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 Teaching online safety in school guidelines by the Department of 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 curriculum	**Personal, Social and Emotional Development** • 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**	**Computer Science** • 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.	**Computer Science** • 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, and how they can provide multiple services, such as the world wide web. • Appreciate how [search] results are selected and ranked.	

	Develop their small motor skills so that they can use a range of tools competently, safely and confidently. • 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.	**Information Technology** • 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.	**Information Technology** • Use search technologies effectively. • 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:		How to support local farmers and producers.
		Every person has access to clean and safe water.
		To understand the need to save energy.
		Knowing how to promote local culture to encourage tourism.
		Understand the impact of providing internet access for all people. To develop an understanding of how infrastructure and innovation from the past and present can inform future choices.
		Learn more about climate change and the impact the human race has had on it. All nations must work together to combat climate change, for the benefit of people everywhere.

		There is a need to protect plant and animal life on land.
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	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 – *a sequence of instructions to make something happen*. • 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 know that the instructions in an algorithm need to be clear and unambiguous. • 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 know what an algorithm is, and that when inputted on a computer it is called a program. • To be able to plan out a program by creating an	• 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) • Identify repeated steps in a program or algorithm. • To be able to create examples of algorithms containing count-controlled loops. Use a count-controlled loop (e.g. repeat 3 times) to make a program more efficient. • To know and be able to write an algorithm to run a program. • To be able to use a forever loop in a program or algorithm. • To be able to identify errors in a block or	• To be able to create a program using a range of events/inputs to control what happens. • To know that we can decompose a problem into smaller parts to help solve it. • To know when to use forever loops and count-controlled loops, and use them in programs. • To be able to use selection in algorithms in programs to alter what happens when a condition changes, e.g. if…then. • To be able to design a program for a purpose. • To be able to decompose into parts and create an algorithm for each one. • To be able to recognise common mistakes in	• To be able to name a range of sensors in physical systems. • To know 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 two-way selection in programs and algorithms, i.e. if…then…else. • To know what variables are in a program and what they do. • To be able to create programs including repeat until loops. • To be able to create and use simple variables, e.g. to keep score. • 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 recognise and use procedures (sub-routines) in programs. • To be able to plan out a program in detail, including task, algorithm, code and execution level. • To be able to explain common errors in • programs and how to fix them. • To be able to combine a variable with relational operators (< = >) to determine when a program changes, e.g. if score >5, say "well done". • To know key concepts (sequence, selection, repetition and variables) in a range of languages

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
			algorithm and evaluate its success.	text-based program and correct them. • To know that different inputs can be used to control a program.	programs and how to correct them.		and contexts. • To be able to create an algorithm for a physical system containing a sensor.
	Computer components and networks • To know the basic parts of a computer, e.g. mouse, screen, keyboard.	**Computer components and networks** • To be able to name a range of digital devices, e.g. laptop, phone, games console.	**Computer components and networks** • To be able to recognise what a computer is (input > process > output). • To know that a range of digital devices contain computers, e.g. phone, games console, smart speaker. • To know what the basic parts of a computer are used for. • To be able to identify and use input devices, e.g. mouse, keyboard; and output devices, e.g. speakers, screen. • To know that you can search for information on the internet.	**Computer components and networks** • To be able to describe what a computer is (input > process > output). • To know the difference between input and output devices on a computer. • To know that school computers are connected.	**Computer components and networks** • To know that school computers are connected together on a network. • To know that the internet is made up of computers and other digital devices connected together all around the world. • To know that you use a web browser to access information stored on the internet.	**Computer components and networks** • To know the difference between the internet and the World Wide Web. • To know the difference between a search engine and a web browser. Explain the basics of how search engines work, and that different search engines may give different results. • To be able to perform complex searches for information using advanced settings in search engines.	**Computer components and networks** • To know the basic function of an operating system. • To know common file types and extensions e.g. jpeg, png, doc, wav • To know a range of Internet services, e.g. email, VOIP (e.g. Skype, FaceTime), World Wide Web, and what they do. • To know the difference between physical, mobile and wireless networks.
Information Technology:	**EYFS**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
	• To be able to use technology to explore and access digital content. • To be able to operate a	• To be able to recognise different forms of digital content, i.e. text, image, video and audio.	• To be able to open key applications independently. • To be able to save and open files to/from a	• To know where to save and open files (e.g. in shared folder). • To be able to save files with appropriate	• To know that you can organise files using folders. • To be able to delete and move files.	• To be able to type using fingers on both hands. • To be able to use common keyboard	• To be able to type efficiently using both hands. • To be able to use a range of keyboard

					shortcuts, e.g. ctrl C (copy), ctrl V (paste).	shortcuts.

Column 1:
- digital device with support to fulfil a task e.g. take a photo.
- To be able to create simple digital content, e.g. digital art.
- To be able to use different digital devices.
- To know that you can access content on a digital device.
- To be able to use a mouse, touchscreen or appropriate access device to target and select options on screen.

Column 2:
- To be able to select a digital device to fulfil a specific task, e.g. to take a photo.
- To be able to log on to the school computer / unlock the school tablet with support.
- To be able to identify the basic parts of a computer, e.g. mouse, keyboard, screen.
- To be able to use a suitable access device (mouse, keyboard, touchscreen, switch) to access and control an activity on a computer.
- To be able to open key applications independently.
- To be able to save and open files with support.
- To be able to create digital content by adding shapes and text.
- Choose media from a selection (e.g. images, video, sound) to present information on a topic.
- To know that you can find out information from a website.
- To know that you can edit digital content to change its appearance.
- To be able to select basic tools/options to change the appearance

Column 3:
- given folder.
- To be able to add an image to a document from a given folder/source.
- To be able to resize an image in a document.
- To be able to highlight text and use arrow keys.
- To be able to capture media independently (e.g. take photos, record audio).
- To be able to create simple digital content for a purpose by adding text, images and shapes.
- To know that we can use technology to 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.

Column 4:
- names.
- To be able to use a keyboard effectively to type in text.
- To be able to use left-, right- and double-click on the mouse or navigate a tablet using touch.
- To be able to add an image to a document.
- To be able to resize and move an image in a document.
- To be able to use a search engine to find simple information.
- To be able to present 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 know why we use technology to create digital content.
- To know why we use different types of media to convey information, e.g. text, image, audio, video.

Column 5:
- To be able to use key parts of a keyboard effectively, e.g. shift, arrow keys, delete).
- To know how to copy and paste text or images in a document.
- To be able to crop an image and apply simple filters.
- To be able to use a search engine to find specific information.
- To be able to design and create digital content for a specific purpose using the most appropriate piece of 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 know the benefits of using technology to present information.

Column 6:
- shortcuts, e.g. ctrl C (copy), ctrl V (paste).
- To be able to use folders to organise files.
- To be able to search for an application on a computer/tablet.
- To be able to identify and use appropriate hardware and software to fulfil a specific task.
- To be able to remix and edit a range of existing and their own media to create content.
- To be able to consider the audience when designing and creating digital content.
- To be able to evaluate their own content against success criteria and make improvements accordingly.

Column 7:
- shortcuts.
- To know that different devices may have different operating systems.
- To be able to organise files effectively using folders and files names.
- To be able to use the advanced search tools when using a search engine to find specific information and images.
- To be able to select, combine and remix a range of media to create original content.
- To be able to consider 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.

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	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. **Data** • To be able to present simple data using pictograms.	**Data** • To be able to recognise charts, pictograms and branching databases, and know why we use them. • To be able to identify an object using a branching database • To be able to create a branching database.	**Data** • To be able to recognise charts, pictograms and databases, and know why we use them. • To be able to present information using a suitable chart • To be able to explore a record card database to find out information. • To be able to use filters in a database to find out specific information. • To be able to name the key parts of a database, e.g. record, field, search. • To know some benefits of using a computer to create charts and databases. • To know that search engines store information in databases.	**Data** • To be able to draw conclusions from information stored in a database, chart or table.	**Data** • To know the difference between data and information. • To know that different programs work with different types of data, e.g. text, number, video.	**Data** • To know what a 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 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.
EYFS	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**

Digital Literacy:							
	• 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.	• To be able to use a simple password when logging on, where relevant. Explain why we use passwords. • To know examples of personal information e.g. name, image. • To know who to tell if concerned about content or contact online. • 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.	• 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 know what personal information is and the need to keep it private. • To know that spending a lot of time in front of a screen can be unhealthy. • To know that some information found online may not be true.	• To know why we need to keep our password safe. • To know that digital content belongs to the person who first created it, but we can give permission for others to use it. • To know when to share personal information and when not to. • To know that some people lie about who they are online. • To know that games and films have age ratings.	• To be able to remember and use an individual password. • To know what kinds of websites are trustworthy sources of information. • To know the benefits and risks of different apps and websites. • To know that the media can portray groups of people differently. Can rate a game or film they have made and explain their rating. o To know where to find copyright-free content, e.g. Creative Commons images. • To be able to identify and know why my personal information needs to be kept private [*addresses, passwords*]. • To know acceptable and unacceptable behaviour online. • To know that digital content belongs to the person who has created it and that not all information found online is true. • To be able to recognise suspicious behaviour in phishing	• 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 know what makes a strong password. • To know that there is more than one search engine, and they may produce different results. • To be able to use a search engine effectively to find information and images. • To know the benefits and risks of sharing data online. • To be able to identify and explain why their personal information needs to be kept private and the potential impact on their digital footprint. • To know what is acceptable and	• To know what makes a strong password and why this is important at school and in the wider world. • To know how algorithms are used to track online activities with a view to targeting advertising and information. • To know 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 know why their personal information needs to be kept private and the potential impact on their digital footprint. • To be able to identify acceptable and unacceptable behaviour online. • To know how to report concerns over online contact. • To be able to engage in online communities safely, respectfully and responsibly.

					emails, text messages and social media. • To know who to go to if they had concerns over online contact.	unacceptable behaviour online. • To know who they would go to if they had concerns over online contact. • To be able to engage in online communities safely, respectfully and responsibly. • 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 be able to be discerning about what information they gather, checking the validity of data and showing due respect to privacy and copyright.