St Katharine's CE Primary School

Computing Progression Pathway

Computing Vision

We want all children to be prepared for their future, recognising how technology is an aid to learning; demonstrate an understanding of how to be safe and confident users of technology; and be creative and innovative learners.

A learner in Computing will:

- Use technology safely, respectfully and responsibly.
- Understand how to remain safe online.
- Analyse and solve relevant and worthwhile problems in computational terms.
- Be able to adapt easily to the information technology systems and approaches they will encounter in their future lives.
- Use logical reasoning to explain.
- Recognise common uses of information technology, both in and beyond school.
- Understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation.

Computing at St Katharine's has been broken down into 4 strands and 8 Key Concepts:

Each child will develop key skills in all four strands within Computing lessons during their time at St Katharine's.

The 4 Strands

The Computing curriculum will need to be altered year-on-year to meet children's needs and to keep pace with new technology, but maintain structure so children learn core skills and build on their previous experiences. To achieve this, Computing at St Katharine's has been broken down into 4 strands; each child will develop key skills in all four strands within Computing lessons during their time at St Katharine's.

Digital Literacy	Children are taught the necessary skills to become digitally literate - able to use and express themselves and develop their ideas through information and communication technology - at a level suitable for the future workplace and as active participants in a digital world.
Video/Photography	Children are taught artistic, photographic and film making skills, including animation, and learn how these can be developed into useful and career enhancing job skills.
Computer Science	Children are taught the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming. They are also provided with the necessary skills to problem solve and become logical thinkers.
E-Safety	Children are taught how to stay safe when using technology within Computing lessons, in addition to stand-alone lessons throughout the year linking to the PSHE Curriculum. Additional E-Safety lessons take place during Internet Safety Week.

In addition to Computing lessons, the use of technology is incorporated across the curriculum, reinforcing the teaching of essential skills for life and enabling learners to participate more readily and safely in a rapidly changing digital world.

E-Safety

Using the UK Council for Child Internet Safety (UKCCIS) framework, children will be introduced to eight different aspects of online education through Computing lessons during their time at St Katharine's.

Self-image and Identity

Online Relationships

Online Reputation

Online Bullying

Managing Online Information

Health, Wellbeing and Lifestyle

Privacy and Security

Copyright and Ownership

These are taught alongside projects as part of Computing lessons where appropriate and through stand-alone E-Safety lessons, linking to the PSHE curriculum.

Additional E-Safety lessons take place during Internet Safety Week.

Computing Overview

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Autumn Term	All About Algorithms	The BIG Adventure	Aesop's Fables Animation	The Firework Maker's Daughter	Kensuke's Kingdom	Autumn Enterprise
	Online Relationships	Privacy and Security	Privacy and Security	Online Bullying	Online Reputation	Self-image and Identity
Spring Term	Dinosaurs	Anima-L-tion	Digimaps	Out of this World	The Science of Data	Game-On
	Safer Internet Day	Safer Internet Day	Safer Internet Day	Safer Internet Day	Safer Internet Day	Safer Internet Day
Summer Term	E-Book	Fit for Life	Recipe Writing	Seashore Book	Kick	Summer Enterprise
	Online Relationships	Privacy and Security	Privacy and Security	Online Bullying	Online Reputation	Self-image and Identity

Digital Literacy

Computer Science

Video/Photography

E-Safety

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EYFS

EYFS	Focus	Curriculum Content	Skills	Vocabulary
E-Safety	 **Online Relationships** This strand explores how technology shapes communication styles and identifies strategies for positive relationships in online communities. It offers opportunities to discuss relationships and behaviours that may lead to harm and how positive online interaction can empower and amplify voice.	**Technology:** children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes. **Understanding the world** involves guiding children to make sense of their physical world and their community through opportunities to explore, observe and find out about people, places, technology and the environment**.** **Expressive arts and design** involves enabling children to explore and play with a wide range of media and materials, as well as providing opportunities and encouragement for sharing their thoughts, ideas and feelings through a variety of activities in art, music, movement, dance, role-play, and design and technology	Children recognise the impact of good choices and consequences of wrong ones. They can select and use technology for a purpose. Children understand that they must ask an adult whether they can use a game or app. Children know that information can be retrieved from computers and can tell an adult if what they see makes them feel worried. Children recognise who they can ask for help and know when they need help. Children understand that they need to share equipment and take turns.	E-Safety Online Relationships Behaviours Game App Ask / Tell Share
	Resource Ideas	**Wider Curriculum Links**		
	Smartie the Penguin: https://www.childnet.com/resources/smartie-the-penguin	**PSHE** Progression in the content to reflect the different and escalating risks that young people face as they get older. This includes how to use technology safely, responsibly, respectfully and securely, how to keep personal information private, and where to go for help and support.		

St Katharine's CE Primary School

Computing Progression Pathway

Year 1

Y1	Focus	Curriculum Content	Skills	Vocabulary
E-Safety	 **Privacy and Security** This strand explores how personal online information can be used, stored, processed and shared. It offers both behavioural and technical strategies to limit impact on privacy and protect data and systems against compromise.	• 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.	Children begin to understand what personal information is and who you can share it with, including the need to keep passwords private. They begin to recognise the need to know who they are sharing their learning with online and recognise the difference between real and imaginary online experiences. Children know who to tell when they see something that makes them uncomfortable and make sure an adult knows what they are doing. Children recognise the Internet as an exciting place to be but understand the need for a balance in how they spend their time and make good choices about age appropriate activities.	E-Safety Online Relationships Behaviours Game App Ask / Tell Share Personal Information Privacy Password Internet
	Resource Ideas	**Wider Curriculum Links**		
	Digi-duck's stories https://www.childnet.com/resources/digiduck-stories/	**PSHE** Progression in the content to reflect the different and escalating risks that young people face as they get older. This includes how to use technology safely, responsibly, respectfully and securely, how to keep personal information private, and where to go for help and support.		

Y1	Focus	Curriculum Content	Skills	Vocabulary
Computer Science	**All About Algorithms** This project introduces children to the early steps of coding. They will learn about algorithms and the importance of planning and giving instructions carefully. This knowledge will then be used to code Bee-Bots to perform a series of movements.	• 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.	**1. Jam sandwich algorithm** Children give verbal instructions to teacher to make a jam sandwich – teacher must follow every instruction word-for-word. Introduce algorithms (video). **2a. Look at 'real-life' algorithms** View sets of instructions needed to carry out a task (e.g. making a cake = a recipe). **2b. Creating algorithms** Child acts as robot and is given instructions (forward, backward, turn, left, right) by another child to move from one point to another in the classroom. **3. Bee-Bot algorithms** Children to programme Bee-Bots to 'draw' a series of shapes, numbers, letters (etc.) as directed by the teacher.	Algorithm Instructions Position Forward Backward Left Right Turn (left / right) Bee-Bot
	Resource Ideas	**Wider Curriculum Links**		
	Lesson Plan and video resources: https://stkcomputing.wixsite.com/stkcomputing Ingredients to make a sandwich Bee-Bots Shape/number cards (see web link to resources)	**English** Name the letters of the alphabet. **Maths** Geometry – position and direction (year 1): Pupils should be taught to: describe position, direction and movement, including whole, half, quarter and three-quarter turns Count, read and write numbers to 100 in numerals		

Y1	Focus	Curriculum Content	Skills	Vocabulary
Digital Literacy	**Dinosaurs** This project will demonstrate the capabilities of augmented reality apps (Dinosaur 4D+). Children will create a PowerPoint presentation containing text and pictures.	• Use technology purposefully to create, organise, store, manipulate and retrieve digital content. • Recognise common uses of information technology beyond school. Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.	**1. Brilliant Beginning – Dinosaur 4D+ Cards** Children use Dinosaur 4D+ (augmented reality) cards and iPads to learn information about dinosaurs. **2. Formatting pictures** Children introduced to PowerPoint and how to place images onto slides. Vocabulary of 'select', 'right click', 'copy', 'paste' and 'scale' introduced. **3. Formatting text** Children add text containing facts about dinosaurs learnt from Brilliant Beginning and project. **4. Formatting PowerPoint** Some children may move on to applying transitions to slides to create a more exciting presentation.	iPad Augmented Reality Computer Screen Mouse Keyboard Right click Left click Copy Paste PowerPoint Text Picture Formatting Scale Transition
	Resource Ideas	**Wider Curriculum Links**		
	Dinosaur 4D+ Cards iPads – Dinosaur 4D+ app PC/Laptops – PowerPoint Pictures of dinosaurs (saved on system)			

Y1	Focus	Curriculum Content	Skills	Vocabulary
Digital Literacy Video / Photography	**E-Book** Children will use 2Simple to create an e-book containing animations, sound, backgrounds and addition features to enhance their stories.	• Use technology purposefully to create, organise, store, manipulate and retrieve digital content. • Recognise common uses of information technology beyond school. • Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.	**1. E-Books** Children introduced concept of an e-book. Children introduced to 2Create a Story app. Children type sentence(s) to create the first page(s) of their story. **2. Formatting background** Children add a background to their story. Also taught how to copy and paste pages. **3. Adding Animations** Children use the drawing tool to add drawings to their story and then apply animations. **4. Adding Sound** Children add pre-recorded sound effects to their story. Progress on to recording own sounds. **5. Additional Features** Children use additional features to enhance their stories.	E-Book Save Open iPad Computer Screen Mouse Keyboard Right click Left click Type Text Font Format Background Copy Paste Animation Sound
	Resource Ideas	**Wider Curriculum Links**		
	Instructional video: https://www.youtube.com/watch?v=u6NlVyMqJf0 iPads or PC/Laptops - 2Create a Story app	**English** Writing (Year 1) – transcription, composition and vocabulary, grammar & punctuation.		

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Year 2

Y2	Focus	Curriculum Content	Skills	Vocabulary
E-Safety	 **Privacy and Security** This strand explores how personal online information can be used, stored, processed and shared. It offers both behavioural and technical strategies to limit impact on privacy and protect data and systems against compromise.	• 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.	Children understand what personal information is and who you can share it with, including the need to keep passwords private. Children begin to recognise the need to know who they are sharing their learning with online and recognise the difference between real and imaginary online experiences. Children know who to tell when they see something that makes them uncomfortable and make sure an adult knows what they are doing. Children recognise the Internet as an exciting place to be but understand the need for a balance in how they spend their time and make good choices about age appropriate activities.	E-Safety Online Relationships Behaviours Game App Ask / Tell Share Personal Information Privacy Password Internet
	Resource Ideas	**Wider Curriculum Links**		
	Think U Know: https://www.thinkuknow.co.uk/professionals/resources/jessie-and-friends/	**PSHE** Progression in the content to reflect the different and escalating risks that young people face as they get older. This includes how to use technology safely, responsibly, respectfully and securely, how to keep personal information private, and where to go for help and support.		

Y2	Focus	Curriculum Content	Skills	Vocabulary
Computer Science	**The BIG Adventure** Through this project, children are given programs that do not do as expected and will be tasked to fix them. In doing so, they will learn skills necessary to enhance logical reasoning and predict what will happen in order to develop their debugging skills.	• 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.	**1. Introduction to debugging** https://www.barefootcomputing.org/resources/pizza-pickle-scratch-debugging **2. Bee-Bot Programming** Children input algorithms physically to program and control a Bee-Bot to perform a series of movements. https://www.barefootcomputing.org/resources/bee-bots-1-2-3-programming **3. Bluebot Programming (optional)** Children may progress onto using digital algorithms to program a Blue-Bots using simple strings of code. **4. Simple Algorithm Programming** Children use online programming tool to create simple lines of code linking to knowledge of coding Bee-Bots : https://www.j2e.com/jit5#turtle	Algorithm Instructions Position Forward Backward Left Right Turn (left / right) Bee-Bot Blue-Bot Logical Reasoning Predict Debug
	Resource Ideas	**Wider Curriculum Links**		
	https://www.barefootcomputing.org/resources/pizza-pickle-scratch-debugging https://www.barefootcomputing.org/resources/bee-bots-1-2-3-programming PC/Laptop - https://www.j2e.com/jit5#turtle iPad - Bluebot app Bee-Bots / Blue-Bots	**Maths** Geometry – position and direction (year 2): Pupils should be taught to: Use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti- clockwise). **Year 2 Food Technology** Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making.		

Y2	Focus	Curriculum Content	Skills	Vocabulary
Computer Science Video / Photography	**Anima-L-tion** During this project, children will the use Scratch JR utilising their skills and knowledge of algorithms learnt previously. They will be taught and taken through the necessary steps to create a short animation before creating their own animations using the skills learnt.	• Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. • Create and debug simple programs. • Use logical reasoning to predict the behaviour of simple programs. • Use technology purposefully to create, organise, store, manipulate and retrieve digital content. • Recognise common uses of information technology beyond school. • Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.	**1. Introduction to Scratch JR** Children are guided through the steps required to create a short animation. See following link for ideas: https://www.barefootcomputing.org/resources/scratchjr-knock-knock-joke-activity **2. Independent Scratch Animation** Using the knowledge gained from guided practice, children create their own animation using Scratch JR linking to their project work. Children could include own photographs as backgrounds in their animations as an extension to this unit of work.	Algorithm Instructions Position Forward Backward Left Right Turn (left / right) Logical Reasoning Predict Debug
	Resource Ideas	**Wider Curriculum Links**		
	https://www.barefootcomputing.org/resources/scratchjr-knock-knock-joke-activity PC/Laptop - Scratch JR	**Maths** Geometry – position and direction (year 2): Pupils should be taught to: Use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti- clockwise).		

Y2	Focus	Curriculum Content	Skills	Vocabulary
Digital Literacy Video / Photography	**Fit for Life** Through this project, children will be taught the necessary skills to research and produce a poster about a significant figure in the sporting world. This includes inputting and formatting pictures and text to create an aesthetically pleasing design.	• Use technology purposefully to create, organise, store, manipulate and retrieve digital content. • Recognise common uses of information technology beyond school. • Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.	**1. Safe Search** Children will be taught how to search safely and effectively using the internet. Following this, they will find a small amount of information about a significant figure in the sporting world. This will not include pictures at this stage. **2a. Inputting Text** Children will then progress onto inputting the text from their research using Microsoft Word. **2b. Formatting Text** Children will format the text using different sized fonts, colours and sizes aiming to make sections of the text stand out (e.g. titles). **3a. Inputting Pictures** Children will be taught how to import pictures from a file. **3b. Formatting Pictures** Children will format pictures to create poster, thinking about position, colour and size.	Poster Save Open Computer Screen Mouse Keyboard Right click Left click Type Text Font Picture Crop Format Background Copy Paste Aesthetics
	Resource Ideas	**Wider Curriculum Links**		
	PC/Laptop - Google Search and Microsoft Word	**History** Pupils should be taught about…the lives of significant individuals in the past who have contributed to national and international achievements.		

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Year 3

Y3	Focus	Curriculum Content	Skills	Vocabulary
E-Safety	 **Online Bullying** This strand explores bullying and other online aggression and how technology impacts those issues. It offers strategies for effective reporting and intervention and considers how bullying and other aggressive behaviour relates to legislation.	• Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	Children recognise the impact of good choices and consequences of wrong ones. They can select and use technology for a purpose. Children understand that they must ask an adult whether they can use a game or app. Children know that information can be retrieved from computers and can tell an adult if what they see makes them feel worried. Children recognise who they can ask for help and know when they need help. Children understand that they need to share equipment and take turns.	E-Safety Online Relationships Bullying Behaviours Legislation Ask / Tell Share Personal Information Privacy Password Internet Choices Purpose
	Resource Ideas	**Wider Curriculum Links**		
	Hector's World: http://www.hectorsworld.com/island/main/episode_theatre_interior_01/index.html	**PSHE** Progression in the content to reflect the different and escalating risks that young people face as they get older. This includes how to use technology safely, responsibly, respectfully and securely, how to keep personal information private, and where to go for help and support.		

Y3	Focus	Curriculum Content	Skills	Vocabulary
Computer Science Video / Photography	**Aesop's Fables Animation** During this project, children will learn about sequences of instructions in coding. They will begin by creating a short animation about a poem. This will give them the knowledge to go on and create their own animation about a fable.	• 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. • Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	**1a. Crazy Character Algorithms** https://www.barefootcomputing.org/resources/crazy-character-algorithms **1b. Programme Blue-Bots** to gain an understanding of inputting algorithms using computational thinking. **2. Animation** https://www.barefootcomputing.org/resources/animated-poem-decomposition Children taught a number of skills to code an animation using Scratch (poem) The animation is broken down into features to be programmed (backgrounds, characters, movement, text displayed). **3. Animating a Fable** The skills learnt through the animation tutorial can then be applied to their own animation about a fable. **4. Debugging** Children test animations, debug and make improvements before presenting.	Algorithm Sequence Debugging Bluetooth Code Algorithm Instructions Position Forward Backward Left Right Turn (left / right) Bee-Bot Bluebot Logical Reasoning Predict Debug
	Resource Ideas	**Wider Curriculum Links**		
	Animating a poem resources: https://www.barefootcomputing.org/resources/animated-poem-decomposition PC/Laptop - Scratch	**English** Children should be taught to develop positive attitudes towards and stamina for writing.		

Y3	Focus	Curriculum Content	Skills	Vocabulary
Digital Literacy Video / Photography	**Digimaps** Through this project, children will be navigate around using the Digimap for Schools app. They will become competent in adding labels and images to their own map and conduct some geographical fieldwork before marking their findings on the map.	• Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. • Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information. • Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	**1. Children explore Digimap app** Children given time to explore Digimap for themselves. Task them to find certain features on the map or buildings (e.g. school). **2. Navigating around a map** Children shown how to navigate around the map: zooming in and out, scrolling across the map etc. **3. Adding Text** Children taken through tutorial to add text to the map. They then add text to their own map – possibly marking on location of the school, but not their home (E-Safety). **4. Taking Images** Children to undertake some geographical fieldwork, taking photographs of findings around the local school area. **5. Adding Images** Children taken through tutorial to add images to the map. They then add their own images to the map accurately locating where their photograph was taken.	Navigate Zoom (in / out) Rotate North South East West Textbox Image Photograph Pin Label Crop Locate
	Resource Ideas	**Wider Curriculum Links**		
	iPads - Digimap for Schools app Digimap for Schools Guide and Ideas: https://digimapforschools.edina.ac.uk/schools/Resources/Secondary/quick_ideas.pdf Royal Geographical Society https://www.rgs.org/schools/teaching-resources/map-skills/map-skills-map-skills-year-three/	**Geography** Map work of local area		

Y3	Focus	Curriculum Content	Skills	Vocabulary
Digital Literacy	**Recipe Writing** By the end of this project, children have created and published a recipe and be competent and safe users of the internet to search for images.	• Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. • Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information. • Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	**1. Look at recipe books** Children given time to explore recipe books and find features (e.g. heading, pictures, captions etc.) **2. Safe Search** Children will be taught how to search safely and effectively for images using the internet. Save images in a file for Step 4. **3. Inputting and Formatting Text** Children will then progress onto inputting text using Microsoft Word or PowerPoint to create a recipe card. Children will format the text using different sized fonts, colours and sizes aiming to make sections of the text stand out (e.g. titles). **4. Inputting and Formatting Pictures** Inputting and Formatting pictures to create recipe card. Think carefully about the image they are using. **Optional - Touch Typing** Children take a series of touch typing lessons using a choice of programs (see Resource Ideas).	Safe Search Recipe Save Open Computer Screen Mouse Keyboard Right click Left click Type Text Font Picture Crop Import Format Copy
	Resource Ideas	**Wider Curriculum Links**		
	PC/Laptop - Microsoft Word or PowerPoint Touch Typing Programs: https://www.typingclub.com/sportal/program-3.game https://www.bbc.co.uk/bitesize/topics/zf2f9j6/articles/z3c6tfr	**PSHE** Progression in the content to reflect the different and escalating risks that young people face as they get older. This includes how to use technology safely, responsibly, respectfully and securely, how to keep personal information private, and where to go for help and support. **English** Children should be taught to develop positive attitudes towards and stamina for writing.		

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Year 4

Y4	Focus	Curriculum Content	Skills	Vocabulary
E-Safety	 **Online Reputation** This strand explores the concept of reputation and how others may use online information to make judgements. It offers opportunities to develop strategies to manage personal digital content effectively and capitalise on technology's capacity to create effective positive profiles.	• Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	Children understand the need for rules to keep them safe when exchanging ideas online. They understand that an adult needs to know what they are doing online and understand how to report concerns, including cyberbullying. Children recognise the need to choose age-appropriate games to play on their devices, and when to limit use. They recognise the need to protect their devices from viruses. Children understand that any personal information they put online can be seen and used by others. They recognise that they can use online tools to collaborate and communicate with others and the importance of doing this responsibly, choosing age-appropriate websites. Children recognise the effect their writing or images might have on others.	E-Safety Online Relationships Reputation Behaviours Legislation Ask / Tell Share Personal Information Privacy Password Communicate Responsible Profile
	Resource Ideas	**Wider Curriculum Links**		
	Captain Kara and the SMART Crew: https://www.childnet.com/resources/the-adventures-of-kara-winston-and-the-smart-crew/smart-crew-guidance-and-activities Be The Boss PowerPoint Game - Saved on system from Internet Safety Day 2020	**PSHE** Progression in the content to reflect the different and escalating risks that young people face as they get older. This includes how to use technology safely, responsibly, respectfully and securely, how to keep personal information private, and where to go for help and support.		

Y4	Focus	Curriculum Content	Skills	Vocabulary
Video / Photography	**The Firework Maker's Daughter: Exploding Film** During this project, children will discover the process behind creating films such as Wallace and Gromit, trial out different animation techniques and then create a short animation using stop-frame animation.	• Use sequence, selection, and repetition in programs; work with variables and various forms of input and output. • Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. • Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information. • Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	Lesson plan and video resources: https://stkcomputing.wixsite.com/stkcomputing **1. Introduction to stop frame animation** Watch short Wallace and Gromit Cracking Contraptions clips. Children to have a go at using Lego Movie Maker on iPads using plasticine. (Watch short video for inspiration) **2. Animation using Lego** Children to use Lego characters to animate using Lego Movie Maker on iPads. Talk about advantages/disadvantages of Lego vs plasticine **3. Storyboarding** Children to storyboard their animation – based on volcano exploding. **4. Film Animation** Children to select appropriate medium to create their animation (Lego, plasticine, paper drawings etc.) **5. Edit Animation** Children to edit their animations adding in text and sound effects as appropriate.	Stop Frame Animation Storyboard Sequence Programme Selection Repetition Focus Edit Photograph Lighting Sound Text
	Resource Ideas	**Wider Curriculum Links**		
	Lesson Plan and video resources: https://stkcomputing.wixsite.com/stkcomputing iPads - Lego Movie Maker or Stop Frame Animation App	**Art & Design Technology** KS2: • Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities • To improve their mastery of art and design techniques, including drawing, painting and sculpture with a range of materials		

Y4	Focus	Curriculum Content	Skills	Vocabulary
Digital Literacy	**Out of this World** Children will use Microsoft Word to create a fact file. During the project, they will be taught how to input and format text and pictures, in addition to using the internet to search effectively and safely.	• Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. • Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information. • Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	**1. Brilliant Beginning – Space 4D+ Cards** Children use Space 4D+ (augmented reality) cards and iPads to learn information about space. **2. Safe Search** Children will be taught how to search safely and effectively using the internet with help from a video which discusses how devices are connected to each other. https://www.youtube.com/watch?v=M-njh8mFvVk&feature=emb_title Following this, they will use the internet to research information about space in a safe manner. This will not include pictures at this stage. **3. Inputting and Formatting Text** Children will then progress onto inputting the text from their research using Microsoft Word to create a fact file. Children will format the text using different sized fonts, colours and sizes aiming to make sections of the text stand out (e.g. titles). **4. Inputting and Formatting Pictures** Inputting and Formatting pictures to create Poster.	Safe Search Fact File Save Open Computer Screen Mouse Keyboard Left / Right click Type Text Font Picture Crop Import Format Copy Paste Aesthetics
	Resource Ideas	**Wider Curriculum Links**		
	E-Safety - Safe Searching: https://www.youtube.com/watch?v=M-njh8mFvVk&feature=emb_title Space 4D+ Cards iPads – Space 4D+ app	**PSHE** Progression in the content to reflect the different and escalating risks that young people face as they get older. This includes how to use technology safely, responsibly, respectfully and securely, how to keep personal information private, and where to go for help and support. **Science** Earth and Space		

Y4	Focus	Curriculum Content	Skills	Vocabulary
Computer Science	**Seashore Book** Children will be taught the process of decomposition and how it relates to computer science and programming. They will then be taught the necessary skills to create a game using Scratch before using these skills to design and code their own game.	• 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. • Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	**1. Decomposition** Children are taught about the process of decomposition and how it relates to computer science and programming. https://www.bbc.co.uk/bitesize/topics/zkcqn39/articles/z8ngr82 **2. Programme Blue-Bots** (remotely) using iPad app to gain an understanding of inputting algorithms using decomposition and computational thinking. **3. Coding Skills** Children shown a number of skills to code their own game following step-by-step tutorials in 'Little Coders' books or use 'Boat Race' tutorial (advanced): https://projects.raspberrypi.org/en/projects/boat-race **4. Plan Game** Children to select skills learnt to design their own adventure game using Scratch thinking about decomposition. **5. Create Game** Children to follow their plan to create their own adventure game using Scratch.	Decomposition Computational Thinking Algorithm Bluetooth Instructions Sprite Costumes Blocks Code Motion Background x / y coordinate Size Direction Input Output
	Resource Ideas	**Wider Curriculum Links**		
	Decomposition Video: https://www.bbc.co.uk/bitesize/topics/zkcqn39/articles/z8ngr82 Blue-Bots iPads – Bluebot app Little Coders Books or Online Scratch Tutorial (Code Club): https://projects.raspberrypi.org/en/projects/boat-race	**English** Reading **Maths** Geometry – position and direction		

St Katharine's CE Primary School

Computing Progression Pathway

Year 5

Y5	Focus	Curriculum Content	Skills	Vocabulary
E-Safety	 **Health, Wellbeing and Lifestyle** This strand explores the impact that technology has on health, well-being and lifestyle. It also includes understanding negative behaviours and issues amplified and sustained by online technologies and the strategies for dealing with them.	• Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	Children understand the need to keep personal information and passwords private, and know how to choose a secure password. Children understand appropriate and inappropriate use of the Internet including excessive use. Children recognise the risks and rewards of using Internet communication tools and understand how to protect themselves and the devices they use. Children understand the need to respect the rights of other users, and understand their own responsibility for information that is shared and how it may impact on others.	E-Safety Online Relationships Reputation Behaviours Legislation Ask / Tell Share Personal Information Privacy Password Communicate Responsibility Profile
	Resource Ideas	**Wider Curriculum Links**		
	PSHE Association Website KS2 (Y5/6 resources - PowerPoint) https://www.pshe-association.org.uk/curriculum-and-resources/resources/mental-health-and-emotional-wellbeing-lesson-plans Internet Addiction Charter: https://www.tabletsforschools.org.uk/?s=internet+addiction	**PSHE** Progression in the content to reflect the different and escalating risks that young people face as they get older. This includes how to use technology safely, responsibly, respectfully and securely, how to keep personal information private, and where to go for help and support.		

Y5	Focus	Curriculum Content	Skills	Vocabulary
Video / Photography	**Kensuke's Kingdom** During this project, children will create a movie trailer based on the book Kensuke's Kingdom by Michael Morpurgo. They will think about sequence and use their own images and photography to create their trailer.	• Use sequence, selection, and repetition in programs; work with variables and various forms of input and output. • Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. • Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information. • Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	**1. iMovie Taster** Children are taken through a tutorial on how to use the iMovie app on iPads to create a mini movie trailer. **2. Plan Movie Trailer** Children plan out their movie trailer thinking about sequence, images, transition effects and text. **3. Collate images** Children collate images to use in trailer including searching and saving images online, creating their own images (artwork) and taking photographs of their own artwork and with images from the book. **4. Create Final Trailer** Children combine their images, text and sounds and use their plan to create their own movie trailer.	Trailer Soundtrack Titles Text Select Storyboard Sequence Selection Repetition Safe Search Import Export
	Resource Ideas	**Wider Curriculum Links**		
	iPads - iMovie app Tutorial (for teachers): https://www.youtube.com/watch?v=hMIsraMg7V4	**Art & Design Technology** KS2: • Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities • To improve their mastery of art and design techniques, including drawing, painting and sculpture with a range of materials		

Y5	Focus	Curriculum Content	Skills	Vocabulary
Digital Literacy Computer Science	**The Science of Data** During this project, children will be introduced to Excel. Using simple code, they will create graphs and charts using data from science experiments to display their results.	• 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. • Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	**1. Carry out investigation(s)** Children to carry out a series of Science investigations recording the results on paper. **2. Introduction to Excel/Numbers** Choice of hardware and software: • PC/Laptop using Excel • IPads using Numbers. They will then use data collected to input into Excel or Numbers to create (output) charts and graphs, which can be analysed.	Input Output Data Graph Cell Validation Excel / Numbers Formatting
	Resource Ideas	**Wider Curriculum Links**		
	PC/Laptop - Excel iPad - Numbers app Data from Science investigation(s)	**Science** • Taking measurements, using a range of scientific equipment, with increasing accuracy and precision • Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, and bar and line graphs • Using test results to make predictions to set up further comparative and fair tests • Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of results, in oral and written forms such as displays and other presentations		

Y5	Focus	Curriculum Content	Skills	Vocabulary
Computer Science	**Kick** During this project, children will be reminded of the process of decomposition and learn how to create a game on Scratch. They will then use this knowledge to plan and code a game linked to the book Kick by Mitch Johnson.	• 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. • Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	**1a. Decomposition** Children are reminded (back to year 4) about the process of decomposition and how it relates to computer science and programming. https://www.bbc.co.uk/bitesize/topics/zkcqn39/articles/z8ngr82 **1b. Programme Blue-Bots** (remotely) to undertake a series of tasks (e.g. navigating around a maze and collecting a ping pong ball) using iPad app to gain an understanding of inputting algorithms using decomposition and computational thinking. **2. Coding Skills** Children shown a number of skills to code their own game following step-by-step 'Create your own world' tutorial (advanced): https://projects.raspberrypi.org/en/projects/create-your-own-world **3. Plan Game** Children to use skills learnt to design their own adventure game linking to Kick by Mitch Johnson using Scratch, thinking about decomposition. **4. Create Game** Children to follow their plan to create their own adventure game using Scratch.	Decomposition Computational Thinking Algorithm Bluetooth Instructions Sprite Costumes Blocks Code Motion Background x / y coordinate Size Direction Input Output
	Resource Ideas	**Wider Curriculum Links**		
	Decomposition Video: https://www.bbc.co.uk/bitesize/topics/zkcqn39/articles/z8ngr82 Blue-Bots and iPads - Bluebot app PC/Laptop - Scratch Online Scratch Tutorial: https://projects.raspberrypi.org/en/projects/create-your-own-world	**English** Reading **Maths** Geometry – position and direction		

St Katharine's CE Primary School

Computing Progression Pathway

Year 6

Y6	Focus	Curriculum Content	Skills	Vocabulary
E-Safety	 **Self-image and Identity** This strand explores the differences between online and offline identity beginning with self-awareness, shaping online identities and how media impacts on gender and stereotypes. It identifies effective routes for reporting and support and explores the impact of online technologies on self-image and behaviour.	• Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	Children recognise their own right to be protected from the inappropriate use of technology by others and their responsibility to report concerns. Children understand how to use social networking websites appropriately, keeping an adult informed about their online activity. They make good choices when they present themselves online. Children recognise the appropriate online tools to collaborate and communicate with others, understanding how to protect themselves from cyberbullying or causing hurt to others, especially when using social networks (including online gaming communities). Children understand the need to respect the rights of other users, and understand their own responsibility for information that is shared and how it may impact on others.	E-Safety (Online) Identity Self-image Online Relationships Reputation Behaviours Legislation Ask / Tell Share Personal Information Privacy Password Communicate Responsibility Profile
	Resource Ideas	**Wider Curriculum Links**		
	PSHE Association Website (Designed for KS3 but some useful resources) https://www.pshe-association.org.uk/curriculum-and-resources/resources/dove-self-esteem-project-teaching-resources-five Primary Stars Website: https://plprimarystars.com/resources/self-esteem	**PSHE** Progression in the content to reflect the different and escalating risks that young people face as they get older. This includes how to use technology safely, responsibly, respectfully and securely, how to keep personal information private, and where to go for help and support.		

Y6	Focus	Curriculum Content	Skills	Vocabulary
Digital Literacy Video / Photography	**Autumn Enterprise** During this project, children will create a digital poster advertisement to sell a product thinking carefully about aesthetics. In addition, they will create a short video pitch or trailer.	• Use sequence, selection, and repetition in programs; work with variables and various forms of input and output. • Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. • Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information • Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	**1. Introduction to visual advertising** Children are shown a series of poster advertisements and decide what makes them good/bad. Introduce poster advertisement guidance booklet – providing step by step guidance to create a successful poster advertisement. Children shown how to create a poster advertisement using PowerPoint (easier to position text and images than Word). **2. Create digital advertisement** Children use poster advertisement guidance booklet to create their own poster advertisement including use of text on page, tag line, use of image and colour. **3. Creating a video pitch/trailer** Children use their knowledge of iMovie (Y5) to film and create a movie trailer of pitch to sell their product.	Advertisement Formatting Scale Crop Select Sequence Safe Search Layer Overlay Visual Tag line
	Resource Ideas	**Wider Curriculum Links**		
	PC/Laptop - PowerPoint iPad - Camera app and iMovie			

Y6	Focus	Curriculum Content	Skills	Vocabulary
Computer Science	**Game-On** During this project, children will be reminded of the process of decomposition and learn how to create a game on Scratch. They will then use this knowledge to plan and code a game appealing to a specific target group.	• Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. • Use sequence, selection, and repetition in programs; work with variables and various forms of input and output. • Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs. • Understand computer networks including the internet; how they can provide multiple services, such as the World Wide Web; and the opportunities they offer for communication and collaboration.	**1a. Decomposition** Children are reminded (back to year 4 & 5) about the process of decomposition and how it relates to computer science and programming. https://www.bbc.co.uk/bitesize/topics/zkcqn39/articles/z8ngr82 **1b. Programme Blue-Bots** (remotely) to undertake a series of tasks (e.g. navigating around a maze and collecting a ping pong ball) using iPad app to gain an understanding of inputting algorithms using decomposition and computational thinking. **2. Coding Skills** Children shown a number of skills to code their own game following step-by-step tutorials; Little Coders Books or online: https://projects.raspberrypi.org/en/codeclub/scratch-module-3 **3. Plan Game Considering Target Audience** Children to use skills learnt to design their own adventure game for a specific target audience, thinking about decomposition. **4. Create Game & Evaluation** Children to follow their plan to create their own adventure game using Scratch before it is tested out, correcting any bugs, and presented to a member of their target audience for evaluation.	Decomposition Computational Thinking Algorithm Bluetooth Instructions Sprite Costumes Blocks Code Motion Background x / y coordinate Size Direction Input Output Target audience Evaluation
	Resource Ideas	**Wider Curriculum Links**		
	Decomposition Video: https://www.bbc.co.uk/bitesize/topics/zkcqn39/articles/z8ngr82 Blue-Bots and iPads - Bluebot app PC/Laptop - Scratch Little Coders Books Online Scratch Tutorials: https://projects.raspberrypi.org/en/codeclub/scratch-module-3	**Maths** Geometry – position and direction		

Y6	Focus	Curriculum Content	Skills	Vocabulary
Digital Literacy Computer Science Video / Photography	**Summer Enterprise** This project is a culmination of computing lessons during a pupil's time at St Katharine's. Using their knowledge of a variety of computing hardware and software, children will create digital advertisements, brochures, spreadsheets and video advertisements as well as learn about how to publicise an event using email and social media safely and responsibly.	• 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. • Understand computer networks including the internet; how they can provide multiple services, such as the World Wide Web; and the opportunities they offer for communication and collaboration. • Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	**1. Advertising** Poster advertisements Programme/Brochure design Ticket design **2. Spreadsheets** Use Excel to create budgeting calculator showing costs, profit margin etc. Use data to create tables, graphs, pie charts etc. **3. Video advertisement** Promote the show – iMovie **4. Publicising** Using Email and social media safely and responsibly. **5. Google Logo (extension)** Possible extension to design a Google logo (instructions and platform): https://csfirst.withgoogle.com/c/cs-first/en/create-your-own-google-logo/create-your-own-google-logo/create-your-own-google-logo.html Children watch video to set the task before designing a Google logo linking to their chosen enterprise topic.	Advertisement Formatting Scale Crop Select Sequence Safe Search Layer Overlay Visual Tag line Budget Spreadsheet Data Publicising Email Social Media
	Resource Ideas	**Wider Curriculum Links**		
	PC/Laptop - PowerPoint/Excel iPad - Camera app and iMovie Create your own Google logo: https://csfirst.withgoogle.com/c/cs-first/en/create-your-own-google-logo/create-your-own-google-logo/create-your-own-google-logo.html	**PSHE** Progression in the content to reflect the different and escalating risks that young people face as they get older. This includes how to use technology safely, responsibly, respectfully and securely, how to keep personal information private, and where to go for help and support.		