

LAYSTON COMPUTING CURRICULUM RATIONALE

Intent:

Our aim is to prepare the children for life in an ever-changing technological world. Computing is a vital part of everyday life and will play a huge part in our children's future. We will do this by ensuring that our children and staff are confident and competent users of technology and are able to experiment in a safe and fun, yet challenging environment.

We strongly believe that all children should develop the knowledge, skills and understanding to access and effectively use a range of technologies for different purposes. E-Safety is an integral part of our curriculum. Our children will be taught how to stay safe when they are online, to know how and where to get help should they need to and to use technology responsibly, being mindful of how their behaviour can affect others.

Our children will be taught computing in a way that ensures progression of skills and follows a sequence to build on previous learning. This will enhance their learning opportunities, enabling them to use technology across a range of subjects to be creative and solve problems.

Curriculum aims:

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.

Why do we use Rising Stars Switched on Computing?

This complete scheme:

- Supports non-specialist teachers with lesson plans, step-by-step teaching slides and CPD videos.
- Ensures progression of skills and follows a sequence to build on previous learning.
- Checks pupils' knowledge and understanding and identifies gaps in learning with self-marking, online quizzes at the end of each unit.
- Units typically include some cross-curricular connections to things pupils will be studying elsewhere in the curriculum, helping them to see how computing can be applied in a wide range of contexts, but also doing much to promote retention in both domains as pupils make and reinforce the connections between new ideas.
- It is updated to take into account advances in technology, such as physical computing with the micro:bit, and online platforms such as Google Apps for Education.



Computing Curriculum Map

Year R	<p><u>In EYFS, the children:</u></p> <ul style="list-style-type: none"> • have daily access to a range of technology resources such as torches with switches, remote controlled cars, Beebots, voice-recording toys, as well as class iPads and interactive whiteboards. • use a range of technology resources to support learning in other areas of the curriculum. • are taught how to use the resources for different purposes e.g. iPads to watch videos, play games, take photographs and listen to stories. <p><u>Activities completed in EYFS to support transition to the computing curriculum in Year 1:</u></p> <ul style="list-style-type: none"> • Take a photo on an iPad with support • Take a short film on an iPad with support • Turn an iPad on and use a touchscreen • Use a mouse to control a cursor • Use a keyboard with support • Use directional language (forward, backwards, turn, stop) with Beebots • Use directional language to instruct someone to reach a destination (and follow directional instructions from others) <p>I can follow directions using a small toy I can follow simple directions (Up, down, left/right, forwards/backwards) I can direct my friend from point A to B using positional language</p>					
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1	<p>We are treasure hunters: input a sequence of instructions to control a programmable toy</p> <p><i>Skills:</i> Know what an algorithm is, know that programmes are made up of a sequence of codes, use instructions (algorithms) to control devices or objects on screen, solve problems with instructions on and off screen</p>	<p>We are digital artists: create a digital Xmas card</p> <p><i>Skills:</i> Add text to pictures to develop basic keyboard skills, develop basic mouse skills, find and use pictures on the web, develop skills in storing and retrieving files, discuss their work and think about if it could be improved</p>	<p>We are painters: use appropriate painting tools to create and change images on the computer</p> <p><i>Skills:</i> Use the web safely to find ideas for illustrations, select and use appropriate painting tools to create and change images on the computer, create an illustration for a particular purpose, know how to save, retrieve and change their work, reflect on their work and act on feedback received</p>	<p>We are story tellers: use a computer program to create a story</p> <p><i>Skills:</i> Add text to pictures, record and use sound clips, develop collaboration skills as they work together in a group, understand how a talking book differs from a paper book, talk and reflect on their use of ICT</p>	<p>We are TV chefs: to use iPad to video a recipe</p> <p><i>Skills:</i> Break down a process into simple clear steps as in an algorithm, use a video camera to capture moving images, develop collaboration skills, discuss their work and think about how it can be improved, take photographs/videos on cameras and other digital devices</p>	<p>We are collectors: find and use pictures on the web</p> <p><i>Skills:</i> Get online and use websites, find and use pictures on the web, know what to do if they encounter pictures that cause concern, organise images into groups, ask a question and find the answer, use the internet to find information, keep safe online</p>

<p>Year 2</p>	<p>Programming (in Scratch Jnr)</p> <p><i>Skills: understand algorithms as sequences of instructions, convert simple algorithms to programs, predict what simple programs will do, spot & fix (debug) errors in simple programs</i></p>	<p>Exploring how computer games work</p> <p><i>Skills: describe what happens in computer games, use logical reasoning to predict what a program will do, test predictions, recognise use of IT beyond school, use technology safely and respectfully</i></p>	<p>Taking, selecting and editing digital images</p> <p><i>Skills: use a camera app, take digital photos, review and reject or rate images they take, edit and enhance photos, select best images</i></p>	<p>Researching a topic</p> <p><i>Skills: collaborate as a group, searching for information on the internet, note taking, presentation skills</i></p>	<p>Creating a stop-motion animation</p> <p><i>Skills: understand how animation works, use storyboards to plan an animation, create original characters, props and backgrounds for an animation, record audio, provide feedback to peers</i></p>	<p>Recording data</p> <p><i>Skills: sort & classify items; collect data using tick or tally charts; use simple charting software; take, edit & enhance photos; record information on a digital map</i></p>
<p>Year 3</p>	<p>We are programmers: programming an animation</p> <p><i>Skills: Designing & creating a storyboard, creating characters and a background on Scratch, animating characters, adding sounds, testing, debugging, problem solving</i></p>	<p>We are bug fixers: finding and correcting bugs in programs</p> <p><i>Skills: Finding and correcting bugs and improving a program in various contexts</i></p>	<p>We are presenters: videoing performance</p> <p><i>Skills: Using a video camera, shooting and editing video files, getting feedback and making changes based on feedback, evaluating, zooming in and out, assessing audio input/output</i></p>	<p>We are vloggers: making and sharing a short screencast presentation</p> <p><i>Skills: Researching information needed to present using a trusted search engine, planning the structure of a presentation, finding content to use in a presentation, creating content, practising the presentation, recording the presentation and sharing with others, problem solving, editing</i></p>	<p>We are communicators: communicating safely on the internet</p> <p><i>Skills: Write an email, know how email works, how to use email safely, how to create a presentation and email it to a partner as an attachment, how to edit a presentation with a partner, how to share a presentation in a video conference, know what spam, spoofed links and viruses are, how to be safe online</i></p>	<p>We are opinion pollsters: collecting and analysing data</p> <p><i>Skills: Deciding on a topic for a survey, writing questions for a survey, creating a survey, using data to create charts and graphs, presenting results of a survey</i></p>
<p>Year 4</p>	<p><u>Developing a simple game</u></p> <p>Develop a game using selection & repetition</p> <p>Understand & use variables</p> <p>Start to debug programs</p> <p>Recognise importance of user interface design</p>	<p><u>Prototyping an interactive toy</u></p> <p>Design & make an on-screen prototype of a computer-controlled toy</p> <p>Understand different forms of input / output (e.g. sensors, switches, motors, lights, speakers)</p> <p>Design, write and debug the control program for</p>	<p><u>Producing digital music</u></p> <p>Use one or more programs to edit music</p> <p>Create & develop a musical composition</p> <p>Develop collaboration skills</p> <p>Develop an awareness of how their work can enhance work in other media</p>	<p><u>Editing / writing HTML</u></p> <p>Understand aspects of how the internet makes the web possible</p> <p>Use HTML tags</p> <p>Use hyperlinks</p> <p>Code up a simple web page</p>	<p><u>Producing a wiki</u></p> <p>Responsibilities when editing other people's work</p> <p>Become familiar with Wikipedia and potential problems</p> <p>Practise research skills</p> <p>Write for a target audience</p>	<p><u>Presenting the weather</u></p> <p>Understand different measurement techniques for weather (analogue & digital)</p> <p>Computer-based data logging</p> <p>Use spreadsheets to create charts</p>

		the toy		Understand some risks in using the web	Develop collaboration and proofreading skills	Analyse data
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