Computing components and Assessment checkpoints

If you have faith as small as a mustard seed, you can say to this mountain, move from here to there and it will move; nothing would be impossible. Matthew 17:20

EYFS – Key knowledge and skills	
Overview	At The Bishops' C of E Learning Academy our computing curriculum begins in the Early Years. Our Computing scheme for the EYFS is centred around play-based, unplugged (no computer) activities that focus on building children's listening skills, curiosity and creativity and problem solving. We believe that not only will teaching a well-planned Computing curriculum from Early Years ensure that children enter Year 1 with a strong foundation of knowledge, but Computing lessons in the EYFS also ensure that children develop listening skills, problem-solving abilities, thoughtful questioning, and an understanding of e-safety.
What Computing might look like in our classroom	- taking a photograph with a camera or tablet - searching for information on the internet - playing games on the interactive whiteboard or class Ipads - exploring an old typewriter or other mechanical toys - using a Beebot - watching a video clip - listening to music - Learning how to stay safe online
Key knowledge in EYFS	- I can notice and continue a pattern. - I know that technology can be used for different purposes. - I know how to use simple technology. - I know how to create a simple algorithm.
Reception Year	Autumn 1 – Barefoot – Awesome Autumn – Patterns, logic, decomposition, create. Autumn 2- Barefoot – Pattern revisited, Simple Beebot, purpose of buttons and simple instruction. Spring 1- Barefoot – Boats Ahoy – Create, Logic, Tinkering. Spring 2 – Barefoot – People who help us. Creating, Abstraction. Summer 1- Beebots – Create, Logic, Algorithm. Summer 2 –Barefoot – Tangrams – Creating, persevering, tinkering, de-bugging. E-safety will be taught in Autumn 1 but will be re-visited every half term as children access, use and observe technology within the classroom.
	VOCABULARY: Bee Bot, Forwards, Backwards, Turn, Button, On, Off, Battery, Power, Direction, Code, Control, Algorithm, Instruction, Test

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Early Learning Goal	Although there is no longer a specific technology ELG, technology links to mathematics, communication and language and PSED (keeping safe online).

Year 1 and 2	Autumn 1 and 2		Spring 1 and 2		Summer 1 and 2	
Christian Values	Perseverance	Compassion	Respect	Forgiveness	Trust	Courage
Lead enquiry question. (Composite Outcome)	How do I use the Internet safely? How do I use a computer/device?		How do I use Scratch to create programs?		What is digital painting?	
Golden Threads	Belonging - Internet Safety - Google Resources Achieving - Digital Literacy – Commonsense Education		Achieving - Computer Science – Barefoot Computing		Achieving - Information Technology – STEM.org	
Disciplinary knowledge	- Know what personal information is and what I should not reveal online. - Explain the importance of being kind online. - Recognise common uses of information technology beyond school. - Use technology safely and respectfully, keeping personal information private. - Identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.		- Understand what algorithms are. - Understand programs execute by following precise and unambiguous instructions. - Create and debug simple programs.		Use technology purposefully to create, organize, store, manipulate and retrieve digital content.	
Tier 3 Vocabulary	Keyboard Monitor Interactive		Sprite Sequence Execute		paint program. tool paintbrush	

	Whiteboard Password Email Website Delete Space Bar Barcode Internet Save Instructions Edit (Size, Colour, Shape)		Blocks Continuous loop	erase fill undo shape tools line tool fill tool undo tool colour brush style brush size
Learning Objectives (Components)	1. To agree to the Think Before You Click pledge & E-safety assembly 2. To use the internet safely 3. To search the internet for suitable pictures 4. To keep my information private 5. To describe how to take ownership of work online	1.Understand what algorithms are. 2. Understand how they are implemented as programs on digital devices. 3. Understand that programs execute by following precise and unambiguous instructions. 4. Create and debug simple programs.	1. I can describe and use instructions to program a character. 2. I can select and drag blocks for a character to grow and shrink. 3. I can edit a value to make an object move further and at different speeds. 4. I can use a 'repeat' instruction and predict the behaviour of a character. 5. I can create programs with a sequence of linked instructions.	1. To describe what different freehand tools do. 2. I can use the shape tool and the line tools. 3. To make careful choices when painting a digital picture. 4. I can explain that different paint tools do different jobs. 5. I can use dots of colur to create a picture. 6. I can compare painting a picture on a computer and on paper.

	6. To discuss how to stay safe online	5. Use logical reasoning to predict the behaviour of simple programs.		
Assessment checkpoints	Children who are **secure** will be able to: ✓ Know how the internet can be used. ✓ Know what is appropriate to share and what is not ✓ Log in and navigate around a computer. ✓ Drag, drop, click and control a cursor using a mouse. ✓ Use software tools to create art on the computer		Children who are secure will be able to: ✓ Keeps personal information private. ✓ Recognise common uses of information technology beyond school. ✓ Uses technology purposefully to create digital content. ✓ 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.	Children who are secure will be able to: ✓ Use technology safely. ✓ Use technology purposefully to store digital content. ✓ Use technology purposefully to retrieve digital content.
When do Assessment checkpoints happen?	Safe use of the Internet and devices happens every time the children log on – continual assessment. Assessment within Internet Safety week and PSHE lessons.		Assessment through discussions/questions at the start of each lesson. ACP – First lesson of Summer will assess what algorithms are.	Assessment through discussions/questions at the start of each lesson.

Year 3 and 4	Autumn 1 and 2		Spring 1 and 2		Summer 1 and 2	
Christian Values	**Perseverance**	**Compassion**	**Respect**	**Forgiveness**	**Trust**	**Courage**
Lead enquiry question. (Composite Outcome)	How do I share with care on Google? How do I use a computer/device?		Why is 'tinkering' an important skill within computer science? How do I use variables within a program?		What are the uses of Satellite Images?	
Golden Threads	Belonging - Internet Safety Achieving - Digital Literacy		Achieving - Computer Science		Aspiring/Achieving- Information Technology	
Disciplinary knowledge	• Use technology safely, respectfully and responsibly. • Recognise acceptable/unacceptable behaviour. • Identify a range of ways to report concerns and content and contact.		• Design, write and debug programs that accomplish specific goals. • Solve programs by decomposing them into smaller parts. • Use sequence, selection, and repetition in programs. • Detect and correct errors in algorithms and programs. • Understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration (Year 4).		• Use search technologies effectively. • Appreciate how results are selected and ranked and be discerning in evaluating digital content. • Create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating, and presenting data and information (Year 4).	

Tier 3 Vocabulary	Blog De-bugging Manipulating IT Information Technology		Software programs Digital technology Tinkering Programming Selection Condition Variables		Sensors Infra-red
Learning Objectives (Components)	1. & 2 To agree to the Be Internet Awesome pledge & E-safety assembly 3. To discuss what information should be kept private. 4. To identify ways information can be found online about people. 5. To create a positive online presence. 6. To discuss different levels of privacy.	1. To create a safe password. 2. To describe how the internet connects people. 3. To discuss how products are sold online. 4. To describe differences between on/offline communications. 5. To communicate safely and effectively online.	1 & 2. I can tinker with Scratch changing dialogue and movement. 3 & 4. I can tinker with a blank program adding movement, dialogue and characters. 5 & 6. I can explain what selection is and write a program using it.	1 & 2. I can explain what a variable is and use them in programs. 3, 4 & 5. I can use a variety of variables to score and time a quiz.	1 & 2. What is environmental observation? 3 & 4. Why are two very different images needed? 5 & 6. What has environmental observation done for our world?
Assessment checkpoints	Children who are secure will be able to: ✓ Keep personal information private. ✓ Understand that being a good digital citizen means being safe and responsible online.		Children who are secure will be able to: ✓ Design, write and debug programs that accomplish specific goals including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.		Children who are secure will be able to: ✓ Recognises common uses of information technology beyond school. ✓ Uses technology purposefully to create digital content.

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	✓ Recognise the ways in which digital devices can be distracting.	✓ 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 detect and correct errors in algorithms and programs. ✓ Understand computer networks including the internet; how they can provide multiple services, such as the world-wide web. ✓ Appreciate how results are selected and ranked.	✓ Uses technology purposefully to store digital content. ✓ Uses technology purposefully to retrieve digital content.
When do Assessment checkpoints happen?	Safe use of the Internet and devices happens every time the children log on – continual assessment. ACP within Internet Safety week and PSHE lessons.	Assessment through discussions/questions at the start of each lesson. ACP – First lesson of Summer will assess what algorithms are and are the children able to decide if an algorithm won't work.	Assessment through discussions/questions at the start of each lesson.

Year 5	Autumn 1 and 2		Spring 1 and 2		Summer 1 and 2	
Christian Values	**Perseverance**	**Compassion**	**Respect**	**Forgiveness**	**Trust**	**Courage**
Lead enquiry question. (Composite Outcome)	How do I keep secrets secure when using Google? How can I use technology to plan an event?		How do I detect and correct errors in algorithms? How do I design, write and debug programs which simulate physical systems?		How can we use digital software to change an image?	
Golden Threads	Belonging - Internet Safety Achieving - Digital Literacy		Aspiring/Achieving - Computer Science		Achieving - Information Technology – STEM.org	
Disciplinary knowledge	• Understand the importance of strong passwords. • Use technology safely, respectfully and responsibly. • Recognise acceptable/unacceptable behaviour. • Identify a range of ways to report concerns and content and contact.		• Design, write and debug programs that accomplish specific goals. • Solve programs by decomposing them into smaller parts. • Use sequence, selection, and repetition in programs. • Work with variables. • Use logical reasoning to explain how simple algorithms work and to detect and correct errors in algorithms and programs. • Understand computer networks, including the internet; how they can provide multiple services, such as the		• Use search technologies effectively. • Appreciate how results are selected and ranked and be discerning in evaluating digital content. • Create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating, and presenting data and information (Year 4).	

		World Wide Web, and the opportunities they offer for communication and collaboration (Year 4).		
Tier 3 Vocabulary	Hyperlink Plagiarism Citing sources Trolling Digital content Privacy Social Media Influencers Reputable Source Verify Anonymity Script HTML (hyper-text mark-up language) URL (Uniform Resource Locater	Logical reasoning Imaginary situation Simulations Depicting		Mood Portray Digitally edited versions Photoshop Bitmap Pixel/pixelated Modified Resolution Conditional Formatting Binary Bits/byte
Learning Objectives (Components)	1 & 2 To agree to the Be Internet Awesome pledge & E-safety assembly. 3. To create a strong password. 4. To customize privacy settings. 5.To put my learning into practice. 6. To create docs and collaborate using Google Drive.	1. I can follow an algorithm to create an image. 2. I can write an algorithm which includes deliberate mistakes. 3. I can follow an algorithm detecting and correcting errors	1. What is a simulation? 2. I can design a simulation. 3. I can write a simulation program. 4 & 5. I can debug a simulation program.	1. I can understand that artefacts such as paintings can be digitized. 2. I can understand that digital graphics can be easily edited. 3. I can import an existing image into a graphics package adjusting the colour settings. 4. I can apply filters within a graphics package to an existing image. 5. I can export an image as a jpeg of varying qualities.

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		using logical reasoning. 4. I can spot patterns within an algorithm.		6. I can understand the concept of resolution in the context of graphics and pixels.
Assessment checkpoints	Children who are secure will be able to: ✓ Recognises acceptable/unacceptable behaviour. ✓ Selects a variety of software to accomplish given goals. ✓ Selects, uses and combines internet services. ✓ Analyses and evaluates information. ✓ Collects and presents data. ✓ Understands the opportunities computer networks offer for communication. ✓ Identifies a range of ways to report concerns about content.	Children who are secure will be able to: ✓ Design, write and debug programs that accomplish specific goals including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. ✓ Use sequence, selection, and repetition in programs, work with variables and various forms of input and output. ✓ Use logical reasoning to explain how some simple algorithms work and detect and correct errors in algorithms and programs. ✓ Understand computer networks including the internet; how they can provide multiple services, such as the world-wide web. ✓ Appreciate how results are selected and ranked.		Children who are secure will be able to: ✓ Recognises acceptable/unacceptable behaviour. ✓ Selects a variety of software to accomplish given goals. ✓ Select, uses and combines internet services. ✓ Analyse and evaluate information. ✓ Collect and presents data.
When do Assessment checkpoints happen?	Safe use of the Internet and devices happens every time the children log on – continual assessment. ACP within Internet Safety week and within PSHE lessons.	Assessment through discussions/questions at the start of each lesson. ACP – First lesson of Summer will assess the purpose of a variable within an algorithm.		Assessment through discussions/questions at the start of each lesson.

Year 6	Autumn 1 and 2		Spring 1 and 2		Summer 1 and 2	
Christian Values	**Perseverance**	**Compassion**	**Respect**	**Forgiveness**	**Trust**	**Courage**
Lead enquiry question. (Composite Outcome)	Why is it cool to be kind when using Google? Is it Cyberbullying?		How do I design, write and debug programs to make a game?		How do I create an informative and exciting PowerPoint presentation to showcase who I am?	
Golden Threads	Belonging - Internet Safety Belonging & Achieving - Digital Literacy		Aspiring & Achieving - Computer Science		Aspiring & Achieving - Information Technology	
Disciplinary knowledge	- Explain how they are developing an online reputation which will allow others to form an opinion of them. - Understand the importance of strong passwords. - Use technology safely, respectfully, and responsibly. - Recognise acceptable/unacceptable behaviour. - Understands the opportunities computer networks offer for communication. - Identify a range of ways to report concerns and content and contact.		- Design, write and debug programs that accomplish specific goals. - Solve programs by decomposing them into smaller parts. - Use sequence, selection, and repetition in programs. - Work with variables. - Use logical reasoning to explain how simple algorithms work and to detect and correct errors in algorithms and programs. - Understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities		- Use search technologies effectively. - Appreciate how results are selected and ranked and be discerning in evaluating digital content. - Create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating, and presenting data and information (Year 4).	

			they offer for communication and collaboration (Year 4).	
Tier 3 Vocabulary	Positive Negative Public Private Digital Footprint Personal Information Settings Personal boundaries Bystander Upstander Harassment Amplify Cyberbullying Clickbait	Hyperlink Plagiarism Citing sources Trolling Digital content Privacy Social Media Influencers Reputable Source Verify Anonymity Script HTML (hyper-text mark-up language) URL (Uniform Resource Locater	Decomposition Debugging	Animations Transitions Foreground Background Format shape Merge options Designer function Presentation mode
Learning Objectives (Components)	1 & 2. To agree to the Be Internet Awesome pledge & E-safety assembly 3. To respond to bullying online. 4. To discuss different ways to respond to bullying. 5. To turn negative interactions into positive ones.	1. 1. Is it cyberbullying? 2. How do we stop cyberbulling? 3. How do we trust what we read online? 4. What are the important parts of an online news article? 5. What is clickbait?	1. I can decompose a game into its parts. 2. I can design a game. 3. I can create the artwork for a game. 4. I can write code identifying what the program should do. 5. I can observe the program and debug regularly. 6. I can present and evaluate a game.	1. I can use a range of PowerPoint functions. 2. I can understand what animations and transitions are and what they do within a PowerPoint. 3. I can create effects within images on PowerPoint. 4. I can edit images using PowerPoint. 5 & 6. I can apply all my learning and create an informative and exciting PowerPoint presentation.

	6. To interpret emotions behind texts and messages.	6. How do we avoid clickbait?		
Assessment checkpoints	Children who are secure will be able to: ✓ Recognises acceptable/unacceptable behaviour. ✓ Selects a variety of software to accomplish given goals. ✓ Selects, uses and combines internet services. ✓ Analyses and evaluates information. ✓ Collects and presents data. ✓ Understands the opportunities computer networks offer for communication. ✓ Identifies a range of ways to report concerns about content.		Children who are secure will be able to: ✓ Design, write and debug programs that accomplish specific goals including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. ✓ Use sequence, selection, and repetition in programs, work with variables and various forms of input and output. ✓ Use logical reasoning to explain how some simple algorithms work and detect and correct errors in algorithms and programs. ✓ Understand computer networks including the internet; how they can provide multiple services, such as the world-wide web. ✓ Appreciate how results are selected and ranked.	Children who are secure will be able to: ✓ Recognises acceptable/unacceptable behaviour. ✓ Selects a variety of software to accomplish given goals. ✓ Selects, uses and combines internet services. ✓ Analyses and evaluates information. ✓ Collects and presents data.
When do Assessment checkpoints happen?	Safe use of the Internet and devices happens every time the children log on – continual assessment. ACP within Internet Safety week and PSHE lessons.		Assessment through discussions/questions at the start of each lesson. ACP – First lesson of Summer will assess the ability to decompose a problem.	Assessment through discussions/questions at the start of each lesson. ACP – the children will be able to present their PP presentations explaining the choice of animations and transitions – ORACY link.

Cradle to Career links. KS3 and KS4 units are taught at Newquay Tretherras
 	
Future Pathways:
Compute Scientist
Influencer
Computer Coder
APP Designer
	EYFS:
	KS3: Y7 – learn about computer hardware including how to build a computer.
	    Y7 – All about the Digital World
	    Y8 – Learn about the advances in AI
	    Y8 – Learn about APP development and design
		EYFS:
		KS3: Y7 – Coding a Calculator in Scratch
		    Y7 – Design and build a website using HTML and CSS
		    Y8 – Begin to learn how to program using Python.
		    Y9 – More complex knowledge of Python – more complex algorithms.
			EYFS:
			KS3: Y9 - Key concepts of Computer Science, computer architecture, networks, legislation and data representation.
			    Y9 – Digital Media – compositions including Photoshop.