COMPUTING

- National Curriculum
- Projects and Beacons

"Learn. Believe. Achieve."
Resilient, Persistent, Self-Motivated, Creative Risk Takers, Good Citizens, Entrepreneurial

KS1 National Curriculum	KS2 National Curriculum	Internet Safety and Harms (statutory guidance for Physical Health and Mental Wellbeing)
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.	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.	Pupils should know: • that for most people the internet is an integral part of life and has many benefits • about the benefits of rationing time spent online, the risks of excessive time spent on electronic devices and the impact of positive and negative content online on their own and others' mental and physical wellbeing • how to consider the effect of their online actions on others and know how to recognise and display respectful behaviour online and the importance of keeping personal information private • why social media, some computer games and online gaming, for example, are age restricted • that the internet can also be a negative place where online abuse, trolling, bullying and harassment can take place, which can have a negative impact on mental health • how to be a discerning consumer of information online including understanding that information, including that from search engines, is ranked, selected and targeted • where and how to report concerns and get support with issues online

Computing Curriculum Statement of Intent:

We have high ambition for all our children to flourish in today's technological society; we aim to empower them to confidently, safely and responsibly use technology in all aspects of their lives. Computing is brought to life in our classrooms through inspiring technological projects that are relevant to our children and provide a real-world context to their learning.

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EFYS	**Technology** Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes.			
Year 1	**Algorithm Project** Provide opportunity for pupils to **write simple algorithms** in 'human language' (eg) write instructions to make a sandwich	**Beebot Project** Provide opportunity for pupils to navigate a Beebot towards a target **using simple algorithms**	**Digital Work Project** Provide opportunity for pupils to save a file and open it again (eg) type a story **over several sessions**; edit a picture/photo **over several sessions**	**Using Technology Safely** E-Safety underpins all use of technology in our curriculum. It is taught discretely AND integrated into each project. Beacon 1 • Identify where to go for help and support when content or contact feels unsafe • Know how to keep personal information private Beacon 2 • Identify a range of ways to report concerns about content and contact • Explain why we keep personal information private • Identify positive and negative aspects of the internet and its role in daily life • Explore benefits of rationing time online and electronic devices on both mental and physical wellbeing • why social media, some computer games and online gaming, for example, are age restricted Beacon 3 • Identify the most appropriate method for reporting concerns about content and contact • Define acceptable/unacceptable online behaviour • Be aware that online abuse, trolling, bullying and harassment can take place, and discuss ways it can have a negative impact on mental health • Explore the impact of positive and negative content online on their own and others' mental and physical wellbeing
Year 2	**Computing in the Wider World Project** Provide opportunity for pupils to explore how computing is used in the outside world (eg) visitors who talk about computing in their careers; field trip; walk-about	**ScratchJr Project** Provide opportunity for pupils to use block-based programming to create a simple program	**Email Project** Provide opportunity for pupils to share information safely	
Year 3	**Movement Project using Scratch** Provide opportunity for pupils to use block-based programming to create a simple program **using sequence and repetition skills**	**Magazine Project** Provide opportunity for pupils to use a variety of software to produce magazine articles including **graphic design, photography and word processing**	**Quiz Project using Scratch** Explicit teaching of **search engine technology** Provide opportunity for pupils to produce a quiz **using selection skills**	
Year 4	**PenTool Project using Scratch** Provide opportunity for pupils to use block-based programming to create a simple program **using the pen tool to draw**	**Presentation Project** Provide opportunity for pupils to **use appropriate software to present information** (eg) business pitch using PowerPoint	**Micro:Bit Project** Provide opportunity for pupils to build a model and use **block-based programming to control physical systems** within it (eg) control the starting lights/sound for a race; design a working lighthouse	
Year 5	**Game Design Project using Scratch** Provide opportunity for pupils to use block-based programming to create a simple game **using selection and variables skills**	**Book Project** Provide opportunity for pupils to **use software** to create an interactive book (eg) choose-your-own-adventure in Twinery; picture book in Book Creator for iPad; interactive story in PowerPoint	**Animation Project** Provide opportunity for pupils to **use software** to create an animation (eg) stop motion animation using iPads; short film in Scratch; stick figure animation using Pivot animator	
Year 6	**Product Design Project** Explicit teaching of **use of search engines** and **how to discern if information is reliable** Provide opportunity for pupils to use a variety of software to design a product **based on research and data analysis** (eg) design a chocolate bar based on a questionnaire	**Micro:Bit Project** Explicit teaching of **computer networks and real-world computing** Provide opportunity for pupils to build a model and **use block-based programming to control physical systems** within it (eg) design and build a Mars rover	**App Design Project** Provide opportunity for pupils to **select appropriate software** to create an App to solve a real life problem (eg) design a revision app using Scratch; create a remote control light using Microbits	

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	Key Skills and Knowledge		
	Beacon 1	**Beacon 2**	**Beacon 3**
Knowledge	• Identify where to go for help and support when content or contact feels unsafe • Know how to keep personal information private • Recognise different ways computers are used in the wider world	• Identify a range of ways to report concerns about content and contact • Explain why we keep personal information private • Identify positive and negative aspects of the internet and its role in daily life • Explore benefits of rationing time online and electronic devices on both mental and physical wellbeing • Explain why social media, some computer games and online gaming, for example, are age restricted • Understand that Scratch is a block-based programming language • Understand how search engine results are selected and ranked	• Identify the most appropriate method for reporting concerns about content and contact • Define acceptable/unacceptable online behaviour • Be aware that online abuse, trolling, bullying and harassment can take place, and discuss ways it can have a negative impact on mental health • Explore the impact of positive and negative content online on their own and others' mental and physical wellbeing
	Understand the following key vocabulary:	Understand the following key vocabulary:	Understand the following key vocabulary:
	computer: an electronic machine that uses programs **algorithm**: a set of precise and clear instructions that can be in human language or in computer language **program:** an algorithm in computer language used to complete a task **debug:** identify errors in an algorithm and make changes **e-safety:** using technology safely	**block-based programming:** creating a program by putting blocks together instead of writing code in the form of words/letters **sequence**: putting steps in the correct order to complete a task **selection:** where a computer program chooses which set of instructions to do according to whether a condition is met. repetition: repeating some steps of an algorithm more than once **variable:** a piece of information stored in a program which can be accessed again later **data:** information sent to a computer **input:** any data sent to a computer through an input device such as a mouse, keyboard or camera **output**: data sent out from a computer through an output device such as a monitor or speakers.	**computer network**: a group of computers connected together which can share information with each other (eg) the internet, our school intranet **decomposition:** breaking a big task down into smaller parts which are more manageable **reliability:** how trustworthy a given piece of information is, given its source.
Skills	• Log in using a Username and Password • Save and open work • Create an algorithm to achieve a task • Debug your algorithm • Predict what a simple program will do • Translate an algorithm into a program	• Combine a variety of software to accomplish a given goal • Collect and present data • Design and write programs that accomplish specific goals • Debug programs that accomplish specific goals • Explain how a simple program works • Use search engines effectively and understand how search engine results are selected, ranked and targeted	• Select the most appropriate software to accomplish a given goal • Analyse and evaluate collected data • Use decomposition to break a problem into small, solvable steps • Choose the most appropriate method for debugging a program • Use relevant technical vocabulary to explain how a simple program works • Evaluate the reliability of digital content found through search engines