

Progression of Skills in Computing

EYFS

Pupils should be taught to:

Make choices; begin to notice and talk about the effect, e.g. press buttons on a toy, make changes by clicking or dragging onscreen objects.

Explore simple tools that react to changes in temperature light or sound, e.g. an app that reacts when sound levels vary.

Begin to build sets of simple instructions to help build algorithms, contribute e.g. instructions to control the movement of a human robot.

Begin to use computing to share ideas e.g. create digital images, or with support write words and simple phrases.

Engage in saving their work.

Be aware that information exists in different forms. With support, use technology to present information e.g. enter data into a pictogram.

Begin to explore software which represents real life events e.g. click controls in an onscreen game.

Be aware of some technology used in everyday life e.g. DVD, mobile phone, automatic doors etc.

Be aware they should be careful when using technology.

Talk to an adult if any technology worries them.

KS1

Pupils should be taught to:

Make choices to produce different outcomes, e.g. pause a sound recording; program a simple device.

Explain the choices and decisions they made in their work, e.g. talk about how they programmed a floor turtle to follow a route

Use and understand technology to detect environmental conditions and capture environmental data, e.g. use data-loggers to investigate loud and soft sounds, record data using a set of sensors or a data-logger.

Understand algorithms to be a precise set of instructions; create a simple algorithm for a specific task, e.g. building a brick tower.

Understand the need to debug algorithms; create, test/debug algorithms to achieve objectives, e.g. debug and test an algorithm to draw a square.

Use varied technology to communicate and share ideas, e.g. use simple software to create and modify digital images.

Use a range of computing tools to produce and modify work in different forms for a purpose e.g. with support combine words and images.

With support access work on the network; save in a prepared folder.

Know that work is stored on the school network; be aware of some areas on the network.

Know information exists in different forms and comes from different sources e.g. generate pictograms and bar charts to present their data.

Use branching databases, pictograms or bar charts to organise and classify information, e.g. classify minibeasts using a branching database.

Explore and investigate patterns/rules in simple simulations; use this to predict outcomes in simulation, e.g., "If I shout the arrow will go up to here".

Investigate everyday uses of technology e.g. with an adult program a microwave to warm a drink.

Identify some of the ways that everyday devices are programmed e.g. explain that if a sensor detects movement, it will turn the lights on.

Understand the need to use technology safely and respectfully.

Keep personal details private; Know to tell a trusted adult if any technology makes them feel worried or uncomfortable.

Know that anyone may put information on the internet and such information may not be true; know to check with a trusted adult.

LKS2

Pupils should be taught to:

Design, test, debug and refine correctly sequenced algorithms and programs to solve problems, including, selection and repetition generally correctly, to improve efficiency, e.g. simplify an algorithm by using selection.

Use logical reasoning to predict outcomes in programs and detect errors.

Save and organise their work in correct areas on the network using appropriate file names and folder structures.

Use various tools within the software, understanding that these may improve appearance and aid accuracy and efficiency, e.g. change the colours of a multimedia text to improve legibility.

Select and use specific tools within the software with the aim of improving design and aiding accuracy and efficiency, e.g. include hyperlinks in a non-linear text to direct the reader to the correct page.

Modify their work in the light of comments from others e.g. add axis title to a graph after a learning partner said it was not clear what the graph signified.

Use peer and self-review to evaluate and improve their work, e.g. explain how including a series of graphs showing temperature changes, improved their science project.

Use keyword searches to find information quickly.

Turn questions into search criteria and use to find answers.

Explain how choices and decisions help them solve problems.

Begin to plan their work, understanding how this helps them to improve what they produce and solve problems.

Use sort and search appropriately to answer questions, including those that require the use of more than one search criterion.

Develop their understanding of and use eSafe practices in online spaces, e.g. use email and blogging tools appropriately, including maintaining their own blog and commenting on blogs written by others.

Consistently use technology safely and responsibly and how to encourage safe use by others.

Show a good understanding of the school's Online Safety rules for copyright, ownership and protection of personal data; e.g. investigate the ownership of the images they wish to use; and credit the sources in their work.

Describe how technology is used to create digital texts in the wider world; compare to their own production of digital texts in and beyond school.

UKS2

Pupils should be taught to:

Design, test, debug, refine and critically review algorithms and programs for physical and onscreen devices and systems and adapt them for different situations; use and compare different programming environments.
Understand how decomposition can support the design of algorithms and programs and the role of variables in programming; begin to use these appropriately in their own programs, e.g. break down a process to draw a shape and highlight how a variable could be used to specify the size of the shape and program a simple onscreen game and use a variable to keep the score.
Use logical reasoning accurately and consistently to detect and correct errors.
Justify and describe tools and techniques used to edit and enhance their work; explain why particular ones are suitable for specific pieces of work, e.g. compare the tools within three different presentation tools and explain why they chose one for a piece of work.
Use blogs and wikis to develop the quality of information and ideas exchanged with others; checking for bias, accuracy and relevance, e.g. comment on the accuracy of an entry in a class wiki.
Take steps to ensure that the information they contribute to online spaces, is high quality, accurate, unbiased, relevant and truthful, e.g. check the information on their page of the class wiki using several different sources.
Keep and review drafts; revisit previous drafts considering effectiveness of their changes.
Describe how keeping and reviewing drafts is key to building their critical awareness.
Critically evaluate their work; identifying and implement improvements and refinements, e.g. review a project commenting on how they have achieved the objectives and how they would improve it if they had more time.
Save and organise their work appropriately and efficiently, both on and offline, e.g. create well-organised folder structures for their work and consider where they should save work to ensure it is accessible at home and school.
Recognise, promote and demonstrate good behaviour on- and off-line.
Apply the school's Online Safety rules consistently including copyright, personal data and data protection e.g. use appropriate pseudonyms when writing credits for a resource to be saved online.
Develop detailed plans for their work, explaining why selected tools and techniques are suitable for specific pieces of work.