resources.	Explain how networks form the internet. Explore the World Wide Web and consider who creates content and whether it is reliable.	Explore computer systems in everyday life. Investigate how search engines select and rank results and why their order matters.	Explain how addresses and data packets help information travel online. Compare ways to communicate and collaborate, considering privacy.
Creating media	Create a stop-frame animation from still images. Combine text and images in a publication, choosing layouts for a purpose.	Record, edit and combine sound to create a podcast. Change colours, composition and content in photographs and evaluate the effects.	Plan, record and edit video. Create vector graphics by combining, layering, grouping and duplicating shapes and lines.	Create linked web pages, considering layout, navigation and copyright. Combine and modify three-dimensional shapes to build digital models.
Programming	Order commands to create sequences of sounds and movement. Use events to control a character and find and fix errors in a maze challenge.	Use repetition to draw shapes and create games. Compare loops with a set number of repeats and loops that continue indefinitely.	Use conditions and selection to control circuits and create quizzes. Program different outcomes according to whether a condition is met.	Use variables to store and change information in games. Combine sequence, repetition, selection and variables in a project that senses movement.
Data and information	Use yes/no questions to sort objects by their features. Plan and create a branching database as an identification tool.	Use sensors to collect data over time. Choose the data needed for an investigation and analyse it to answer questions.	Organise information in database records and fields. Group, sort and filter data, using charts to compare results and answer questions.	Organise data in spreadsheets and use formulas for calculations. Plan an event and choose tables or charts to present findings.

Revisiting knowledge

Programming builds from sequences of instructions in Year 3 to repetition in Year 4, selection in Year 5 and variables in Year 6. Children reuse these ideas when programming a device to sense movement. Planning, testing and correcting errors connect the units throughout the school.

Applying learning in new contexts

Children return to familiar ideas through different software, devices and projects. These examples show how earlier learning supports more complex tasks later in Key Stage 2.

Area	Earlier learning	Later application
Controlling physical devices	Year 3 · Connecting computers Identify inputs, processes and outputs. Year 4 · Repetition in shapes Use repeat commands to make programs more efficient.	Year 5 · Selection in physical computing Program circuits to respond to conditions. Year 6 · Sensing movement Combine inputs, outputs and variables in a controllable device.
Creating and editing media	Year 3 · Stop-frame animation and Desktop publishing Plan a sequence of images and arrange text and pictures. Year 4 · Audio production and Photo editing Edit and combine sound and images.	Year 5 · Video production and Introduction to vector graphics Develop storyboards, edit video and layer graphic objects. Year 6 · Web page creation and 3D Modelling Plan linked pages and construct digital models for a purpose.
Organising and analysing data	Year 3 · Branching databases Classify objects using carefully chosen questions. Year 4 · Data logging Collect sensor readings and use data to answer questions.	Year 5 · Flat-file databases Search, group and filter records using different criteria. Year 6 · Spreadsheets Structure data, apply formulas and present calculated results.
Designing and testing programs	Year 3 · Sequencing sounds and Events and actions in programs Put commands in order and correct errors. Year 4 · Repetition in shapes and Repetition in games Break tasks into steps and test loops.	Year 5 · Selection in quizzes Design and test programs with alternative outcomes. Year 6 · Variables in games and Sensing movement Choose variables and test code against a project design.

Using technology safely and responsibly

Children consider who owns digital content, how images can be changed and why online information may be unreliable. Later, they explore how search results are ranked, respect copyright when creating web pages, and consider privacy when communicating and sharing information online.

Reflecting and improving

Children review animations and correct simple programming errors in Year 3. In Year 4, they test repeated instructions and evaluate edited media. In Year 5, they refine designs and explain their choices. In Year 6, they test programs against their designs and evaluate how well digital products meet their purpose.

Adapted from the Teach Computing KS2 curriculum map, created by Raspberry Pi Foundation and updated by STEM Learning for the National Centre for Computing Education. Open Government Licence v3.0: nationalarchives.gov.uk/doc/open-government-licence/version/3/