Computing Yearly Overview

	Autumn		Spring		Summer	
Reception	**Awesome Autumn**	**Winter Warmers**	**Super Space**	**Spring Time**	**Boats Ahoy**	**Summer fun**
	Explore patterns in Garlands Galore, create a leaf labyrinth and make Pumpkin Soup using computational thinking skills	Snowmen scarves and patterns, creating igloos and bird feeders- all take centre stage in our three winter themed activities.	Includes 3 space themed activities to develop pupils computational thinking and problem solving skills. Include creating algorithms and spotting patterns.	Three Spring themed activities see the children make a Rabbit run, create Junk scarecrows and explore sequencing whilst planting seeds.	Takes children on a journey of discovery as they investigate boats.	Children explore their surroundings and get creative, take a journey and make a map, and discover seaside tangrams.
Year 1	**Beebot Explorers**	**Digital Painting**	**Just Dance**	**Clean water**	**Wildlife Data**	**Technology around us**
	Learn to control a BeeBot by sequencing algorithms and predicting the program outcomes.	Choose appropriate tools in a program to create art by combining shapes to plan a playground and design their own emoji.	Plan, write and sequence algorithms to create a programme using unplugged and block-based coding languages.	Plan, design and create their own drinks labels with the aid of a computer.	Lean to sort, group and compare data by looking at the different wildlife in the local habitat around school.	To identify the different types of technology around them and the impact it has on their daily lives.
Year 2	**Fundamentals in Coding**	**Art attack**	**Robot algorithms**	**Computer museum**	**Animals**	**Investigators**
	Explore computational thinking skills such as decomposition and sequencing in different programming languages.	Explore how to capture and manipulate shapes and images using different art packages.	Write, plan, sequence, and debug algorithms, in both using a robotic device (Beebot) and a block-based coding language (Scratch Jnr).	Understand and discover the impact of technology on the world and identify how it helps us by collating a museum of old hardware, including phones, laptops, and tablets.	Explore how to combine text and images to recreate animal patterns. Also explore the impact of sharing information online.	Plan and run an investigation by collecting data from a variety of sources and presenting it in pictograms and charts.
Year 3	**Sequencing sounds**	**Be Internet Smart**	**Events and actions in programmes**	**Branching Database**	**Animation**	**Connecting Computers**
	Create sequences in a block-based programming language (Scratch) to make music using different forms of input.	Know how to be internet smart by exploring what information we should share but also keep private on the internet.	Write algorithms and programs that use a range of events to trigger sequences of actions.	Collect, organise and sort data into a branching database.	Explore different types of animation before planning a storyboard and creating stop-time animation.	Know that digital devices have inputs, processors and outputs and how devices can be connected to make networks.
Year 4	**Cryptography unit**	**Repetition in Shapes**	**Top Trumps**	**Be Internet Alert**	**Repetition in Games**	**How does the internet work?**
	Explore how computers interpret data from Binary and how the invention of the very first computer has impacted the world.	Use a block-based programming language to explore count-controlled loops when drawing shapes.	Create your own mythical underwater animal using image editing software to combine and modify images. Enter data on a database to compare creature features.	Understand how and why we need to be alert online and what to do if we are concerned about playing a game online.	Use a block-based programming language to explore controlled and infinite loops when creating a game.	Know that the internet is a global network of computers, servers and routers that are interconnected.
Year 5	**Audio engineers**	**Real or Fake & Play Like Share**	**Selection in Quizzes**	**Computing Influencers**	**Crab maze**	**Visual Storytelling**
	Be able to remix, edit and record audio to create a radio jingle to promote climate change.	Know how we communicate safely online, whether it is through online games, videos or text messages and the implications of negative actions online.	Use a block-based programming language to selection by coding a quiz.	Explore how we research and check information online is accurate before creating an eBook all about key influencers in computing and the impact they have had on the world.	Use a block-based programming language to explore selection and variables when creating their own game.	Plan, record, remix and edit a video to create a powerful visual story about the impact of global warming.
Ye	**3D modelling**	**Variables in Games**	**Company Launch**	**Be internet kind and brave & #Life Skills**	**Sphero**	**What is inside a Computer?**

	Create a 3D model of a keyring by using CAD design software to promote a local business. Use formulas in a spreadsheet to calculate cost and profit.	Utilise variables when designing and coding a game in a programming language.	Combine and remix media to create an app prototype to fulfil a design brief.	Explore how to be kind on the internet as well as how to report people or sites when things do not go to plan.	Plan, code and control a physical computing robotic around a series of challenges by using conditionals, loops, and variables.	Explore the components of a computer and consider the impact of technology and what future it has in the world around us.

Reception Overview

		Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Reception	**Unit**	**Awesome Autumn** Explore patterns in Garlands Galore, create a leaf labyrinth and make Pumpkin Soup using computational thinking skills	**Winter Warmers** Snowmen scarves and patterns, creating igloos and bird feeders- all take centre stage in our three winter themed activities.	**Super Space** Includes 3 space themed activities to develop pupils computational thinking and problem solving skills. Include creating algorithms and spotting patterns.	**Spring Time** Three Spring themed activities see the children make a Rabbit run, create Junk scarecrows and explore sequencing whilst planting seeds.	**Boats Ahoy** Takes children on a journey of discovery as they investigate boats.	**Summer fun** Children explore their surroundings and get creative, take a journey and make a map, and discover seaside tangrams.
	Recurring concepts	Knowledge Innovation	Knowledge Innovation	Knowledge Innovation Partnership	Knowledge Innovation	Knowledge Innovation Partnership	Knowledge Innovation Sustainability
	United Nations Sustainable Goals						 There is a need to protect plant and animal life on land.
	Disciplinary Concepts	Computational Thinking Algorithms	Computational Thinking Algorithms	Design Impact	Computational Thinking Algorithms Computer Systems	Computational Thinking Algorithms Computer Systems	Impact Design
	Sticky Knowledge	• To know the basic parts of a computer, e.g. mouse, screen, keyboard. • To know there are different types of computers (iPads, laptops, game consoles).	• To know that we control computers by giving them instructions. • To know instructions must be in an order.	• To know how to take a picture. • To know how to review a picture I have taken. • To interact with computer inputs (touchscreen, keyboard or mouse). • To know who to talk to when we are scared or worried about something we have seen on a computer or tablet.	• To interact with computer inputs (touchscreen, keyboard or mouse). • To use a mouse or a touch screen to move an image. • To use a mouse or a touchscreen for mark making.	• To know that we control computers by giving them instructions. • To know instructions must be in an order. • To input instructions on a robotic device. • To know an algorithm is a precise set of instructions.	• To know how to take a picture and video. • To move and rotate shapes. • To use a mouse or a touchscreen for mark making. • To add text to a document.
	Progression	**Computer Science** • To know that we control computers. **Computer components and networks** • To know the basic parts of a	**Computer Science** • To be able to explore different technology. • To know how to repeat an action with technology to trigger a specific outcome. • To be able to follow simple	**Information Technology** • To be able to operate a digital device with support to fulfil a task e.g. take a photo. • To be able to create simple digital content, e.g. digital	**Information Technology** • To be able to use technology to explore and access digital content. • To be able to operate a digital device with support to fulfil a task e.g. take a	**Computer Science** • To be able to explore different technology. • To know how to repeat an action with technology to trigger a specific outcome. • To be able to recognise the	**Information Technology** • To be able to use technology to explore and access digital content. • To be able to operate a digital device with support to fulfil a task e.g. take a

		computer, e.g. mouse, screen, keyboard. • To be able to explore different technology. **Information Technology** • To be able to operate a digital device with support to fulfil a task e.g. take a photo.	instructions to control a digital device. • To know that we control computers.	art. • To be able to use different digital devices. • To be able to use a mouse, touchscreen or appropriate access device to target and select options on screen. **Digital Literacy** • To know that some online content is inappropriate. • To know that information can be public or private. • To know to tell an appropriate adult if they see something on the computer that upsets them.	photo. • To be able to create simple digital content, e.g. digital art. • To be able to use different digital devices. • To be able to use a mouse, touchscreen or appropriate access device to target and select options on screen.	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.	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.
	Language	Computer, tablet, screen, mouse, speakers, games console, iPad, button, input, camera, photography, replay, video, touch, close.	Technology, sequence, order, instruction, outcome, control.	Photo, digital, online, information, private, true, false, digital device.	Technology, digital, device, mouse, touchscreen, photo, select.	Instructions, robot, sequence, technology, control, internet, algorithm, computer, iPad/tablet, app (application).	Technology, digital, device, mouse, touchscreen, photo, select.
	Programs and Software	Hello Ruby book	Hello Ruby book	iPads Keynote or PowerPoint	iPads	Beebots	iPad or a digital camera.
	Links to other subjects in Rivers Framework			Digital Art			Digital Art

Year 1 Overview

		Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1	**Unit**	**Beebot Explorers**	**Digital Painting**	**Just Dance**	**Clean water**	**Wildlife Data**	**Technology around us**
	Driving question	*Can you code a robot?*	*How do I use technology to create artwork?*	*Can you code a dance routine?*	*Why should everyone have clean water?*	*What wildlife lives around school?*	*What is technology is used for?*
	Outcome	Learn to control a BeeBot by sequencing algorithms and predicting the program outcomes.	To create digital art by taking photographs, drawing using different brushes and rotating shapes to create your own masterpiece.	Plan, write and sequence algorithms to create a programme using unplugged and block-based coding languages.	Plan, design and create your own drinks labels with the aid of a computer.	Lean to sort, group and compare data by looking at the different wildlife in the local habitat around school.	Identify the different types of technology around them and the impact it has on their daily lives.
	Recurring concepts	Knowledge Innovation Partnership	Knowledge Innovation	Knowledge Innovation Partnership	Knowledge Equality Innovation Sustainability	Knowledge Sustainability	Knowledge Equality Innovation Legacy Sustainability
	United Nations Sustainable Goals						
	Substantive Concepts	Computer systems Effective use of tools Programming and Algorithms	Creating media Design and development Effective use of tools Safety and security	Effective use of tools Programming and Algorithms	Creating media Design and development Effective use of tools Safety and security	Data and information Effective use of tools	Computer networks Computer systems Effective use of tools Impact of technology Safety and security
	Sticky Knowledge	• To know that we control computers by giving them instructions. • To know an algorithm is a step by step set of instructions.	• To know digital content can be images, text, video or audio. • To know that computers can create and edit digital content. • To know that digital content belongs to the person who created it.	• To know that we control computers by giving them instructions. • To know an algorithm is a step by step set of instructions. • To know a loop repeats a set of code.	• To know a computer stores information and that it can be edited using different software. • To know that photos can be shared online. • To identify up to four adults in my life who I trust and how to ask them for help if I have a problem online • To know and explain that objects can be grouped by similarities	• To know what data is. • To know data can be grouped and labelled.	• To know and identify a range of technology. • To name the main parts of a computer. • To know different computer inputs: mouse, keyboard, touch, webcam. • To know different computer outputs: sound, screen. • To know how to use technology safely. • To know who to talk to if they are worried or concerned about something they have seen online.
	Progression	**Computer Science** • To be able to explain that we control computers by	**Information Technology** • To be able to recognise different forms of digital	**Computer Science** • To be able to explain that we control computers by	**Information Technology** • To be able to recognise different forms of digital	**Data** • To be able to sort, organise and compare data.	**Computer Science** • To be able to name a range of digital devices, e.g.

		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 debug an error in a simple algorithm or program e.g. for a floor robot.	content, i.e. text, image, video and audio. • 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 use a suitable access device (mouse, keyboard, touchscreen, switch) to access and control an activity on a computer. • To be able to save and open files with support. • To be able to create digital content by adding shapes and text. • To know that you can edit digital content to change its appearance. • 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 take a screenshot. **Digital Literacy** • To be able to recognise that digital content belongs to the person who created it.	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.	content, i.e. text, image, video and audio. • 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. • To 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 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.	**Information Technology** • To be able to recognise different forms of digital content, i.e. text, image, video and audio. • 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 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. • To be able to combine media with support to present information, e.g. text and images.	laptop, phone, games console. • To be able to identify the basic parts of a computer, e.g. mouse, keyboard, screen. • To be able to use a simple password when logging on, where relevant. Explain why we use passwords. • To know that you can find out information from a website. **Digital Literacy** • 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.

					Digital Literacy • To know who to tell if concerned about content or contact online. • To be able to talk about their use of technology at home.		
	Language	Algorithm, sequence, program, debug, decomposition, design, control, instructions, Beebot, robot, instruction, test, tinker, command, predict.	Illustration, paint, pen, input, brush, search, digital, digital content, shapes, edit, save, open, digital device.	Algorithm, sequence, program, debug, design, Scratch Jnr, search.	Illustration, paint, pen, input, brush, water, sanitation, save, open, paintbrush, digital content, combine media, tools, appearance, login, computer, tablet.	Data, sort, group, branching database, present, digital content, save, open, information, website, application.	Technology, devices, input, camera, output, digital content, technology, website, information, mouse, keyboard, screen.
	Programs and Software	Beebots Cubetto (extension)	iPad or Laptop Paint program – Sketches for School (free) Keynote or PowerPoint.	Scratch Jnr (iPads)	iPad or Laptop Paint program – Sketches for School (free) Keynote or PowerPoint.	Laptop J2E data (free)	Seesaw
	Links to other subjects in Rivers Framework		Digital Art		Digital Art		

Year 2 Overview

		Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 2	Unit	**Fundamentals in Coding**	**Art attack**	**Robot algorithms**	**Computer museum**	**Animals**	**Investigators**
	Driving question	*How can you create a Computer programme?*	*Can I take and edit my own photographs?*	*Can you navigate a robot to overcome obstacles?*	*How has technology changed over time?*	*How do we combine text and shapes to create patterns?*	*How can I use data to track can sustainable recycling?*
	Outcome	Explore computational thinking skills such as decomposition and sequencing in different programming languages.	Explore how to capture and manipulate shapes and images using different art programmes.	Write, plan, sequence and debug algorithms, in both using a robotic device (Beebot) and a block-based coding language (Scratch Jnr).	Understand and discover the impact of technology on the world and identify how it helps us by collating a museum of old hardware, including phones, laptops, and tablets.	Explore how to combine text and images to recreate animal patterns. Also explore the impact of sharing information online.	Plan and run an investigation by collecting data from a variety of sources and presenting it in pictograms and charts.
	Recurring concepts	Knowledge Innovation Partnership	Knowledge Innovation Partnership	Knowledge Innovation Partnership	Knowledge Innovation Legacy	Knowledge Equality Innovation Legacy Partnership	Knowledge Innovation Partnership Sustainability
	United Nations Sustainable Goals				 Understand the impact of providing internet access for all people.		 To understand the need to save energy.
	Substantive Concepts	Computer systems Effective use of tools Programming and Algorithms	Creating media Design and development Effective use of tools	Computer systems Effective use of tools Programming and Algorithms	Creating media Data and information Design and development Effective use of tools	Computer networks Creating media Effective use of tools Impact of technology	Safety and security Creating media Computer systems Effective use of tools Impact of technology
	Sticky Knowledge	• To know that the instructions in an algorithm need to be clear and unambiguous. • To know what an algorithm is, and that when inputted on a computer it is called a program. • To know that computers need programmes to achieve a specific goal. • To know there are different coding languages. • To know decomposition is breaking down problems into smaller parts. • To know loops repeats a set of codes and make our code more efficient.	• To know how to take a photograph. • To know photographs can be edited. • To know not all images are real and can be trusted. • To know what personal information is. • To know why we keep personal information private.	• To know that computers need programmes to achieve a specific goal. • To know that programs execute by following precise and unambiguous instructions. • To know there are different coding languages.	• To know what a Computer is (input > process > output). • To know what an input and an output is • To know that computers have adapted and evolved over time. • To know that you can use the internet to search for information.	• To know what personal information is and that we should not share it online. • To know that not all information online is true. • To know who to talk to if they are worried or concerned about something they have seen online. • I know that digital art can be modified and transformed using various techniques.	• To know what data is. • To know tally charts can be used to collect data. • To know how to create a pictogram using a computer.
	Progression	**Computer Science** • To be able to explain that	**Information Technology** • To be able to open key	**Computer Science** • To be able to explain that	**Information Technology** • To be able to create simple	**Information Technology** • To be able to capture	**Information Technology** • To be able to open key

		computers have no intelligence, and we have to program them to do things. • To be able to predict the outcome of an algorithm or program with multiple steps. • To be able to identify and correct errors in a given algorithm or program, and recognise the term debugging. • To be able to use loops and know they repeat sections of code. • To be able to plan out a program by creating an algorithm and evaluate its success.	applications independently. • 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 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. emphasize 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. **Digital Literacy** • To be able to explain what personal information is and the need to keep it private .	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 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.	digital content for a purpose by adding text, images and shapes. • 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. **Computer components and networks** • To know that a range of digital devices contain computers, e.g. phone, games console, smart speaker. • To be able to identify and use input devices, e.g. mouse, keyboard, and output devices, e.g. speakers, screen. **Digital Literacy** • To be able to explain the rules for acceptable use of technology.	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. emphasize 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. • 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. **Digital Literacy** • To be able to remember a simple password to log onto the computer or a website. • To be able to explain the rules for acceptable use of technology. • To understand that spending a lot of time in front of a screen can be unhealthy.	applications independently. • To be able to save and open files to/from a given folder. • To be able to add an image to a document from a given folder/source. • To be able to create simple digital content for a purpose by adding text, images and shapes. • To be able to present ideas and information by combining media, e.g. text and images. **Data** • To be able to recognise charts, pictograms and branching databases, and know why we use them.
	Language	Loops, algorithm, decomposition, direction, compass, sprites, background, code, algorithm, size, programming.	Applications, image, folder, resize, media, digital content, shapes, images, edits, present, identify.	Program, steps, predict, algorithm, plan, debug.	Digital content, text, images, shapes, present, information, input, process, output, phone, games console, internet, output, speaker, screen.	Edit, effect, combining media, identity, images, digital content, personal information, unhealthy, screen, acceptable, password.	Applications, save, open, folder, image, digital content, text, images, branching database, information, pictogram.

	Programs and Software	Scratch Jnr Beebots	iPad or Laptop Paint program – Sketches for School (free) Keynote or PowerPoint.	iPad or Laptop Logins to code.org (free) Beebots	iPad or laptop Seesaw Old Computers (tablets, phones, laptops etc).	iPad or laptop Seesaw	iPad or Laptop j2e data (free) Seesaw Keynote or PowerPoint.
	Links to other subjects in Rivers Framework		Digital Art				

Year 3 Overview

		Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 3	**Unit**	**Sequencing sounds**	**Be Internet Smart**	**Events and actions in programmes**	**Branching Database**	**Animation**	**Connecting Computers**
		Can you code a music sequence?	*How can I be internet smart?*	*What are the different ways I can trigger data?*	*How can we organise data?*	*Can you create a stop-time animation?*	*How are computers connected around the world?*
	Outcome	Create sequences in a block-based programming language (Scratch) to make music using different forms of input.	Know how to be internet smart by exploring what information we should share but also keep private on the internet.	Write algorithms and programs that use a range of events to trigger sequences of actions.	Collect, organise and sort data into a branching database.	Explore different types of animation before planning a storyboard and creating stop-time animation.	Know that digital device has inputs, processors and outputs and how devices can be connected to make networks.
	Recurring concepts	Knowledge Innovation	Knowledge Equality Partnership	Knowledge Innovation	Knowledge Legacy Sustainability	Knowledge Innovation Partnership	Knowledge Innovation Legacy Partnership
	United Nations Sustainable Goals						 Understand the impact of providing internet access for all people.
	Disciplinary Concepts	Effective use of tools Programming and Algorithms	Creating media Effective use of tools Impact of technology Safety and security	Effective use of tools Programming and Algorithms	Creating media Data and information Effective use of tools	Creating media Design and development Effective use of tools	Computer networks Creating media Computer systems Impact of technology Effective use of tools Safety and security
	Substantive Knowledge	• To know what decomposition is. • To know that the sequence of commands can affect the outcome. • To know there are different computing languages	• To know computers can be used for communication (video calls, text messages). • To know who to talk to if they are worried or concerned about something they have seen online. • To know that not all information online is true. • To know what personal information is and that we should not share it online. • To know the difference between fact and opinion is.	• To know decomposition is breaking down problems into smaller parts. • To explain that the sequence of commands can affect the outcome. • To know that there are different events to run an algorithm (ie. when sprite is touched/when green flag is clicked).	• To know a branching database is a tree structure. • To know data can be searched, filtered and filtered. • To know how to find information in a branching database. • To know how computers are used to collect, store and retrieve data.	• To know what animation is. • To know the difference between stop-time, flipbook, 2D and 3D animation. • To know stop-time animation is a series of frames of images.	• To know that a network is a series of computers connected. • To know computers can be connected wirelessly and wired. • To recognise the physical components of a network (computer, switch, server) • To know a computer network can be used to share data and information. • To know that search engines store information in databases.
	Progression	**Computer Science** • To be able to predict the outcome of a block or text-based program (Scratch/Logo). • To be able to modify an existing program	**Digital Literacy** • 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	**Computer Science** • To be able to predict the outcome of a block or text-based program (Scratch/Logo). • To be able to successfully modify an existing	**Data** • To be able to recognise charts, pictograms, and branching databases, and know why we use them. • To be able to create a branching database.	**Information Technology** • To be able to save and open files (e.g. in shared folder). • To be able to save or export files with appropriate names.	**Computer components and networks** • To be able to describe what a computer is (input > process > output). • To be able to explain the

		successfully, e.g. change background, number of times things happen. • To be able to identify repeated steps in a program or algorithm. • To be able to identify errors in a block or text-based program and debug them. • To be able to trigger code with different events (when flag is click, when sprite is clicked).	permission for others to use it. • 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. • To explain that that games and films have age ratings. **Information Technology** • To be able to use a search engine to find simple information. • 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.	program, e.g. change background, number of times things happen. • To be able to plan and write an algorithm to run a program. • To be able to identify repeated steps in a program or algorithm. • To be able to identify errors in a block or text-based program and debug them. • To be able to use different inputs to control a program.	• To explain some benefits of using a computer to create charts and branching databases. • To be able to identify an object using a branching database. **Information Technology** • To be able to save files with appropriate names. • To be able to edit digital content to improve it, e.g. resize text, rotate shapes and change colour.	• To be able to use a keyboard effectively to type 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 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 be able to explain why we use different types of media to convey information, e.g. text, image, audio, video, animation.	difference between input and output devices on a computer. **Information Technology** • To be able to add an image to a document. • 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 use a search engine to find simple information.
	Language	Predict, modify, background, repeated, loops, program, algorithm, forever loop, counted control loops, debug, inputs, outputs.	Passwords, digital content, permission, personal information, privacy, digital footprint, age ratings.	Predict, modify, background, repeated, loops, program, algorithm, forever loop, counted control loops, debug, inputs, outputs.	Charts, pictograms, databases, present, record, filters, field, search, search engines.	Save, file, folder, image, resize, digital content, media, animation, stop-time, frame, edit, crop.	Input, process, output, search engine, edit, design, digital content.
	Programs and Software	iPad or Laptop Seesaw Scratch	iPad or Laptop Seesaw	iPad or Laptop Seesaw Scratch	iPad or Laptop Seesaw J2e data (free)	iPad or Laptop Paint program – Sketches for School (free) Keynote or PowerPoint.	iPad or Laptop Seesaw
	Links to other subjects in Rivers Framework						

Year 4 Overview

		Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 4	**Unit**	**Cryptography unit**	**Repetition in Shapes**	**Top Trumps**	**Be Internet Alert**	**Repetition in Games**	**How does the internet work**
	Driving Question	*How has technology been used to crack codes?*	*Why should be use loops in code?*	*Can you create your own mythical beast?*	*How can I be Internet Alert?*	*What are the different types of loop we can use in a code?*	*How does the internet work?*
	Outcome	Explore how computers interpret data from Binary and how the invention of the very first computer has impacted the world.	Use a block-based programming language to explore count-controlled loops when drawing shapes.	Create your own mythical underwater animal using image editing software to combine and modify images. Enter data on a database to compare creature features.	Understand how and why we need to be alert online and what to do if we are concerned about playing a game online.	Use a block-based programming language to explore controlled and infinite loops when creating a game.	Know that the internet is a global network of computers, servers and routers that are interconnected.
	Recurring concepts	Knowledge Innovation Legacy	Knowledge Innovation	Knowledge Innovation Legacy Sustainability	Knowledge Equality Legacy Partnership	Knowledge Innovation	Knowledge Equality Innovation Legacy Partnership
	United Nations Sustainable Goals	 Develop an understanding of how infrastructure and innovation from the past and present can inform future choices.					 Understand the impact of providing internet access for all people.
	Substantive Concepts	Computer systems Effective use of tools	Effective use of tools Programming and Algorithms	Creating media Data and information Effective use of tools	Creating media Effective use of tools Impact of technology Safety and security	Effective use of tools Programming and Algorithms	Computer networks Creating media Effective use of tools Computer systems Impact of technology Safety and security
	Sticky Knowledge	• To know that computers work on the binary system (0, 1) • To know binary can represent letters, pictures and sound. • To know and be able to order different file sizes (kb, mb, gb, tb). • To know that computers have changed over time.	• To know a loop command in a programme can be used to repeat instructions. • To know a count-controlled loop stops after a specific number of times. • To know there are different coding languages.	• To know which software is best for image editing. • To know what copyright is. • To know how images can be edited.	• To know not all information on the internet is trustworthy. • To know some of the risks of sharing photos, videos and comments publicly. • To know who to contact when they are concerned over online content. • To know why someone else might change their identity depending on what they are doing online (e.g. gaming; using an avatar; social media). • To know that phishing emails try to catch users out by installing spam or	• To know a loop command in a programme can be used to repeat instructions. • To know a forever loop repeats instructions until the programme is stopped. • To know a count-controlled loop stops after a specific number of times.	• To know that a network is a series of computers connected. • To know computers can be connected wirelessly and wired. • To know the difference between the internet and the World Wide Web (ie. *the internet allows us to view the World Wide Web).* • To know a computer network can be used to share information. • To know there are copyright rules to protect online content.

					getting them to reveal personal information. • To know what acceptable and unacceptable behaviour is online.		• To know not all information on the internet is trustworthy.
	Progression	**Computer Science** • To be able to decompose a problem into smaller parts to help solve it. **Computer components and networks** • To be able to recognise that school computers are connected together on a network. **Information Technology:** • To be able to copy and paste text or images in a document. • 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.	**Computer Science** • 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 design a program for a purpose. • To be able to debug common mistakes in programs.	**Data** • To be able to draw conclusions from information stored in a database, chart or table. **Digital Literacy** • To be able to explain that digital content belongs to the person who has created it and that not all information found online is true. • To explain why we should use copyright- free content in our work. **Information Technology:** • To know that you can organise files using folders. • To be able to delete and move files. • To be able to use key parts of a keyboard effectively (e.g. shift, arrow keys, delete). • To be able to edit an image by: ▪ Cropping the composition ▪ Removing the background ▪ Adjust colours by applying a filter ▪ Adding effects • To be able to combine digital content by adding text, multiple images, drawings, annotations, and borders to images. • To be able to edit digital content to improve it	**Digital Literacy** • To be able to remember and use an individual password. • To recognise what kinds of websites trustworthy sources of information are. • To explain the benefits and risks of different apps and websites. • To explain that the media can portray groups of people differently. • 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 and that not all information found online is true. • To explain why we should use copyright- free content in our work. • To be able to recognise suspicious behaviour in phishing emails, text messages and social media.	**Computer Science** • 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 know when to use forever loops and count-controlled loops and use them in programs. • To be able to design a program for a purpose. • To be able to debug common mistakes in programs.	**Computer components and networks** • To be able to recognise that school computers are connected together on a network. • To be able to explain 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. **Digital Safety** • To explain that digital content belongs to the person who has created it and that not all information found online is true. • To explain why we should use copyright- free content in our work. **Information Technology:** • To be able to copy and paste text or images in a document. • To explain the benefits of using technology to present information.

				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.			
	Language	Decompose, connected, network, copy, paste, search engine, information, collect, organise, media, digital content, computer system	Program, event, input, decompose, forever loops, count-controlled loops, design, debug, algorithm, sequence, logic.	Database, chart, table, digital content, copyright-free, files, folder, delete, move, keyboard, crop, filter, collect, organise, edit, media, improve, feedback.		Program, event, input, decompose, forever loops, count-controlled loops, design, debug, algorithm, sequence, logic, conditions.	Connected, network, internet, digital devices, web browser, information, digital content, benefits, copy, copyright free.
	Programs and Software	iPad or Laptop Seesaw	iPad or Laptop Seesaw Scratch Logo	iPad or Laptop Seesaw Excel (laptop) or Numbers (iPad) Powerpoint or Keynote Snapseed (iPads) or paint.net (laptop)	iPad or Laptop Seesaw	iPad or Laptop Seesaw Scratch	iPad or Laptop Seesaw
	Links to other subjects in Rivers Framework			Digital Art			

Year 5 Overview

		Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 5	**Unit**	**Audio engineers**	**Real or Fake**	**Selection in Quizzes**	**Computing Influencers**	**Crab maze**	**Visual Storytelling**
	Driving Question	*How can I record and edit a radio jingle?*	*Is everything we see online real?*	*How do I add choice to my game by using selection and conditions?*	*Who are the key influences of innovation of technology?*	*How can I create a multiple level video game?*	*How can we shoot and edit a video?*
	Outcome	Remix, edit and record audio to create a radio jingle to promote climate change.	Know how we communicate safely online, whether it is through online games, videos or text messages and the implications of negative actions online.	Use a block-based programming language to selection by coding a quiz.	Explore how we research and check information online is accurate before creating an eBook all about key influencers in computing and the impact they have had on the world.	Use a block-based programming language to explore selection and variables when creating their own game.	Plan, record, remix and edit video to create a powerful visual story about the impact of global warming.
	Recurring concepts	Knowledge Innovation	Knowledge Innovation Legacy Partnership Sustainability	Knowledge Innovation	Knowledge Equality Innovation Legacy Sustainability	Knowledge Innovation	Knowledge Equality Innovation Sustainability
	United Nations Sustainable Goals				 Develop an understanding of how infrastructure and innovation from the past and present can inform future choices.		 Develop an understanding of how infrastructure and innovation from the past and present can inform future choices.
	Substantive Concepts	Creating media Effective use of tools	Creating media Effective use of tools Impact of technology Safety and security	Effective use of tools Programming and Algorithms	Creating media Design and development Effective use of tools Impact of technology	Effective use of tools Programming and Algorithms	Creating media Design and development Effective use of tools
	Sticky Knowledge	• To know audio can be recorded and edited.	• To know and explain the impact of online mis- dis-information. • To know what information to keep private. • To know and explain why we can't trust everything on the internet. • To know what makes a strong password. • To know what is acceptable and unacceptable behaviour online.	• To know a loop can be stopped when a condition is met. • To know conditions in computing allows the programme to flow in different directions. •	• To know how technology has changed over time. • To understand the positive and potentially negative impact technological changes have had on society. • To know key influencers on technology and explain the impact they have had. • To know how technology has changed over time. • To know how search engines rank websites • To know the difference between the internet and the world wide web. •	• To know a loop can be stopped when a condition is met. • To know conditions in computing allow the program to flow in different directions.	• To know video as moving pictures combined with audio. • To know video can be edited.

	Progression	**Information Technology** • To be able to use common keyboard 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. • 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 save/export an audio file.	**Data** • 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. **Digital Literacy:** • To be able to critically evaluate websites for reliability of information and authenticity. • To be able to demonstrate responsible use of an online services and know a range of ways to report concerns. • To explain what makes a strong password. • To explain the benefits and risks of sharing data online. • To be able to identify and explain why my personal information needs to be kept private and the potential impact on their digital footprint. • To know who to go to if they had concerns over online contact. • To be able to be discerning about what information they I gather, checking the validity of data and showing due respect to privacy and copyright. • To be able to use a search engine effectively to find information and images. **Computer Components and networks** • To explain the difference between a search engine and a web browser. Explain	**Computer Science** • 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. if…then. • 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.	**Information Technology** • To be able to type using fingers on both hands. • To be able to use common keyboard 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. **Data** • 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. **Digital Literacy** • To be able to demonstrate responsible use of an online services and know a range of ways to report concerns. • To be able to be discerning about what information they gather, checking the validity of data and	**Computer Science** • 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. if…then. • 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.	**Information Technology** • To be able to type using fingers on both hands. • To be able to use common keyboard 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. • To be able to create and edit a video clip by editing, trimming, splitting, layering and adding special effects such as green screen. **Digital Literacy** • To know where to find copyright free images and audio, and why this is important. • To be able to be discerning about what information they gather, checking the validity of data and showing due respect to privacy and copyright.

			• 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.		• showing due respect to privacy and copyright. • To identify how technology has impacted the world we live in.		
	Language	Audio, record, playback, microphone, speaker, headphones, input, output, start, pause, stop, jingle, save, file, Export, MP3, audio, editing, evaluate, feedback.	Data, information, critical, reliable report concerns, search engine, password, personal information, acceptable, unacceptable, engage, discerning.	Sensors, predict, program, input, sensor, data, variables, repeat, until loops, evaluate, program, design.	Type, shortcut, search, hardware, software, remix, edit, digital content, data, information, report concerns, discerning.	predict, program, input, sensor, data, variables, repeat, until loops, evaluate, program, design, data, information.	Type, shortcut, search, hardware, software, remix, edit, digital content, data, information, report concerns, discerning, copyright.
	Programs and Software	Audacity or Bandlab Garage Band iPads or Computers	iPad or Laptop Seesaw	iPad or Laptop Seesaw Scratch	iPad or Laptop Seesaw	iPad or Laptop Seesaw Scratch	iPad or Laptop Seesaw Green Screen Video recording (iPad)
	Links to other subjects in Rivers Framework	Science Electricity. Music					

Year 6 Overview

		Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 6	**Unit**	**3D modelling**	**Variables in Games**	**Company Launch**	**Be internet kind and brave & #Life Skills**	**Sphero**	**What is inside a Computer?**
	Driving Question	*How is Computer Aided Design used to create 3D models?*	*How can variables be used in code?*	*What digital tools can you use to launch a company?*	*How can I be Internet Smart?*	*What could autonomous vehicles of the future look like?*	*What could the future of Computing look like?*
	Outcome	Create a 3D model of a keyring by using CAD design software to promote a local business. Use formulas in a spreadsheet to calculate cost and profit.	Utilise variables when designing and coding a game in a programming language.	Combine and remix media to create an app prototype to fulfil a design brief.	Explore how to be kind on the internet as well as how to report people or sites when things do not go to plan.	Plan, code and control a physical computing robotic around a series of challenges by using conditionals, loops, and variables.	Explore the components of a computer and consider the impact of technology and what future it has in the world around us.
	Recurring concepts	Knowledge Innovation Sustainability	Knowledge Innovation	Knowledge Equality Innovation Partnership Sustainability	Knowledge Innovation Partnership	Knowledge Innovation	Knowledge Innovation Legacy
	United Nations Sustainable Goals			 Develop an understanding of how infrastructure and innovation from the past and present can inform future choices.			 Develop an understanding of how infrastructure and innovation from the past and present can inform future choices.
	Substantive Concepts	Creating media Data and information Design and development Effective use of tools	Effective use of tools Programming and Algorithms	Creating media Design and development Effective use of tools Impact of technology	Effective use of tools Impact of technology Safety and security	Design and development Effective use of tools Programming and Algorithms	Computer networks Computer systems Data and information Effective use of tools Impact of technology
	Sticky Knowledge	• To know computer aided design can make 3D models. • To know what a spreadsheet can organise and sort data.	• To know what a variable is and that it can hold numbers (integers) or letters (strings).	• To know what an app is and its common features. • To know what a website is and its common features • To know why we use copyright-free images • To know whatwhen a hyperlink is meant byclicked, it takes the term ‘fair use’user to another specified location (URL). To know prototypes are used to plan and	• To know what cyberbullying is and the impact it can have on others. • To know who to contact when they are concerned. • To know how to use the internet to communicate positively (i.e. video calling friends and family). • To know what acceptable and unacceptable behaviour is online.	• To know computer algorithms can be triggered by sensor inputs (when it is dark / when robot hits). • To know how to code a robot around a specific path using a block coding language.	• To know what the key components of a computer are and what their role is (RAM, Hard drive, Screen, Mouse, Keyboard, GPU, CPU) • To know about some different emerging technologies (AI and Machine Learning) and the potential impact on the world.

				design digital content.			
	Progression	**Information Technology** • 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 (i.e. website, app, video, images). • 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. • To know how to modify a 3D object in a computer programme by: ○ Repositioning ○ rotating in three dimensions ○ resizing ○ recolouring ○ duplicating ○ deleting **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.	**Computer Science** • 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.	**Digital Literacy** • To be able to explain that algorithms are used to track online activities with a view to targeting advertising and information. • To be able to explain why their personal information needs to be kept private and the potential impact on their digital footprint. • To know how to report concerns over online contact or content. • 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. **Information Technology** • To be able to type efficiently using both hands. • To be able to use a range of keyboard shortcuts. • To recognise 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	**Digital Literacy** • 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 on their digital footprint. • To be able to identify acceptable and unacceptable behaviour online. • To know how to report concerns over online contact or content. • 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. **Information Technology:** • To be able to identify the most effective tools to present information for a specific purpose.	**Computer Science** • 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 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** • To explain the basic function of an operating system. • To know common file types and extensions e.g. jpeg, png, doc, 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 Technology** • To recognise that different devices may have different operating systems. • To be able to organise files effectively using folders and files names. • To be able to select, combine and remix a range of media to create original content. (ie, website, app, video, images) • To be able to identify the most effective tools to present information for a specific purpose.

		• 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.		content. (i.e. website, app, video, images). • 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.	• To be able to select, combine and remix a range of media to create original content. (ie, website, app, video, images).		
	Language	2D, 3D, 3D object, 3D space, resize, colour, lift, Rotate, position, select, duplicate, Modify, evaluate, improve, Cell, Row, column Formula, Data, inputs, outputs, Cell reference,		Algorithms, personal information, digital footprint, online communities, respectful, responsible, discerning, type, shortcuts, operating systems, organise, search engine, remix, media, present information	Password, algorithms, laws, personal information, digital footprint, acceptable, unacceptable, concerns, report, online communities, respectful, responsible, discerning, present information, remix, media	Procedures, plan, algorithm, explain, variable, relational operators, sequence, selection, repetition, variables	Operating system, file types, physical, mobile, RAM, Hard drive, GPU, media, output, process, input
	Programs and Software	Tinkercard Laptops or iPads Spreadsheets – Excel or Numbers	iPad or Laptop Seesaw Scratch	iPad or Laptop Seesaw Powerpoint or Keynote	iPad or Laptop Seesaw	iPad or Laptop Seesaw Sphero	iPad or Laptop Seesaw Old Computers to dismantle
	Links to other subjects in Rivers Framework	Maths D&T – Following a design brief					