



Progression in Computing Upper Key Stage 2

Programming

Key Stage 2 National Curriculum Expectations

Pupils should be taught to:

- *design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts*
- *use sequence, selection, and repetition in programs; work with variables and various forms of input and output*
- *use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs*

Year 5

Decompose a problem into smaller parts to design an algorithm for a specific outcome and use this to write a program.

Refine a procedure using repeat commands to improve a program.

Use a variable to increase programming possibilities.

Change an input to a program to achieve a different output.

Use 'if' and 'then' commands to select an action.

Talk about how a computer model can provide information about a physical system.

Use logical reasoning to detect and debug mistakes in a program.

Use logical thinking, imagination and creativity to extend a program.

Year 6

Deconstruct a problem into smaller steps, recognising similarities to solutions used before.

Explain and program each of the steps in their algorithm.

Evaluate the effectiveness and efficiency of their algorithm while continually testing the programming of that algorithm.

Recognise when they need to use a variable to achieve a required output.

Use a variable and operators to stop a program.

Use different inputs (including sensors) to control a device or onscreen action and predict what will happen.

Use logical reasoning to detect and correct errors in a algorithms and programs.

Multi Media and Handling Data

Key Stage 2 National Curriculum Expectations

Pupils should be taught to:

- *use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content*
- *select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.*

Year 5

Use text, photo, sound and video editing tools to refine their work.

Use the skills they have already developed to create content using unfamiliar technology.

Select, use and combine the appropriate technology tools to create effects that will have an impact on others.

Select an appropriate online or offline tool to create and share ideas.

Review and improve their own work and support others to improve their work.

Use a spreadsheet and database to collect and record data.

Choose an appropriate tool to help them collect data.

Present data in an appropriate way.

Research a database using different operators to refine my search.

Year 6

Talk about audience, atmosphere and structure when planning a particular outcome.

Confidently identify the potential of unfamiliar technology to increase their creativity.

Combine a range of media, recognising the contribution of each to achieve a particular outcome.

Tell you why they select a particular online tool for a specific purpose.

Be digitally discerning when evaluating the effectiveness of their own work and the work of others.

Plan the process needed to investigate the world around them.

Select the most effective tool to collect data for their investigation.

Check the data they collect for accuracy and plausibility.

Interpret the data they collect.

Technology in our Lives

Key Stage 2 National Curriculum Expectations

Pupils should be taught to:

- *understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration*

Year 5	Year 6
Describe different parts of the Internet.	Identify the different Internet services they need to use for different purposes.
Use different online communication tools for different purposes.	Describe how information is transported on the Internet.
Use a search engine to find appropriate information and check its reliability.	Select an appropriate tool to communicate and collaborate online.
Recognise and evaluate different types of information they find on the World Wide Web.	Talk about the way search results are selected and ranked.
Describe the different parts of a webpage.	Check the reliability of a website.
Find out who the information on a webpage belongs to.	Explain about copyright and acknowledging the sources of information that I find online.

E-safety

Key Stage 2 National Curriculum Expectations

Pupils should be taught to:

- *use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.*

Year 5	Year 6
Create and protect a strong password and other personal information.	Protect their password and other personal information.
Explain why they need to protect themselves and their friends and the best ways to do this, including reporting concerns to an adult.	Explain the consequences of sharing too much about themselves online.
	Support their friends to protect themselves and make good choices online, including reporting concerns to an adult.

<p>Know that anything they post online can be seen, used and may affect others.</p> <p>Talk about the dangers of spending too long online or playing a game.</p> <p>Explain the importance of communicating kindly and respectfully.</p> <p>Discuss the importance of choosing an age-appropriate website or game.</p> <p>Explain why they need to protect their computer or device from harm.</p> <p>Know which resources on the Internet they can download and use.</p> <p>Explain how identity online can be copied, modified or altered.</p> <p>Recognise when someone is upset, hurt or angry online.</p> <p>Explain how using technology can distract them from other things they might do or should be doing.</p>	<p>Explain the consequences of spending too much time online or on a game.</p> <p>Explain the consequences to themselves and others of not communicating kindly and respectfully.</p> <p>Protect their computer or device from harm on the Internet.</p> <p>Describe ways in which media can shape ideas about gender.</p> <p>Explain how they are developing an online reputation which will allow other people to form an opinion of them.</p> <p>Describe how to capture bullying content as evidence (e.g. screengrab, URL, profile) to share with others who can help them.</p> <p>Describe common systems that regulate age-related content (e.g., PEGI, BBFC, parental warnings) and describe their purpose.</p> <p>Explain how many free apps or services may read and share their private information with others.</p>
E-safety	
Year 5	Year 6