

Calcot Schools - Computing Overview

We have selected the most relevant statements from Development Matters age ranges for Three and Four-Year-Olds and Reception as well as highlighting the statements within the ELGs which feed into the programme of study for computing.

Three and Four-Year-Olds	Personal, Social and Emotional Development		<ul style="list-style-type: none"> Remember rules without needing an adult to remind them.
	Physical Development		<ul style="list-style-type: none"> Match their developing physical skills to tasks and activities in the setting.
	Understanding the World		<ul style="list-style-type: none"> Explore how things work.
Reception	Personal, Social and Emotional Development		<ul style="list-style-type: none"> Show resilience and perseverance in the face of a challenge. Know and talk about the different factors that support their overall health and wellbeing: <ul style="list-style-type: none"> -sensible amounts of 'screen time'.
	Physical Development		<ul style="list-style-type: none"> Develop their small motor skills so that they can use a range of tools competently, safely and confidently.
	Expressive Arts and Design		<ul style="list-style-type: none"> Explore, use and refine a variety of artistic effects to express their ideas and feelings.
ELG (Level expected at the end of EYFS)	Personal, Social and Emotional Development	Managing Self	<ul style="list-style-type: none"> Be confident to try new activities and show independence, resilience and perseverance in the face of challenge. Explain the reasons for rules, know right from wrong and try to behave accordingly.
	Expressive Arts and Design	Creating with Materials	<ul style="list-style-type: none"> Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

Key Stage 1 National Curriculum Expectations

Pupils should be taught to:

- 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 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;
- 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.

PREDOMINANT AREA OF COMPUTING but most will include aspects of all strands	Information Technology	Computer Science	Digital Literacy			
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS	<u>Data and information</u> (Identifying charts, sorting objects, present data)	<u>Online Safety</u> <u>How to stay safe online</u> <i>Use technology safely, respectfully and keep info private, online bullying, talking about feelings and trusted adults</i>	<u>Programming</u> (Creative and Critical thinking, active learning (through unplugged learning opportunities) Playing and Exploring - algorithms	<u>Creating media</u> (Animation, photos, sound- ChatterPix Kids)	<u>Creating media</u> (Typing letters using tablets/keyboards - Purple Mash)	<u>Programming</u> (Creative and Critical thinking, active learning (through unplugged learning opportunities) Playing and Exploring - algorithms, Beebots, Daisy the dinosaur, Code & Go Robot mouse)
Mini Mash/Purple Mash and various apps/website and technology and learning opportunities are used throughout the year within our continuous provision						
Year 1	<u>Online safety - PurpleMash UNit 1.1</u> Safe logins <ul style="list-style-type: none"> • Concept of privacy • Concept of ownership • The need to logout <u>Computing systems around us - Technology around us</u> Recognising technology in school and using it responsibly.	<u>Creating media - Digital painting</u> Choosing appropriate tools in a program to create art, and making comparisons with working non-digitally.	<u>Data and information - Grouping data</u> Exploring object labels, then using them to sort and group objects by properties.	<u>Programming - Moving a robot</u> Writing short algorithms and programs for floor robots, and predicting problem outcomes.	<u>Programming animations</u> Designing and programming the movement of a character on screen to tell stories.	<u>Creating media - Digital writing</u> Using a computer to create and format text, before comparing to writing non-digitally.
Year 2	<u>Online safety - PurpleMash Unit 2.2</u> Share to a displayboard <ul style="list-style-type: none"> • Approval process • Sharing online • Email simulations • emotional impact of communications • digital footprint 	<u>Data and information - Pictograms</u> Collecting data in tally charts and using attributes to organise and present data on a computer.	<u>Programming - Robot algorithms</u> Creating and debugging programs, and using logical reasoning to make predictions.	<u>Programming quizzes</u> Designing algorithms and programs that use events to trigger sequences of code to make an interactive quiz.	<u>Creating media - Digital photography</u> Capturing and changing digital photographs for different purposes.	<u>Creating media - Making music</u> Using a computer as a tool to explore rhythms and melodies before creating a musical composition

	<p><u>Computing systems around us - Information technology around us</u> Identifying IT and how its responsible use improves our world in school and beyond.</p>					
Year 3	<p><u>Online Safety PurpleMash Unit 3.2</u> Good Passwords and password privacy</p> <ul style="list-style-type: none"> • Communication methods • Shared blog <p>Reliability of information and spoof websites</p> <ul style="list-style-type: none"> • appropriate ratings • emotional effects • Cyberbullying • reporting problems <p><u>Connecting computers</u> Identifying that digital devices have inputs, processes, and outputs, and how devices can be connected to make networks</p>	<p><u>Desktop publishing</u> Creating documents by modifying text, images, and page layouts for a specified purpose</p>	<p><u>Branching databases</u> Building and using branching databases to group objects using yes/no questions</p>	<p><u>Stop-frame animation</u> Capturing and editing digital still images to produce a stop-frame animation that tells a story.</p>	<p><u>Sequencing sounds</u> Creating sequences in a block-based programming language to make music</p>	<p><u>Events and actions in programs</u> Writing algorithms and programs that use a range of events to trigger sequences of actions</p>
Year 4	<p><u>Online Safety PurpleMash Unit 4.2</u> Phishing</p> <ul style="list-style-type: none"> • Digital footprint • Malware and viruses • Plagiarism • Screen time <p><u>The internet</u> Recognising the</p>	<p><u>Audio production</u> Capturing and editing audio to produce a podcast, ensuring that copyright is considered</p>	<p><u>Data logging</u> Recognising how and why data is collected over time, before using data loggers to carry out an investigation.</p>	<p><u>Repetition in shapes</u> Using a text-based programming language to explore count-controlled loops when drawing shapes</p>	<p><u>Photo editing</u> Manipulating digital images, and reflecting on the impact of changes and whether the required purpose is fulfilled</p>	<p><u>Repetition in games</u> Using a block-based programming language to explore count-controlled and infinite loops when creating a game</p>

	internet as a network of networks including the WWW, and why we should evaluate online content					
Year 5	<p><u>Online Safety</u> <u>PurpleMash 5.2</u> Responsibility to others when sharing</p> <ul style="list-style-type: none"> • Sources of support • SMART rules • Sharing passwords <p>Image manipulation</p> <ul style="list-style-type: none"> • Citing sources • Searching • Reliability <p><u>Systems and searching</u> Recognising IT systems around us and how they allow us to search the internet.</p>	<p><u>Video production</u> Planning, capturing, and editing video to produce a short film</p>	<p><u>Flat-file databases</u> Using a database to order data and create charts to answer questions</p>	<p><u>Vector drawing</u> Creating images in a drawing program by using layers and groups of objects</p>	<p><u>Selection in physical computing</u> Exploring conditions and selection using a programmable microcontroller.</p>	<p><u>Selection in quizzes</u> Exploring selection in programming to design and code an interactive quiz</p>
Year 6	<p><u>Online Safety</u> <u>PurpleMash 6.2</u> Responsibility to others when sharing</p> <ul style="list-style-type: none"> • Minimising exposure to risks • Sources of support • Screen time • Being a bystander <p><u>Communication and collaboration</u> Identifying and exploring how data is transferred and information is shared online</p>	<p><u>Webpage creation</u> Designing and creating webpages, giving consideration to copyright, aesthetics, and navigation</p>	<p><u>Introduction to spreadsheets</u> Answering questions by using spreadsheets to organise and calculate data</p>	<p><u>3D modelling</u> Planning, developing, and evaluating 3D computer models of physical objects.</p>	<p><u>Variables in games</u> Exploring variables when designing and coding a game.</p>	<p><u>Sensing</u> Designing and coding a project that captures inputs from a physical device</p>

