COMPUTING - Curriculum Overview

Computing at St Thomas's Primary School

Intent	Computing is an integral part of learning and life. At St Thomas, it is our mission to develop confident, independent learners who are able to plan, design, create, program and evaluate information through the use of ICT. We aim to engage children with cross-curricular learning through interacting with a wide variety of technology as well as provide children with the necessary knowledge and skills in order to stay safe in the virtual world.
Imple-ment	At St Thomas, the development of computing skills starts early, with elements of computing are delivered to the Reception children, through the Early Years Foundation Stage Curriculum (Knowledge & Understanding of the World) and are incorporated into the termly topics. Each class across the school has one discrete computing lesson each week, which will address at least one of the fundamental computing skills. Throughout topics, further opportunities to use technology whilst linking to other areas of the curriculum will be encouraged as often as possible. Pupils will have access to varied technology across the curriculum to enhance their development, and are encouraged to use these resources whenever they need them. These resources include ipads, chromebooks, and recording devices. All objectives of the Computing subject overview for each year group are taught as and when necessary and are added to individual medium and short term planning at the time. It may sometimes be possible and/or necessary to address these in lessons in other subject areas, as well as computing lessons. The subject overview document, which outlines substantive and disciplinary knowledge as well as skills progression through the year groups, is used to inform teachers long-term planning to ensure coverage and a development of skills and knowledge across the three core strands.
Impact	Our approach to the computing curriculum is to provide fun, engaging learning for all pupils that will be impactful and meani ngful. Throughout lessons, informal judgements and verbal feedback is provided during tasks. Different outcomes, such as mind maps and quizzes, are utilised by teachers to develop a sense of progress for each pupil, through their developing vocabulary and skills. Prior learning is reviewed during lessons, and work is reviewed by teachers so that misconceptions are identi-fied for address in subsequent lessons. The impact of our curriculum and the quality of children's learning is evident in their work, which is shared, published and celebrated on different platforms, including Seesaw (an online platform) and in their topic books – using photographs and QR codes to showcase digital work.
Context	**"I come that they might have life and life in all its fullness." The Gospel of John 10 v 10** In line with our Christian values, we teach our children to use technology in a responsible and respectful manner and to persevere with skills that they may find challeng-ing. We want every child to know how to utilise technology to help them succeed in a ever-technologically advancing world.

Learning and Growing in the Sight of God

Learning	Growing	Sight of God
 add others		
At St Thomas we have created a balance of knowledge and skills in each unit of study. Knowledge and therefore learning is built upon in each lesson, with regular opportunities given for knowledge re-trieval. Children are given every chance of success in order to max-imise motivation	At St Thomas the children are encouraged throughout each period of history they study to empathise with the people alive at the time, to explore different viewpoints and to **grow** their understanding themselves and others.	Our church is at the centre of our community and our school. We link our Christian Values throughout our curriculum and work and learn together in the sight of God.

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Substantive Knowledge

Substantive Knowledge

Substantive knowledge in computing is understanding how to use technology, how to stay safe when using technology, and knowing how to program. This principal is developed through deliberate practice and by children applying their knowledge of how to be computational thinkers.

Substantive Concepts - Golden Threads

In order to develop as computational thinkers, children engage with three central computational concepts and approaches.

Coding and Computer Science	Information Technology and Online Safety	Digital Literacy
The technical design. The design of new software, the solution to computing problems and the development of different ways to use technology.	The technical knowledge. The design, use and understanding of hardware and software; computers and electronic systems for storing and using information, and knowing how to use these systems effectively and safely	The technical skills. The ability to use information and communication technologies to find, create, evaluate, and communicate information

Disciplinary knowledge

Disciplinary Knowledge

Disciplinary knowledge in computing is the use and interpretation of substantive knowledge in order to develop original digital content and programs.

Disciplinary Concepts

The core disciplinary concepts are Computer Navigation, Data and Information, Creating Media, Computing Systems and Networks and Programming.

Computer Navigation	Data and Information	Creating Media
Understand risks when using technology, and how to protect individuals and systems	Understand how data is stored, organised, and used to represent real-world artefacts and scenarios	Select and create a range of media including text, images, sounds, and video

Computing Systems	Networks and Programming
Understand what a computer is, and how its constituent parts function together as a whole Be able to comprehend, design, create, and evaluate algorithms Use software tools to support computing work	Create software to allow computers to solve problems. Understand how networks can be used to retrieve and share information, and how they come with associated risks

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*The Computing curriculum at St Thomas is fluid and each of these objectives can be the focus of lessons at any point of the year *
Disciplinary knowledge Substantive knowledge

	Coding and Computer Science	Information Technology and Online Safety	Digital Literacy
Nursery	Select and use activities and resources, with help when needed Match their developing physical skills to tasks and activities in the setting Explore how things work Listen with increased attention to sounds	Being able to remember rules without needing an adult to remind them (link to safety).	Create closed shapes with continuous lines, and begin to use these shapes to represent objects
Reception	Show resilience and perseverance in the face of a challenge Explore how things work Explore, use and refine a variety of artistic effects to express their ideas and feelings They create collaboratively, sharing ideas, resources and skills	Know and talk about the different factors that support their overall health and wellbeing such as sensible amounts of 'screen time'	Develop their small motor skills so that they can use a range of tools competently, safely and confidently Develop overall body-strength, balance, coordination and agility
Year 1	Understand what instructions are Use code to make a computer program Use an event to control an object Understand and use backgrounds and objects Begin to understand how code executes when a program is run Plan a computer program Make a computer program	Log in safely and understand why that is important Understand the importance of logging out when they have finished Create an avatar and understand what this is and how it is used Be able to create a picture and add their own name to it Start to understand the idea of 'ownership' of creative work	Identify examples of technology in the classroom Name the main parts of a PC device and begin to explain what each part is used for Switch on a PC device, sometimes with adult support and use a keyboard to log on to a PC device Identify and use some of the main keys on a keyboard to complete a task Use bold, italic and underline when typing text Sort items on a computing device e.g. using the 'Grouping' activities in Purple Mash Begin to use different programs (e.g. 2paint, Microsoft word) to create and save work

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Year 2	Understand what an algorithm is Create a program using a given design Design an algorithm that follows a timed sequence Modify the properties of an object Use different events in their program to make objects move Create a program using a given design Understand the function of buttons in a program Know what debugging means and debug simple programs	Gain a better understanding of searching the Internet Know how to refine searches using the Search tool and search engines Know how to share work electronically (e.g. using the display boards on purple mash) Understand email as a form of digital communication Open and send simple online communications in the form of email Understand 'digital footprint' and explain it's meaning Identify the steps that can be taken to keep personal data and hardware secure	Explore how information can be presented in different ways Collect, organise and present data and information in digital content Use technology and different software to create a class presentation Add text and images to a presentation Create digital pieces of art in a variety of styles using online software e.g. 2Paint A Picture, Paint Open a file from a saved location
Year 3	Understand and use flowcharts within computer programs Understand different types of timer and select the right timer for a purpose Use the repeat command Create computer programs using prior knowledge Run, test and debug programs and consider nesting Plan, design and create an interactive scene	Know what makes a safe password, how to keep passwords safe and the consequences of giving your passwords away Understand how the Internet can be used to help us to communicate effectively Consider if what can be read on websites is always true Understand the meaning of 'spoof' websites Create a 'spoof' webpage Learn about the meaning of age restrictions symbols on digital media and devices	Understand the correct way to sit at the keyboard Learn how to use the home, top and bottom row keys Create a simple presentation Insert text boxes and images Move, resize and arrange text boxes and images effectively Use slide transitions in a presentation Evaluate slide layout and make improvements Draw objects Order and group objects effectively Understand and create their own branching database

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Year 4	Create a simple computer program Begin to understand selection and use IF statements in computing programming Understand how to use co-ordinates Understand the Repeat until command and how an IF/ ELSE statement works Create and use variables Create a program using a given design Review vocabulary and concepts learnt in Year 3 Coding	Understand how children can protect themselves from online identity theft Explain that information put online leaves a digital footprint or trail and that this can aid identity theft Identify the risks and benefits of installing software including apps Understand that copying the work of others and presenting it as their own is called 'plagiarism' and to consider the consequences of plagiarism Identify the positive and negative influences of technology on health and the environment	Select, edit and manipulate text in a variety of ways Insert an image into a document Use formatting tools to improve the layout Change the size and orientation of pages in a word processing document Explain what is meant by animation Create a series of linked frames that can be played as a short animation Insert images to create a simple stop motion animation short film clip Make practical use of a spreadsheet to help plan actions Explore how numbers can be entered into cells in a spreadsheet
Year 5	Begin to simplify code Create a playable game Understand and program a simulation Take a real-life situation, decompose it and think about the level of abstraction Begin to understand what a function is and how functions work in code Create and use strings in programming Begin to explore text variables when coding	Gain a greater understanding of the impact that sharing digital content can have Review the responsibility of children to one another in their online behaviour Know how to maintain secure passwords Be aware of appropriate and inappropriate text, photographs and videos and the impact of sharing these online Search the Internet with a consideration for the reliability of the results of sources to check validity Ensuring reliability through methods of communication	Plan, design and create the game quest to make it a playable game Learn how to search for information in a database Add and edit images to a word document Know how to use word wrap with images and text Add features to a document to enhance its look and usability Use tables within MS Word to present information Create a database around a chosen topic Use a spreadsheet to model a real-life problem Create formulae that use text variables Design a 3D model to fit certain criteria

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Year 6	Design a playable game with a timer and a score Use functions and understand why they are useful Use flowcharts to test and debug a program Modify the properties of an object Understand how user input can be used in a program	Identify benefits and risks of mobile devices broadcasting the location of the user/device, e.g., apps accessing location Have a clear idea of appropriate online behaviour and how this can protect themselves and others from possible online dangers, bullying and inappropriate behaviour Understand the importance of balancing game and screen time with other parts of their lives Discuss and understand the positives and negative aspects of technology and balance these opposing views	Use a spreadsheet to model a real-life situation and come up with solutions that can be applied to real life Use a spreadsheet to model a real-life situation and come up with solutions that can be applied to real life Navigate and enter data into cells on a spreadsheet Demonstrate how the use of Excel can save time and effort when performing calculations Create a variety of graphs in Excel Design a text based adventure game based on one they have played Create a picture-based quiz for young children Explore different question types in a quiz Make a quiz that requires the player to search a database Make a survey and analyse the responses Understand how to create a quiz for a specific audience

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	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Nursery	Digital Tools and Safety Compassion/Faith/Trust	Listening and Sound Exploration Faith	Exploring How things work Perseverance	Physical Skills and Matching Tasks Joy	Creating Shapes and Representing Objects Joy	Independent Activity Selection and Rule Following Joy/Perseverance
Reception	Digital Safety and Equipment Use Faith/Trust	Digital Artwork Joy	Exploring How things work Perseverance	Collaborative creation Faith/Trust/Community	Digital Artwork Joy/Perseverance	Computing Skills Joy/Perseverance/ Community
Year 1	Online Safety Trust	Grouping and Sorting Pictograms Joy/Perseverance	Lego Builders Perseverance	2 Create A Story Joy/Perseverance	Coding Joy/Perseverance	Coding Joy/Perseverance
Year 2	Online Safety & Using Seesaw to store work digitally Faith/Trust	Coding Perseverance	Digital Artwork & Video Recording	Digital Artwork Joy/Perseverance	Coding Joy /Perseverance	Digital Fact Files Joy
Year 3	Online Safety Trust	Coding Perseverance	Graphing Joy/Perseverance	Spreadsheets Perseverance	Touch Typing Perseverance	Presentations Joy
Year 4	Online Safety Trust	Effective Searching Joy/Perseverance	Coding Perseverance	Animation Joy/Perseverance	Publishing Writing Joy/Community	Spreadsheets Joy/Perseverance
Year 5	Online Safety Coding Perseverance	Spreadsheets Joy/Perseverance	Databases Joy/Perseverance	Game Creating Joy/Perseverance	3D Modelling Word Processing Joy/Perseverance	Concept Maps Joy/Perseverance
Year 6	Online Safety Community/Trust	Quizzes Community/Trust/ Perseverance	Spreadsheets (Excel)Joy/ Perseverance	Film Making (iMovie) Joy/Perseverance	Coding Perseverance	Coding Perseverance

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Nursery	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topic	**Digital Tools and Safety**	**Listening and Sound Exploration**	**Exploring How things work**	**Physical Skills and Matching Tasks**	**Creating Shapes and Representing Objects**	**Independent Activity Selection and Rule Following**
Enquiry Question	How do we use things safely?	What sounds can we hear on the computer?	How do buttons make things happen?	How do we use our hands to play on the computer?	How can we draw shapes on the computer?	What can we do on the computer by ourselves?
Key Vocabulary	Computer Tablet Screen Safe Rules Help	Sound Listen Music Quiet Loud Hear	Button Click Move Work Push Change	Hands Move Tap Drag Match Screen	Shape Circle Line Draw Picture Object	Choose Activity Remember Rules Safe Play
Disciplinary enabling environment	• Select and use activities and resources, with help when needed • Match their developing physical skills to tasks and activities in the setting • Explore how things work • Listen with increased attention to sounds • Being able to remember rules without needing an adult to remind them (link to safety). • Create closed shapes with continuous lines, and begin to use these shapes to represent objects					
Experiential Knowledge Our Church /Our Community Visit / Place / Person	Safer Internet Day		STEM Week	Bee Bots		

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Reception	Autumn 1		Autumn 2		Spring 1		Spring 2		Summer 1		Summer 2	
Topic	**Digital Safety and Equipment Usage**		**Digital Artwork**		**Exploring How things work**		**Collaborative Work**		**Digital Artwork**		**Computing Skills**	
Enquiry Question	How can we use computers safely and healthily?		How can we use the technology in our classroom?		How do digital tools and robots work?		How can we use technology together?		How can we use computers for artwork?		How do we save our work so we can see it again?	
Key Vocabulary	Computer Screen Keyboard Mouse Click Drag	Safe On/Off Break Screen time Healthy	Art Drawing Painting Colour Shape Line	Tool Effect Create Share Ideas	Coding Program Robot Tablet Interactive Whiteboard	Button Switch Follow Leader Balance	Teamwork Share Idea Overcome	Challenge Resilience Perseverance Listen	Photo Brush Mouse Physical	Touchscreen Project Skills	Comprehensive Skill Integrate Challenge Project Collaboration	Movement Presentation Exhibition Growth Development
Disciplinary enabling environment	Show resilience and perseverance in the face of a challenge Develop overall body-strength, balance, coordination, and agility Develop their small motor skills so that they can use a range of tools competently, safely, and confidently Being able to remember rules without needing an adult to remind them (link to safety)											
Experiential Knowledge	Safer Internet Day				STEM Week		Bee Bots					

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Year 1	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Online Safety	**Grouping and Sorting Pictograms**	**Lego Builders**	**2 Create A Story**	**Coding**	**Coding**
St Thomas' Value	Compassion	Trust	Perseverance	Faith	Community	Joy
Substantive Concepts	Log in safely and understand why that is important Understand the importance of logging out when they have finished Create an avatar and understand what this is and how it is used Be able to create a picture and add their own name to it Start to understand the idea of 'ownership' of creative work	Identify examples of technology in the classroom Sort items on a computing device (e.g., using the 'Grouping' activities in Purple Mash) Use bold, italic, and underline when typing text Begin to use different programs (e.g., 2Paint, Microsoft Word) to create and save work	Use code to make a computer program Use an event to control an object Understand and use backgrounds and objects Begin to understand how code executes when a program is run Plan a computer program	Be able to create a picture and add their own name to it Begin to use different programs (e.g., 2Paint, Microsoft Word) to create and save work Understand and use backgrounds and objects	Understand what instructions are Use code to make a computer program Use an event to control an object Understand and use backgrounds and objects Begin to understand how code executes when a program is run Plan a computer program Make a computer program	Understand what instructions are Use code to make a computer program Use an event to control an object Understand and use backgrounds and objects Begin to understand how code executes when a program is run Plan a computer program Make a computer program
Key Vocabulary (On Knowledge Organiser)	Password Avatar Log out My Work Area Notification Device Private Search Purple Mash Tools File Name Button Saving Menu Alert Icon Log in	Criteria Groups Sorting Algorithm Collect Data Compare Data Pictogram Title	Algorithm Code Computer Debug	Animation E-book Background Edit Text Action Code Algorithm Command Execute Sound Font Event	Background Debug Input Action Code Event Algorithm Command Execute	Background Debug Input
Disciplinary Concepts	Understand what instructions are Use code to make a computer program Begin to understand how code executes when a program is run Plan a computer program	Understand what instructions are Use code to make a computer program Understand what instructions are Plan a computer program	Understand what instructions are Make a computer program	Understand what instructions are Plan a computer program Make a computer program	Understand what instructions are Make a computer program	Understand what instructions are Make a computer program
Experiential Knowledge	Safer Internet Day		STEM Week			

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Year 2	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Online Safety & Using Seesaw to store work digitally	**Coding**	***Digital Artwork* & Video Recording**	***Digital Artwork***	**Coding The Great Fire of London**	**Digital Fact Files**
Enquiry Question	How do we stay safe online?	What is an algorithm?	How is digital art-work different from non-digital?	What artistic styles can I create using an iPad?	What can we use coding to do?	How can we use computing to store work digitally?
St Thomas' Value	Compassion	Trust	Perseverance	Faith	Community	Joy
Substantive Concepts	Know how to share work electronically (e.g. using the display boards on purple mash) Identify the steps that can be taken to keep personal data and hardware secure Open a file from a saved location	Design an algorithm that follows a timed sequence Use different events in their program to make objects move Modify the properties of an object Create a program using a given design Know what debugging means and debug simple programs	Collect, organise and present data and information in digital content Create digital pieces of art in a variety of styles using online software e.g. 2Paint A Picture, Paint	Collect, organise and present data and information in digital content Create digital pieces of art in a variety of styles using online software e.g. 2Paint A Picture, Paint	Create a program using a given design Use different events in their program to make objects move Modify the properties of an object Create a program using a given design Know what debugging means and debug simple programs	Collect, organise and present data and information in digital content Use a search engine Use technology and different software to create a class presentation Add text and images to a presentation Open a file from a saved location
Key Vocabulary (On Knowledge Organiser)	Search Display board Internet Sharing Email Attachment Digital Footprint	Action Algorithm Bug Character Code block Code Design Command Debug/Debugging Design Mode Input Object Properties Repeat Scale Timer When clicked	Digital Artwork Image Drawing Paint Colours Shapes Lines Patterns Tools Fill Canvas Layer Edit Save Print Design Create Brush Eraser	Digital Artwork Image Drawing Paint Colours Shapes Lines Patterns Fill Canvas Layer Edit Save Print Design Create Tools Brush Eraser	Action Algorithm Bug Character Code block Code Design Command Debug/Debugging Design Mode Input Object Proper-ties Repeat Scale Timer When clicked When Key	Digital Fact file Information Text Image Title Subheading Paragraph Font Bullet points Layout Design Edit Save Insert Link File Document Template
Disciplinary Concepts	Gain a better understanding of searching the Internet Understand 'digital foot-print' and explain its meaning	Understand what an algorithm is. Understand the function of buttons in a program	Explore how information can be presented in different ways	Explore how information can be presented in different ways	Understand what an algorithm is. Understand the function of buttons in a program	Gain a better understanding of searching the Internet Explore how information can be presented in different ways
Experiential Knowledge	Safer Internet Day		STEM Week			

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Year 3	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Online Safety	**Coding**	**Graphing** (Link- Animals including humans in Science)	**Spreadsheets** (Link- Sandwich making in DT)	**Touch Typing**	**Presentations** (Link- Passport to Europe in Geography)
Enquiry Question	Is everything I read on the internet true?	Why are flowcharts and timers useful in computer programming?	Which food group is the most eaten in our class, and what does it say about us?	How could I use spreadsheets to help calculate the price of sandwiches	Why should I type certain keys with certain fingers?	How can I present information about a country in a fun way?
St Thomas' Value	Compassion	Trust	Perseverance	Faith	Community	Joy
Substantive Concepts	- Know and explain what makes a safe password, how to keep passwords safe and the consequences of giving your passwords away - Create a 'spoof' webpage - Learn about the meaning of age restrictions symbols on digital media and devices	- Use the repeat command - Create computer programs using prior knowledge - Run, test and debug programs and consider nesting - Plan, design and create an interactive scene	- Enter data into a graph and answer questions - Solve an investigation and present the results in graphic form - Analyse data to draw conclusions	- Use the symbols more than, less than and equal to, to compare values. - Collect data and use a program to produce a variety of graphs	- Learn how to use the home, top and bottom row keys - Be able to type with left and right hands	- Create a simple presentation - Insert text boxes and images - Move, resize and arrange text boxes and images effectively - Use slide transitions in a presentation - Evaluate slide layout and make improvements - Draw objects - Order and group objects effectively
Key Vocabulary (On Knowledge Organiser)	blog, copyright, email, internet, ownership, password, PEGI rating, spoof website, username, webpage, website	action, algorithm, bug, code block, code design, command, debug/debugging, design mode, event, If, input, output, repeat, object, properties, timer, computer simulation, selection, variable	advance mode, bar graph, cell, column data, equals, less than, more than, pie chart, spreadsheet, table	bar graph, cell, column data, equals, less than, more than, pie chart, spreadsheet, table	keyboard, keys, posture, spacebar, typing	animation, border, font, formatting, layer, media, presentation, slide, slideshow, transition, media, text boxes
Disciplinary Concepts	- Understand how the Internet can be used to help us to communicate effectively - Consider if what can be read on websites is always true - Understand the meaning of 'spoof' websites	- Understand and use flowcharts within computer programs - Understand different types of timer and select the right timer for a purpose	Understand how to collate, input and analyse data	Understand how to collate, input and analyse data	Understand the correct way to sit at a keyboard	Understand the key components of presentations and how they fit together
Experiential Knowledge	Safer Internet Day		STEM Week			

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Year 4	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Online Safety	**Effective Searching**	**Coding**	**Animation** (Link to water cycle in Science)	**Publishing Writing** (Link to river poetry in English)	**Spreadsheets**
Enquiry Question	How can we protect our 'digital footprint'?	What is a search engine?	What does selection mean in coding and what tools can help?	How can we teach someone the water cycle through animation?	How can computing make my writing more appealing to readers?	How can spreadsheets help us in real-life situations?
St Thomas' Value	Compassion	Trust	Perseverance	Faith	Community	Joy
Substantive Concepts	- Explain that information put online leaves a digital footprint or trail and that this can aid identity theft - Identify the risks and benefits of installing software including apps - Identify the positive and negative influences of technology on health and the environment	- Locate information on a search engine's results page - Use search effectively to find out information - Assess whether an information source is true and reliable	- Create a simple computer program - Begin to understand selection and use IF statements in computing programming - Create and use variables - Create a program using a given design	- Explain what is meant by animation - Create a series of linked frames that can be played as a short animation - Insert images to create a simple stop motion animation short film clip	- Select, edit and manipulate text in a variety of ways - Insert an image into a document - Use formatting tools to improve the layout - Change the size and orientation of pages in a word processing document	- Make practical use of a spreadsheet to help plan actions - Explore how numbers can be entered into cells in a spreadsheet - Make practical use of a spreadsheet to help plan actions - Explore how numbers can be entered into cells in a spreadsheet
Key Vocabulary (On Knowledge Organiser)	citation, cookies, copyright, digital footprint, malware, phishing, plagiarism, spam, virus	internet, key words, reliability, results page, search engine	action, alert, algorithm, background, button, code blocks, command, design, execute, flowchart, 'if' statement, input, object, predict, repeat, run, selection, sequence, timer, variable	animation, frame, FPS (frames per second), pause, stop motion	font, format, genre, opinion, reporter, viewpoint	Data, decimal place, equals tool, format cell, formula wizard, line graph, percentage, place value, random number tool, timer
Disciplinary Concepts	- Understand that copying the work of others and presenting it as their own is called 'plagiarism' and to consider the consequences of plagiarism - Understand how children can protect themselves from online identity theft	- Understand how search engines can help us find information quickly and effectively - Understand the possible side effects of some search engines	- Understand how to use co-ordinates - Understand the Repeat until command and how an IF/ELSE statement works - Review vocabulary and concepts learnt in Year 3 Coding	Understand how animation can be used to portray ideas in a sequential form	Understand that computing tools can help adapt our writing to suit and attract different audiences	Understand how spreadsheets can help us to solve real-life problems
Experiential Knowledge	Safer Internet Day		STEM Week			

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Year 5	Autumn 1		Autumn 2	Spring 1	Spring 2	Summer 1		Summer 2
	Online Safety	Coding	Spreadsheets	Databases	Game Creating	3D Modelling	Word Processing	Concept Maps
Enquiry Question	What are the SMART rules? What does simulating a computer system mean?		How can formulae in spreadsheets help us make calculations?	What information can be stored in a database?	What makes a good computer game?	How can 2D designs be turned into 3D objects? What is word processing for?		How can we arrange information on a concept map?
St Thomas' Value	Compassion		Trust	Perseverance	Faith	Community		Joy
Substantive Concepts	- Review the responsibility of children to one another in their online behaviour - Know how to maintain secure passwords - Search the Internet with a consideration for the reliability of the results of sources to check validity - Begin to simplify code - Take a real-life situation, decompose it and think about the level of abstraction - Create and use strings in programming - Begin to explore text variables when coding		- Use a spreadsheet to model a real-life problem - Create formulae that use text variables	- Learn how to search for information in a database - Contribute to a class database - Create a database around a chosen topic	- Plan, design and create the game quest to make it a playable game - Learn how to search for information in a database	- Design a 3D model to fit certain criteria - Add and edit images to a word document - Know how to use word wrap with images and text - Add features to a document to enhance its look and usability - Use tables within MS Word to present information		- Create a concept map - Create a collaborative concept map and present this to an audience
Key Vocabulary (On Knowledge Organiser)	citation, copyright, identity theft, malware, ownership, phishing, SMART rules, spoof	event, function, nesting, object, output, physical system, properties, repeat, selection, sequence, simplify	columns, data, formula, rows, spreadsheet, variable Create a database around a chosen topic	arrange, avatar, chart, collaborative, data, database, field, group, record, search, statistics	animation, computer game, customise, evaluation, image, instructions, interactive, screenshot, texture, perspective, playability	2D, 3D, 3D printing, design brief, net, points, pattern fill, template	bullet points, caps lock, copy and paste, cursor, document, font, readability, text wrapping	collaborate, concept, concept map, connection, node, presentation mode, story mode
Disciplinary Concepts	- Gain a greater understanding of the impact of sharing digital content - Be aware of appropriate and inappropriate text, photographs and the impact of sharing these online - Ensuring reliability through methods of communication and videos - Understand and program a simulation - Begin to understand what a function is and how functions work in code		Understand how spreadsheets can support us to solve real-life problems.	Understand how and why databases store information	Understand the software tools and skills needed to develop a functioning and playable game	Understand how 2D shapes can be converted into 3D models Understand the various tool of word processing and how they can be used effectively		- Understand the need for visual representation when generating and discussing complex ideas - Understand uses for concept maps
Experiential Knowledge	Safer Internet Day			STEM Week				

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Year 6	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1/Summer 2
	Online Safety	**Quizzes** (Linked to Science)	**Spreadsheets (Excel)**	**Film Making (iMovie)**	**Coding**
Enquiry Question	Why do I need to be aware of the dangers of being online?	What factors do I need to consider when creating a quiz?	What is a spreadsheet used for, and how does the SUM function save time?	How can film help us to tell a story?	What is a function in coding and how can I use tabs to organise code?
St Thomas' Value	Compassion	Trust	Perseverance	Faith	Community & Joy
Substantive Concepts	Identify benefits and risks of mobile devices broadcasting the location of the user/device, e.g., apps accessing location	- Create a picture-based quiz for young children - Explore different question types in a quiz - Make a quiz that requires the player to search a database - Make a survey and analyse the responses	- Use a spreadsheet to model a real-life situation and come up with solutions that can be applied to real life - Navigate and enter data into cells on a spreadsheet - Demonstrate how the use of Excel can save time and effort when performing calculations - Create a variety of graphs in Excel	- Use a digital recording device or app to record a short film - Make use of frames and angles	- Design a playable game with a timer and a score - Use functions and understand why they are useful - Use flowcharts to test and debug a program - Modify the properties of an object - Design a text-based adventure game based on one they have played
Key Vocabulary (On Knowledge Organiser)	data analysis, digital footprint, inappropriate, location sharing, password, PEGI rating, phishing, print screen, screen time,	audience, audio, case-sensitive, cloze, labelling, multiple-choice, participants, preview, quiz, survey	advance mode, budget, chart, expense, format cell, formula bar, formula wizard, profit	angle, camera, film, frame, prop, sequence, shot, video	action, algorithm, command, co-ordinates, debug/debugging, decomposition, event, execute/run, flowchart, function, input, launch command, output, predict, procedures, proprerties, repeat, select, simulation, tab, timer, variable
Disciplinary Concepts	- Have a clear idea of appropriate online behaviour and how this can protect themselves and others from possible online dangers, bullying and inappropriate behaviour - Understand the importance of balancing game and screen time with other parts of their lives - Discuss and understand the positives and negative aspects of technology and balance these opposing views	Understand how to create a quiz for a specific audience	Understand how spreadsheets can be used to store data and make efficient calculations	Understand the process of film making and the different software techniques which can be used to support it	Understand how user input can be used in a program
Experiential Knowledge	Safer Internet Day		STEM Week		