

## COMPUTING CURRICULUM PLAN – LORD DERAMORE’S PRIMARY SCHOOL

**Intent:** Through our computing curriculum, we aim to give our pupils the life-skills that will enable them to embrace and utilise new technology in a socially responsible and safe way (as responsible digital citizens) in order to flourish. We want our pupils to be able to operate in the 21st century workplace and we want them to know the career opportunities that will be open to them if they study computing. We want children to become autonomous, independent users of computing technologies, gaining confidence and enjoyment from their activities. We want the use of technology to support learning across the entire curriculum and to ensure that our curriculum is accessible to every child. Not only do we want them to be digitally literate and competent end-users of technology but through our computing lessons we want them to develop creativity, resilience and problem-solving and critical thinking skills; choosing the most appropriate technology and software to solve real world problems.

**Implementation:** Computing is taught both discretely and through other subjects. Skills taught are widely used to support learning in other subjects. Topics are on a yearly cycle with skills developing across the phases and year groups. Enrichment activities including visitors, experiences and field trips are carefully planned to enhance the topic and provide first hand and memorable experiences. Progression across each year group and phase is outlined in the progression document, along with key vocabulary, knowledge and skills that children will be taught. Implementation is supported across school by our Computing Specialist.

**Impact:** Children have a learning journal which begins in EYFS and moves through school with them. Each term, an investigation is recorded and deep marked to show progression in scientific knowledge and skills throughout school. Science is assessed by each teacher throughout the year, specifically at the end of a topic. Science levels are reported at the end of the year in the annual report. The Science Lead and SLT monitor the impact of the teaching and learning in science through learning walks, pupil voice, book trawls, staff questionnaires and lesson observations.



	PHASE 1		PHASE 2		PHASE 3		
	FS2	Y1	Y2	Y3	Y4	Y5	Y6
<b>Knowledge (substantive and disciplinary)</b>	<u>Understanding the World: Technology ELG: (2012)</u> Complete a simple program on age-appropriate software e.g. 2simple, Teach Your Monster to Read  Use every day technology for a purpose e.g. make a video, use a music player and speaker  Create and debug simple programs.  Use logical reasoning to predict the behaviour of simple programs.  Recognise common uses of information technology beyond school.		Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.  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 technology  Use technology purposefully to create, organise, store, manipulate and retrieve digital content.  Use sequence, selection, and repetition in programs; work with variables and various forms of input and output.		Design, write and debug programs that accomplish specific goals, including controlling or simulating physical system; 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.		

<p><b>Progression and Expectations</b></p>	<p><u>Algorithms and Programming/Coding</u> Give an instruction to a programmable toy and explore what the toy does</p> <p><u>Information Technology</u> Use a camera to take pictures and videos and look at them. Record sound and play back.</p> <p><u>Digital literacy</u> Explore using different types of technology including toys, cameras, recording equipment, tablets etc <a href="#">Taking pics</a></p> <p><u>Safe Computer Use</u> Know that they can tell a trusted adult if they are worried about anything they see online</p>	<p><u>Algorithms and programming/Coding</u> Create a series of instructions. <a href="#">Beebots</a> Plan a journey for a programmable toy.</p> <p><u>Information Technology</u> Create digital content. <a href="#">2animate</a> <a href="#">Pictograms</a> Store digital content. Retrieve digital content. Use a website. Use a camera. Record sound and play back.</p> <p><u>Digital literacy</u> Use technology safely. <a href="#">First lessons</a> Keep information private. <a href="#">Passwords and safety</a></p> <p><u>Safe Computer Use</u> Use games and programs that have been approved by the school. <a href="#">Coding</a></p> <p>Tell a grown up if they see anything inappropriate</p>	<p><u>Algorithms and programming/Coding</u> Use a range of instructions (e.g. direction, angles, turns). Test and amend a set of instructions. Write a simple program and test it. <a href="#">Algorithms</a> Find errors and amend (debug). Predict what the outcome of a simple program will be (logical reasoning).</p> <p><u>Information Technology</u> Organise digital content. <a href="#">Pictograms</a> <a href="#">Fruit tasting</a> <a href="#">Words and Pictures</a> <a href="#">Spreadsheets</a> <a href="#">Presenting data</a> Retrieve and manipulate digital content. <a href="#">Pointillism</a> <a href="#">Impressionism</a> Navigate the web to complete simple searches.</p> <p><u>Digital literacy</u> Use technology respectfully. Know where to go for help if I am concerned. Know how technology is used in school and outside school.</p> <p><u>Safe Computer Use</u> Use a password to access the secure network</p> <p>Follow the school's safer internet rules</p>	<p><u>Algorithms and programming/Coding</u> Design a sequence of instructions, including directional instructions. Write programs that accomplish specific goals. <a href="#">Coding</a> Work with various forms of input. Work with various forms of output. Understand that programs require precise instructions. And notice and change errors. Understand that algorithms are used on digital devices.</p> <p><u>Information Technology</u> Use a range of software for similar purposes. <a href="#">Mondrian Art</a> Collect information. <a href="#">Spreadsheets</a> Design and create content. <a href="#">Pointillism</a> <a href="#">Simple animations</a> Present information. <a href="#">Graphs</a> <a href="#">Branching databases</a> <a href="#">Leaflets</a> Search for information on the web in different ways. Manipulate and improve digital images.</p> <p><u>Digital literacy</u> Use technology respectfully and responsibly. Know different ways I can get help if I am concerned.</p>	<p><u>Algorithms and programming/Coding</u> Given an on-screen robot specific instructions that takes them from A to B. <a href="#">Polygons</a> <a href="#">Investigating polygons</a> De-bug a program. Experiment with variables to control models.</p> <p>Make an accurate prediction and explain why they believe something will happen.</p> <p><u>Information Technology</u> Select and use software to accomplish given goals. <a href="#">Making music</a> <a href="#">Rhythm and Tempo</a> <a href="#">Christmas cards</a> <a href="#">Science Animations</a> <a href="#">Volcano animations</a> Collect and present data. <a href="#">WWII vehicles</a> Produce and upload digital content.</p> <p><u>Digital literacy</u> Recognise acceptable and unacceptable behaviour using technology.</p> <p><u>Safe Computer Use</u> Follow the school's safer internet rules.</p> <p>Know that not all information found on the internet is accurate or true <a href="#">Geography searches</a></p>	<p><u>Algorithms and programming/Coding</u> Combine sequences of instructions and procedures to turn devices on and off. <a href="#">Lighthouses</a> Detect errors in algorithms. <a href="#">Coding - debugging</a> Use technology to control an external device. <a href="#">Lights</a> Design algorithms that use repetition and 2-way selection.</p> <p><u>Information Technology</u> Analyse information. <a href="#">Making music</a> Evaluate information. Understand how search results are selected and ranked. Edit digital content. <a href="#">Exploring tempo</a> <a href="#">Times tables spread sheets</a></p> <p><u>Digital literacy</u> Understand that you have to make choices when using technology and that not everything is true and/or safe.</p> <p><u>Safe Computer Use</u> Follow the school's safer internet rules.</p> <p>Use a variety of search engines so that they can find accurate information, knowing that not all information on the internet is true</p>	<p><u>Algorithms and programming/Coding</u> Explain how an algorithm works. Design a solution by breaking a problem up. Use logical reasoning to detect errors in algorithms. Recognise that different solutions can exist for the same problem. Use selection in programs. Work with variables.</p> <p>Explain 'what if' questions by planning different scenarios for controlled devices.</p> <p><u>Information Technology</u> Select, use and combine software on a range of digital devices. Use a range of technology for a specific project.</p> <p><u>Digital literacy</u> Discuss the risks of online use of technology. (Including impact on mental health e.g. body image) Identify how to minimise risks.</p> <p><u>Safe Computer Use</u> Follow the school's safer internet rules.</p> <p>Make choices about which websites and</p>
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<b>Vocabulary</b>	<p>Email Choices, Internet, Website, Rules, Online, Private information, Password</p> <p>Equipment, Computer, camera, laptop, tablet, phone, Buttons, Movement, Instructions, Buttons, Robots, Patterns, Program, Beebot, Botley, Control</p> <p>Screen, Mouse, Images, Keyboard, Paint, Videos, Camera stills, Sounds, Image bank, Word bank, Space bar</p> <p>Technology, Share, Create, Internet, Purpose, Online tools, Communicate</p> <p>Collect, Set of photos, Count, Organise, Photographs, Video, Data, Pictogram, Digitally</p>	<p>Appropriate/inappropriate sites, Cyber-bullying, Digital footprint, Keyword searching, E-safety rules, Secure passwords, Report abuse button, Gaming, Blogs</p> <p>Forward, Backward, Left/Right-angle turn, Algorithm, Sequence, Debug, Predict, Sequence instructions, Sequence debugging, Test + improve, Logo commands, Sequence programming</p> <p>Paint effects, Templates, Animation, Documents, Index finger typing, Enter/return, Caps lock, Backspace, Multimedia Presentations, Alignment, Brush size, Repeats, Reflections, Green screening, Amend, Copy, Paste</p> <p>Information sources, Communication Purposes, Website content, School network, Devices, Computer parts, Collaborate, Appropriate online communication, Search tools, Appropriate websites, Owner</p>	<p>Responsible online communication, Informed choices, Virus threats, Blogs, Messaging, E-safety rules, Secure passwords, Report abuse button, Gaming</p> <p>Explore procedures, Refine procedures, Variable, Hardware + software control, Change inputs, Different outputs, Articulate solutions, Commands, Predicting outputs, Plan, program, test &amp; review a program, Program writing, Control mimics + devices, Sensors, Measure input, Create variables, Link errors, Type + edit logo commands, Open-ended problems, Bugs in programs, Complex programming</p> <p>Online sharing, Multimedia effects, Multimedia modification, Transitions, Hyperlinks, Editing tools, Refining, Online sharing, Appropriate online tools, Audience, Atmosphere, Structure, Copyright, Information collection, HTML code, Storing, Creating + modifying, Photo modifying, Keyboard shortcuts,</p> <p>Computing devices, Internet parts, Collaboration, Responsibility, Searching strategies, Webpages, Information movement, Connecting devices, Different audiences, Research strategies, Search result rankings, Acknowledge resources, Different networks, Information collection, Reliability, Owners</p>			

		Capturing moments, Magnified images, Questions, Data collection, Graphs, Charts, Save, Retrieve, Database, Recording data, Data logger, Present data	Spreadsheets, Complex searches (and/or: </>), Problem solving, Present answers, Analyse information Question data, Interpret, Generate, Process, Interpret, Store, Present information Plausibility, Appropriate data tool, Interrogate, Investigations, Database creation, Database searches, Inaccurate data
<b>Literature</b>		Troll Stink (E-safety)	Little People; Big Dream - Steve Jobs Ada Lovelace: Poet of Science
<b>Experiences</b>	Digital photography Competition (Themed)	Digital photography Competition (Themed)	Virtual reality Digital photography Competition (Themed) <a href="#">Coding club - after school club</a> <a href="#">University of York Robotics</a> <a href="#">The children's society</a>
<b>Diversity</b>	Women in STEM (e.g. Ada Lovellace, Fei Fei Li, Katherine Johnson)	<a href="#">Women in STEM</a> (e.g. Ada Lovellace, Fei Fei Li, Katherine Johnson)	Coding club (focus on girls) <a href="#">Women in STEM</a> (e.g. Ada Lovellace, Fei Fei Li, Katherine Johnson)
<b>Long Term Planning Links</b>	Continuous provision – Botley, Beebots, IWB, iPad, music Computer Science: coding (Beebots, Botley) Information Technology: Purple Mash – animated storybooks and lego-builders Digital Literacy: Using Technology safely – how to use iPad, IWB, camera, talking pots etc. Safe use physically and safe searches on internet Creating and Storing – taking photos and videos, recording voices/sounds, iPad, IWB digital cameras, exploring purple mash	Computer science: coding, IT: Pictures, music, spreadsheets/ databases and graphing, presenting Digital literacy: emails and search engines (including internet safety)  Ongoing: Internet safety	Computer Science: coding, game creator and logo IT: spreadsheets, animation, 3D modelling, quizzing, music  Ongoing: safe and effective searches and internet safety