Computing Progression

Vision:

To be digital literate by using technology in new and imaginative ways to become creative problem-solvers by collaborating and presenting media in an ever-changing technological world.

At The Rivers CofE Multi Academy Trust, we aim to integrate technology to empower pupils to have the necessary skills and understanding to become creative problem-solvers. We want to spark pupils' curiosity, enabling them to be digitally literate in using a variety of hardware and software to collaborate, present and become critical thinkers. Technology has the power to transform learning, and we aim to enable all pupils to succeed by ensuring they are responsible global citizens who can use technology in new and imaginative ways.

Implementation

Our curriculum is carefully structured to develop pupils' computational thinking concepts and approaches through a variety of unplugged [without a computer], screen or physical activities. We have discrete computing lessons taught weekly but aim to embed technology as a tool to enhance pupils' learning across the breadth of the curriculum.

The Computing Curriculum is comprised of three key areas of study: Computer Science; Digital Literacy and Information Technology.

Computer Science is the foundation element of the computing curriculum. Pupils in EYFS initially write and follow algorithms, leading to programming robots around mazes to eventually, in UKS2, coding maths quizzes and a platform game using a block-based coding language [Scratch]. Pupils are encouraged to develop key computational thinking strategies such as tinkering, decomposition and debugging to ensure they become critical thinkers and apply these skills across the breadth of the curriculum. Pupils also study the hardware components of devices and how simple networks work.

Information Technology units are designed for pupils to solve problems with the aid of technology, for instance, designing a new playground, making a story come to life through animation, editing images and audio for a meaningful purpose. We aim for pupils to leave The Rivers CofE Multi Academy Trust with a variety of skills across devices to enable them to make the appropriate choices when deciding how to present or solve problems with the aid of information technology.

Digital Literacy. Pupils will learn to be responsible users of technology to engage and thrive in the digital world. It is at the forefront of all lessons and is embedded through class assemblies and e-safety days throughout the year. Pupils from EYFS to Year 6 are taught the underpinning knowledge and behaviours to be discerning users of technology so that they can be critical thinkers and be aware of who to talk to when upset or worried about what they have encountered regardless of the device, platform or app. Our curriculum is guided by the latest <u>Teaching online safety in school guidelines by the Department of</u> Education: Education for a Connected World Framework: Keeping Children Safe in Education: CEOP Thinkuknow Programme as well as Be Internet Matters Program.

	EYFS	Key Stage 1	Lower Key Stage 2	Upper Key Stage 2	
National	Personal, Social and Emotional Development	Computer Science	Computer Science		
curriculum	 Show resilience and perseverance in the face of a challenge. 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. Physical Development Develop their small motor skills so that they can use a range of tools competently, safely and confidently. 	 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. Information Technology 	 Design, write and debug programs that accosimulating physical systems; solve problems Use sequence, selection, and repetition in programs of input and output. Use logical reasoning to explain how some scorrect errors in algorithms and programs. Understand computer networks, including transition to the services, such as the world wide w Appreciate how [search] results are selected information Technology Use search technologies effectively. 	omplish specific goals, including controlling or s by decomposing them into smaller parts. programs; work with variables and various simple algorithms work and to detect and the internet, and how they can provide eb. d and ranked.	

	 Know and talk about the different factors that support their overall health and wellbeing e.g. sensible amounts of 'screen time'. Expressive Arts and Design Explore, use and refine a variety of artistic effects to express their ideas and feelings. Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. 		 Use technology purposefully to create, organise, store, manipulate and retrieve digital content Digital Literacy 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 on the internet or other online technologies. 	 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. Digital Literacy Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. Be discerning in evaluating digital content. Understand the opportunities networks offer for communication and collaboration. 			
United Development Goal and link:	2 mmer	How to support local farmers and producers.					
	6 CLUS HACEB Red Substation	Every person has access to clea	on has access to clean and safe water.				
		To understand the need to sav	e energy.				
	8 Mart and an	Knowing how to promote local	culture to encourage tourism.				
	9 deter weeken S deter weeken	Understand the impact of prov To develop an understanding c	viding internet access for all people. of how infrastructure and innovation from the pas	ernet access for all people. Ifrastructure and innovation from the past and present can inform future choices.			
	13	Learn more about climate char All nations must work togethe	mate change and the impact the human race has had on it. K together to combat climate change, for the benefit of people everywhere.				
	16 H	There is a need to protect plan	it and animal life on land.				

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Computer Science:	 To know how to repeat an action with technology to trigger a specific outcome. To be able to recognise the success or failure of an action. To be able to follow simple instructions to control a digital device. To know that we control computers. To be able to input a short sequence of instructions to control a device. 	 To be able to explain that we control computers by giving them instructions. To be able to create a simple program e.g. to control a floor robot. To be able to create a simple algorithm. To be able to predict the outcome of a simple algorithm or program. To be able to explain what an algorithm is <i>a sequence of instructions to make something happen.</i> To be able to recognise that the order of instructions in an algorithm is important. To be able to debug an error in a simple algorithm or program e.g. for a floor robot. 	 To be able to explain that computers have no intelligence and we have to program them to do things. To be able to create a program with multiple steps e.g. to control a floor robot. To be able to predict the outcome of an algorithm or program with multiple steps. To be able to use loops and know they repeat sections of code. To be able to identify and correct errors in a given algorithm or program, and recognise the term debugging. To be able to plan out a program by creating an algorithm and evaluate its success. 	 To be able to predict the outcome of a block or text-based program (Scratch/Logo). To be able to modify an existing program successfully, e.g. change background, number of times things happen. To be able to trigger code with different events (when flag is click, when sprite is clicked) To be able to identify repeated steps in a program or algorithm. To be able to plan and write an algorithm to run a program. To be able to identify errors in a block or text-based program and correct them. To be able to use different inputs to control a program. 	 To be able to create a program using a range of events/inputs to control what happens. To be able to decompose a problem into smaller parts to help solve it. To be able use a count-controlled loop (e.g. repeat 3 times) to make a program more efficient. To be able to use a forever loops in programs. To be able to design a program for a purpose. To be able to debug common mistakes in programs. 	 To recognise that different solutions may exist for the same problem. To be able to predict what will happen in a program or algorithm when the input changes (e.g. sensor, data or event). To be able to use selection in algorithms in programs to alter what happens when a condition changes, e.g. ifthen. To be able to create programs including repeat until loops. To be able to evaluate a program and make improvements to the code or design accordingly. 	 To be able to design and program a physical computing system that uses sensors. To be able to plan out a program in detail, including task, algorithm, code and execution level. To be able to debug common errors in programs and explain how to fix them. To be able to create and use simple variables, e.g. to keep score. To know key concepts (sequence, selection, repetition and variables) in a range of languages and contexts. To be able to name a range of sensors in physical systems.
	Computer components and networks	Computer components and networks	Computer components and networks	Computer components and networks	Computer components and networks	Computer components and networks	Computer components and networks
	 To know the basic parts of a computer, e.g. mouse, screen, keyboard. 	• To be able to recognise and name a range of digital devices, e.g. laptop, phone, games console.	 To know that a range of digital devices contain computers, e.g. phone, games console, smart speaker. 	 To be able to describe what a computer is (input > process > output). To be able to explain the difference 	 To be able to recognise that school computers are connected together on a network. To be able to explain 	 To know the difference between a search engine and a web browser. Explain the basics of how search engines work, 	 To explain the basic function of an operating system. To know common file types and extensions e.g. jpeg, png, doc,

			 To be able to identify and use input devices, e.g. mouse, keyboard; and output devices, e.g. speakers, screen. 	between input and output devices on a computer.	 that the internet is made up of computers and other digital devices connected together all around the world. To recognise that you use a web browser to access information stored on the internet. 	 and that different search engines may give different results. To be able to perform complex searches for information using advanced settings in search engines. 	 wav To name a range of Internet services, e.g. email, VOIP (e.g. Skype, FaceTime), World Wide Web, and what they do. To explain the difference between physical, mobile and wireless networks.
Information	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Technology:	• To be able to use	• To be able to recognise	• To be able to open key	• To be able to save and	• To know that you can	• To be able to type	• To be able to type
	technology to explore	different forms of	applications	open tiles (e.g. in	organise tiles using	using tingers on both	etticiently using both
	and access digital	aigital content, i.e. text,	independently.	shared folder).	tolders.	nands.	nands.
	content.	image, video and	• To be able to save and	 To be able to save files 	• To be able to delete	Io be able to use	 To be able to use a
	Io be able to operate a	audio.	open files to/from a	with appropriate	and move files.	common keyboard	range of keyboard
	aigital device with	IO be able to select a	given folder.	names.	• To be able to use key	snortcuts, e.g. ctrl C	snortcuts.
	support to fulfil a task	specific task e.g. to	Io be able to add an	Io be able to use a	parts of a keyboard	(copy), ctri V (paste).	 To recognise that different devices may
		take a nhoto	from a given	keyboard effectively to	effectively, e.g. shift,	• TO be able to use folders to organise	have different
	simple digital content	• To be able to log on to	folder/source	type text.	arrow keys, delete).	files	operating systems
	e.g. digital art	the school computer /	• To be able to resize an	 TO be able to use left-, right- and double-click 	 To be able to copy and naste text or images in 	• To be able to search for	• To be able to organice
	• To be able to use	unlock the school	image in a document	on the mouse or	a document	an application on a	files effectively using
	different digital	tablet with support.	• To be able to canture	navigate a tablet using	• To be able to crop an	computer/tablet.	folders and files names.
	devices.	• To be able to identify	media independently	touch.	image and apply simple	• To be able to identify	• To be able to use the
	 To know that you can 	the basic parts of a	(e.g. take photos,	 To be able to add an 	filters.	, and use appropriate	advanced search tools
	access content on a	computer, e.g. mouse,	record audio).	image to a document.	 To be able to use a 	hardware and software	when using a search
	digital device.	keyboard, screen.	• To be able to create	 To be able to resize 	search engine to find	to fulfil a specific task.	engine to find specific
	 To be able to use a 	• To be able to use a	simple digital content	and move an image in	specific information.	 To be able to remix and 	information and
	mouse, touchscreen or	suitable access device	for a purpose by adding	a document.	 To be able to design 	edit a range of existing	images.
	appropriate access	(mouse, keyboard,	text, images and	 To be able to use a 	and create digital	and their own media to	• To be able to select,
	device to target and	touchscreen, switch) to	shapes.	search engine to find	content for a specific	create content.	combine and remix a
	select options on	access and control an	 To recognise that we 	simple information.	purpose using the most	• To be able to consider	range of media to
	screen.	activity on a computer.	can use technology to	 To be able to present 	appropriate piece of	the audience when	create original content.
			•				

	 applications independently. To be able to save and open files with support. To be able to create digital content by adding shapes and text. To choose media from a selection (e.g. images, video, sound) to present information on a topic. To recognise that you can edit digital content to change its appearance To explain that you can find out information from a website. To be able to select basic tools/options to change the appearance of digital content, e.g. filter on an image / font / size of paintbrush. To be able to combine media with support to present information, e.g. text and images. To be able to take a screenshot. 	 record and playback audio or take and view photographs. To be able to apply edits to digital content to achieve a particular effect, e.g. emphasise part of a text. To be able to present ideas and information by combining media, e.g. text and images. To be able to identify the common features of digital content, e.g. title, images. 	 ideas and information by combining media independently, e.g. text and images. To be able to design and create simple digital content for a purpose/audience, e.g. poster. To be able to edit digital content to improve it, e.g. resize text, rotate shapes and change colour. To be able to explain why we use different types of media to convey information, e.g. text, image, audio, video. 	 software, e.g. poster, animation. To be able to edit digital content to improve it according to feedback. To be able to identify the features of a good piece of digital content and apply these in own design. To explain the benefits of using technology to present information. 	 digital content. To be able to evaluate their own content against success criteria and make improvements accordingly. To be able to record and playback a recording. To be able to select an audio clip to trim and apply effects. To be able to layer audio samples. To be able to delete a section of audio. To be able to create and edit a video clip by editing, trimming, splitting, layering and adding special effects such as green screen. 	 all steps of the design process when creating content (e.g. identify problem, plan, create, evaluate, share.) To be able to identify the most effective tools to present information for a specific purpose. To be able to evaluate existing digital content in terms of effectiveness and design. To know how to modify a 3D object in a computer programme by: Repositioning rotating in three dimensions resizing duplicating deleting
	Data	Data	Data	Data	Data	Data • To know what a
	 To be able to present simple data using pictograms. To be able to collect simple data (eg. Likes/dislikes). 	 To be able to recognise charts, pictograms and branching databases, and know why we use them. 	 To be able to recognise charts, pictograms and branching databases, and know why we use them. To be able to create a branching database. To explain some benefits of using a 	• To be able to draw conclusions from information stored in a database, chart or table.	 To explain the difference between data and information. To explain that different computer programs work with different types of data, e.g. text, number, video. 	 spreadsheet is and what it is used for. To be able to use simple formulae in a spreadsheet to find out information from a set of data. To be able to collect data for a purpose and

				computer to create charts and branching databases.			 plan out a spreadsheet to present it effectively, using relevant formulae. To be able to produce graphs from data in a spreadsheet to answer a question. To be able to analyse and evaluate data and information in a spreadsheet, chart or database.
Digital Literacy:	 EYFS To know that some online content is inappropriate. To be aware that information can be public or private. To know to tell an appropriate adult if they see something on the computer that upsets them. 	 Year 1 To be able to use a simple password when logging on, where relevant. Explain why we use passwords. To explain what personal information is and give examples e.g. name, image. To be able to recognise that digital content belongs to the person who created it. To be able to talk about their use of technology at home. 	 Year 2 To be able to remember a simple password to log onto the computer or a website. Identify rules for acceptable use of technology in school. To be able to explain what personal information is and the need to keep it private. To understand that spending a lot of time in front of a screen can be unhealthy. To be able to explain the rules for acceptable use of technology. 	 Year 3 To explain why we need to keep our password safe. To be able to explain that digital content belongs to the person who first created it, but we can give permission for others to use it. To explain that games and films have age ratings. To be able to list different types of personal information and when to share it and when not to. To understand that some people lie about who they are online. 	 Year 4 To be able to remember and use an individual password. To recognise what kinds of websites are trustworthy sources of information. To explain the benefits and risks of different apps and websites. To explain that the media can portray groups of people differently To explain why we should use copyright- free content in our work. To be able to explain why my personal information needs to be kept private [addresses, passwords]. To be able to explain that digital content belongs to the person who has created it 	 Year 5 To know where to find copyright free images and audio, and why this is important. To be able to critically evaluate websites for reliability of information and authenticity. To be able to demonstrate responsible use of online services, and know a range of ways to report concerns. To explain what makes a strong password. To be able to use a search engine effectively to find information and images. To explain the benefits and risks of sharing data online. To be able to identify and explain why their 	 Year 6 To know what makes a strong password and why this is important at school and in the wider world. To be able to explain that algorithms are used to track online activities with a view to targeting advertising and information. To understand that there are laws around the purchase of games; the production, sending and storage of images; what is written online; and around online gambling. To be able to explain why their personal information needs to be kept private and the potential impact

	 and that not all information needs to be kept private and the potential impact on their digital footprint. To be able to recognise suspicious behaviour in phishing emails, text messages and social media. To know who they would go to if they had concerns over online contact. To be able to be discerning about what information they gather, checking the validity of data and showing due respect to privacy and copyright. To identify how technology has impacted the world we live in. To be able to engage in online communities safely, respectfully and responsibly.
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