

Computing Skills Progression Y1-6

Key Stage 1 National Curriculum

- Understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions.
- Create and debug simple programs.
- Use logical reasoning to predict the behaviour of simple programs.
- Use technology purposefully to create, organise, store, manipulate and retrieve digital content.
- Recognise common uses of information technology beyond school.
- Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.

Key Stage 2 National Curriculum

Year 3 and 4

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

Year 5 and 6

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

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
E-Safety & Digital Citizenship	<ul style="list-style-type: none"> • Keeping my password private. • Explaining what personal information is. • Telling an adult when I see something unexpected or worrying online. • Talking about why it's important to be kind and polite. • Recognising a website that is right for my age. • Agreeing and follow sensible e-safety rules. 	<ul style="list-style-type: none"> • Explaining why I need to keep my password and personal information private. • Describing the things that happen online that I must tell an adult about. • Talking about why I should go online for a sensible amount of time. • Talking about why it is important to be kind and polite online and in real life. • Understanding that not everyone is who they say they are on the internet. • Agreeing, following, and talking about sensible e-safety rules. 	<ul style="list-style-type: none"> • Talking about what makes a secure password and why they are important. • Protecting my personal information when I do different things online. • Knowing how to use the safety features of websites as well as reporting concerns to an adult. • Recognising websites and games appropriate for my age. • Making good choices about how long I spend online. • Asking an adult before downloading files and games from the internet. • Talking about posting positive comments online. 	<ul style="list-style-type: none"> • Choosing a secure password when I am using a website. • Talking about the ways I can protect myself and my friends from harm online. • Using the safety features of websites as well as reporting concerns to an adult. • Knowing that anything I post online can be seen by others. • Choosing websites and games that are appropriate for my age. • Helping my friends make good choices about the time they spend online. • Talking about why I need to ask a trusted adult before downloading files and games from the internet. • Commenting positively and respectfully online. 	<ul style="list-style-type: none"> • Protecting my password and other personal information. • Explaining why I need to protect myself and my friends and the best ways to do this, including reporting concerns to an adult. • Knowing that anything I post online can be seen, used and may affect others. • Talking about the dangers of spending too long online or playing a game. • Explaining the importance of communicating kindly and respectfully. • Discussing the importance of choosing an age-appropriate website or game. • Explaining why I need to protect my computer or device from harm. • Understanding which resources on the internet I can download and use. 	<ul style="list-style-type: none"> • Protecting my password and other personal information. • Explaining the consequences of sharing too much information about myself online. • Supporting friends to protect themselves and make good choices online, including reporting concerns to an adult. • Explaining the consequences of spending too much time online or on a game. • Explaining the consequences to myself and others of not communicating kindly and respectfully. • Understanding how to protect my computer or device from harm on the internet.
Computing systems and networks	Technology around us Recognising technology in school and using it responsibly.	Information technology around us Identifying IT and how its responsible use improves our world in school and beyond.	Connecting computers Identifying that digital devices have inputs, processes, and outputs, and how devices can be connected to make networks	The internet Recognising the internet as a network of networks including the WWW, and why we should evaluate online content.	Sharing information Identifying and exploring how information is shared between digital systems.	Internet communication Recognising how the WWW can be used to communicate and be searched to find information.

Creating Media	<p>Digital painting Choosing appropriate tools in a program to create art and making comparisons with working non-digitally.</p> <p>Digital writing Using a computer to create and format text, before comparing to writing non-digitally.</p>	<p>Digital photography Capturing and changing digital photographs for different purposes.</p> <p>Making music Using a computer as a tool to explore rhythms and melodies, before creating a musical composition.</p>	<p>Stop-frame animation Capturing and editing digital still images to produce a stop-frame animation that tells a story.</p> <p>Desktop publishing Creating documents by modifying text, images, and page layouts for a specified purpose.</p>	<p>Audio editing Capturing and editing audio to produce a podcast, ensuring that copyright is considered.</p> <p>Photo editing Manipulating digital images and reflecting on the impact of changes and whether the required purpose is fulfilled.</p>	<p>Video editing Planning, capturing, and editing video to produce a short film.</p> <p>Vector drawing Creating images in a drawing program by using layers and groups of objects</p>	<p>Webpage creation Designing and creating webpages, giving consideration to copyright, aesthetics, and navigation.</p> <p>3D modelling Planning, developing, and evaluating 3D computer models of physical objects.</p>
Programming	<p>Moving a robot Writing short algorithms and programs for floor robots and predicting program outcomes.</p> <p>Programming animations Designing and programming the movement of a character on screen to tell stories.</p>	<p>Robot algorithms Creating and debugging programs and using logical reasoning to make predictions.</p> <p>Programming quizzes Designing algorithms and programs that use events to trigger sequences of code to make an interactive quiz.</p>	<p>Sequencing sounds Creating sequences in a block-based programming language to make music</p> <p>Events and actions in programs Writing algorithms and programs that use a range of events to trigger sequences of actions.</p>	<p>Repetition in shapes Using a text-based programming language to explore count-controlled loops when drawing shapes.</p> <p>Repetition in games Using a block-based programming language to explore count-controlled and infinite loops when creating a game.</p>	<p>Selection in physical computing Exploring conditions and selection using a programmable microcontroller.</p> <p>Selection in quizzes Exploring selection in programming to design and code an interactive quiz.</p>	<p>Variables in games Exploring variables when designing and coding a game.</p> <p>Sensing Designing and coding a project that captures inputs from a physical device.</p>
Data and Information	<p>Grouping data Exploring object labels, then using them to sort and group objects by properties.</p>	<p>Pictograms Collecting data in tally charts and using attributes to organise and present data on a computer</p>	<p>Branching databases Building and using branching databases to group objects using yes/no questions.</p>	<p>Data logging Recognising how and why data is collected over time, before using data loggers to carry out an investigation.</p>	<p>Flat-file databases Using a database to order data and create charts to answer questions.</p>	<p>Introduction to spreadsheets Answering questions by using spreadsheets to organise and calculate data.</p>