

## **Progression in Computing**

**We use Developmental Matters as Non-statutory curriculum guidance for the Early Years Foundation Stage.**

**3- and 4-year olds will be learning to:**

Explore how things work.

**Children in reception will be learning to:**

Create simple programs.

**The EYFS profile is a statutory assessment of children's attainment. At the end of the Early Years Foundation Stage children should be able to:**

Input simple instructions to make technological toys operate, including floor robots and onscreen sprites.

**The national curriculum for computing aims to ensure that all pupils:**

- can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- are responsible, competent, confident and creative users of information and communication technology.

### **Key stage 1**

Pupils should 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**

Pupils should 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.



**is taught across the school to educate children on how to stay safe**

Pupils should be taught to:	Early Years		Key Stage 1		Lower Key Stage 2		Upper Key Stage 2	
	Class One		Class Two			Class Three		
	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Computer Science</b>	Work digital toys and equipment	<p>Give commands e.g. forward, backwards, go, stop, when using simple software/hardware</p> <p>Make choices about the buttons/icons to press, touch or click on when using simple software/hardware.</p>	<p>Predict what will happen for a simple sequence of instructions (algorithm)</p> <p>Investigate how algorithms work</p> <p>Make an algorithm/program to achieve a simple outcome</p> <p>Improve a simple algorithm by identifying basic errors (bugs) and correcting (debugging)</p>	<p>Predict what will happen in an algorithm using logical reasoning.</p> <p>Investigate the way algorithms need precise, unambiguous instructions to work</p> <p>Make algorithms that solve a problem, using simple drawings or diagrams to plan the solution</p> <p>Improve algorithms, using debugging skills such as checking back through their plan and algorithm.</p>	<p>Predict what will happen for a more complex sequence of instructions which uses repetition.</p> <p>Investigate how a problem can be solved by decomposing it into smaller steps and by planning a solution.</p> <p>Make algorithms that solve problems which use sequences and repetition.</p> <p>Improve more complex algorithms by identifying mistakes (bugs) and correcting (debugging)</p>	<p>Plan the solution to a problem by decomposing into smaller parts e.g. with a flow diagram, storyboard or other plan</p> <p>Investigate how algorithms work and identify the purpose of the different parts of an algorithm Make programs which use sequences, repetition and inputs and outputs when necessary. Improve a program by debugging systematically.</p>	<p>Plan efficient solutions to problems that include controlling or simulating physical systems, using decomposition to solve the problem</p> <p>Make programs using more complex algorithms, selecting when to use sequences, selection, (if, then), repetition and a range of inputs and outputs</p> <p>Investigate how algorithms work on different platforms, by comparing one block-based code language to another</p> <p>Improve code by systematically testing and debugging it, with an understanding of logic and syntax bugs</p>	
<b>Information Technology</b>	use finger control to interact with a tablet	Experience simple apps and software and use these to present ideas	<p>Save work when the saving location has been set by an adult</p> <p>Manage a device by logging in, logging out, (shutting down where appropriate) and knowing the main parts of a computer Input commands with increasing fluency using the space bar, backspace, enter, caps lock, letters, numbers and common symbols/punctuation on a keyboard on any device (including on a tablet).</p>	<p>Save and retrieve work using an appropriate file name</p> <p>Manage a device by navigating a range of software and using simple passwords</p> <p>Input commands by using both hands on a keyboard on any device (including on a tablet), understanding where home keys are and using a wide range of letters, numbers and symbols.</p> <p>Input commands using a mouse, with an understanding of</p>	<p>Save and retrieve files on the school network understanding that information can be saved in different places (an individual device, a local network or the cloud)</p> <p>Manage various devices correctly, navigating a wide range of apps and software and using individual passwords.</p> <p>Input commands using a keyboard on any device (including on a tablet) with increased fluency, using efficient shortcuts where possible i.e. Shift + 'letter' instead of Caps Lock</p>	<p>Save and retrieve work independently on the school network or a Cloud using folders to organise work</p> <p>Use a wide range of input devices fluently, such as keyboards, mice and/or touchscreens Create, modify and present work to accomplish specific goals using a variety of software on a range of digital devices.</p> <p>Evaluate their work and improve it, based</p>	<p>Understand the difference between cloud based saving and other programs, which need to be manually saved.</p> <p>Use input devices fluently, such as keyboards, mice and/or touchscreens to navigate a system, using shortcuts on a keyboard (Ctrl + B, U, I, S, P)</p> <p>Create, modify and present work with a combination of software to achieve a specific goal, using</p>	<p>Use search tools within a system to find saved work.</p> <p>Use input devices fluently, such as keyboards, mice, touchscreens and voice command to enter data in a system. Create, modify and present content using a combination of software (including internet service) on a range of digital devices which solves problems, with a regard to audience,</p>

			<p>Input commands with increasing fluency using a mouse to control a cursor and use the left click to select options OR use finger control to interact with a tablet</p> <p>Experience a range of simple apps and software and use these to create and present ideas.</p> <p>Evaluate their work by saying what is good about it</p>	<p>the difference between left and right click OR use finger control to interact with a tablet (double tap, swipe, pinch zoom)</p> <p>Experience a wide range of apps and software and use these to create and present ideas.</p> <p>Evaluate what is good about work and how it could be improved.</p>	<p>Create, modify and present work using different software/apps.</p> <p>Evaluate their work and improve its effectiveness.</p> <p>Use technology to present and interpret given data, identifying simple patterns or trends</p>	<p>on their own, and other people's views.</p> <p>Use technology to collect, present and interpret data, using a range of different graphs/charts.</p>	<p>built in functions that help the user such as spellchecker, dictate, immersive reader</p> <p>Evaluate their work and improve it, understanding how various forms of media e.g. photos, video and sound, can aid this.</p> <p>Use a range of tools within computer based software to evaluate and analyse data (database)</p>	<p>atmosphere and user needs.</p> <p>Evaluate and refine their work, explaining their choices and the impact it has.</p> <p>Use different functions within computer-based software to present, evaluate and efficiently analyse data i.e. tables, charts, graphs and formula in a spreadsheet.</p>
<p><b>Digital Literacy</b></p> <p><b>Also supported in our Online Safety provider E-Aware</b></p>	<p>Recognise technology that is used at home and in school. Understand what a computer is and the different uses of computers i.e. learning, communicating, finding information, playing games etc.</p>	<p>Recognise that devices can be connected</p> <p>Understand the ways devices are used in the classroom and at home</p> <p>Use a search engine to find information</p>	<p>Recognise that devices can be connected via networks.</p> <p>Understand the ways devices are used in the workplace and the wider world.</p> <p>Use key words in a search engine to find information.</p>	<p>Begin to recognise the different parts of a school network e.g. WIFI point, server</p> <p>Use an online communication system e.g. email, and understand the opportunities this offers.</p> <p>Use search operators i.e. + to filter information in a search engine</p>	<p>Recognise different parts of a school or office network e.g. server, switch, router, client, WIFI point,</p> <p>Use an online collaboration system e.g. blogging, and understand the opportunities this offers.</p> <p>Use a wider range of search operators i.e. " ~ define: to efficiently find information in a search engine</p>	<p>Recognise different parts of a school or office network e.g. server, switch, router, client, Wi-Fi point, and explain the purpose of each.</p> <p>Use online communication and collaboration tools for different purposes</p> <p>Use a search engine efficiently by filtering and begin to understand how results are selected and ranked</p>	<p>Recognise the different services that computer networks can provide i.e. the World Wide Web</p> <p>Use a range of online communication and collaboration tools independently and explain the benefits and limitations of each</p> <p>Use a search engine efficiently by filtering and deepen their understanding of how results are selected and ranked</p>	