Stamford Green Primary School and Nursery

Computing Compendium

"Whether you want to uncover the secrets of the universe, or you just want to pursue a career in the 21st Century, basic computer programming is an essential skill to learn."

Stephen Hawking

What is the vision for Computing at Stamford Green?

It is our vision that our children will learn:

- **Understanding of fundamental principles and concepts**:
  Our curriculum aims to provide a deep understanding of computer science principles, such as abstraction, logic, algorithms, and data representation, enabling pupils to apply computational thinking effectively in general day-to-day.
- **Problem analysis and programming experience:**
  Pupils gain practical experience in problem analysis and computer programming, allowing them to break down complex challenges and develop solutions confidently.
- **Evaluation and application of technology:**
  Our curriculum emphasizes the evaluation and application of information technology, including new, emerging or unfamiliar technologies, preparing pupils to analytically solve problems using a wide range of tools whilst considering which is best for the task.
- **Responsible, competent, and creative ICT users:**
  Pupils will become safe, responsible users of technology, understanding digital safety, ethical considerations, and demonstrating competence in utilising computing tools for communication, collaboration, and creativity whilst remaining safe online.
- **Fostered creativity and innovation:**
  Our curriculum continues to build on our Learning Without Limits approach - encouraging creativity and innovation, empowering pupils to think imaginatively, devise unique solutions, and express their ideas using technology, cultivating their adaptability and problem-solving skills.

Our Computing curriculum is brought to life by our seven commitments:

HAPPINESS
Our curriculum promotes a positive and enjoyable learning environment. Children will actively learn from mistakes and understand that these are a vital part of how we learn. They will explore programming through a wide range of mediums, alongside collaborating with peers to develop their own interactive experiences that foster a love of computing and computational thinking. A key part of the computing curriculum is that children understand how to keep themselves safe online. All children will be taught online safety in every year group, so that, this key message is revisited and reinforced. Children will understand what it means to have a 'digital footprint' and the importance of having a good balance between screen time and real life.

INSPIRING
Our curriculum encourages pupils to dream big and set ambitious goals. Through coding projects, children will have the opportunity to challenge themselves by creating complex programs and innovative solutions. They will be inspired to push boundaries and strive for excellence in their computational endeavours. We will learn a wide range of computational vocabulary and aim to become age-appropriate computing experts.

LEARNING

Our curriculum places a strong emphasis on continuous, progressive learning and growth. Our computing offer is split in to three main strands – digital literacy, computer science and information technology. Digital literacy being the skills and knowledge required to be an effective, safe, and discerning user of a range of computer systems. Computer science being the study of computers and computations systems. Finally, Information technology is defined as the use of computers to create, process, store, retrieve and exchange all kinds of data and information. The school uses and adapt the computing scheme of work 'Purple Mash' for the teaching of computing lessons. In addition to using the programs that are part of the scheme, lessons will be adapted to enable skills to be transferred into their everyday lives e.g. knowing how to use Microsoft applications.

Children will engage in hands on activities that encourage them to explore new technologies (such as micro bits) and programming languages. They will develop their understanding of computer science concepts, enabling them to become confident and proficient learners and technology users in this digital age.

TOGETHERNESS

Our curriculum fosters a sense of community and collaboration. Pupils will participate in group coding projects, where they will work together to design and develop innovative solutions. They will learn to appreciate diverse perspectives, communicate effectively, and leverage the power of teamwork to accomplish shared goals. Pupils will engage in discussions and activities that raise awareness about responsible digital citizenship, online safety, and the importance of respecting their own, and others' rights and privacy in the digital space.

VALUES

Our curriculum cultivates resilience, responsibility, teamwork, and independence through the development of computing skills. Children learn to tackle challenges with determination and perseverance, developing resilience. They understand digital responsibility, making ethical choices online. Collaborative coding projects foster teamwork, teaching effective communication and collaboration. The curriculum also encourages independence, empowering pupils to explore and innovate. By mastering these computing skills, our pupils develop essential values for success in the digital age.

AMBITION

Our curriculum encourages pupils to dream big and set ambitious goals. Through coding projects, children will have the opportunity to challenge themselves by creating complex programs and innovative solutions. They will be inspired to push boundaries and strive for excellence in their computational endeavours. We will learn a wide range of computational vocabulary and aim to become age-appropriate computing experts. Our curriculum, using the Purple Mash scheme of work, ensures that we remain ambitious for the children. Technology is ever evolving and it is important that we continue to keep our equipment and the children up to date with technological advancements.

ACHIEVEMENT

Our curriculum celebrates the achievements of our pupils. As they progress through various computing challenges, children will experience the satisfaction of successfully completing projects and solving intricate problems adopting a range of approaches. They will have opportunities to showcase their accomplishments within class and, where appropriate, to the wider school.

Aims for National Curriculum

The National Curriculum for computing aims to ensure that all pupils:

KS1

- 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

KS2

- 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
- 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

By the end of Year 6 at Stamford Green, our children will…

Behaviours	Children will develop positive behaviours such as perseverance, responsible digital citizenship, effective communication, and collaboration. They will engage in collaborative coding projects, where they will learn to work as a team, communicate their ideas effectively, and support each other throughout the process. They will also practice responsible digital behaviour, such as respecting others' privacy, citing sources, and adhering to copyright laws.
Attitudes	Children's attitudes will be influenced positively, fostering a growth mindset, curiosity, and a sense of excitement towards technology. They will be encouraged to embrace challenges and view failures as opportunities for learning. Through engaging activities and exposure to new technologies (both

	hardware and software), they will develop a sense of curiosity and a passion for exploring new possibilities in the digital world.
Skills	Pupils will acquire a wide range of skills including programming, problem solving, critical thinking, digital literacy, and creativity. They will learn programming languages such as Scratch, enabling them to write their own code and develop interactive projects. They will engage in problem solving activities that require logical thinking, algorithmic design, and debugging skills. Additionally, they will enhance their digital literacy, learning to evaluate information, practice online safety, and leverage various digital tools and platforms. They will also be encouraged to think creatively and develop innovative solutions through project based learning experiences.
Knowledge	Children will gain a solid foundation in computer science principles, algorithms, data representation, and knowledge of various technologies. They will learn about the fundamental principles of computer science, such as abstraction, logic, and data structures. They will explore algorithms and understand their role in solving problems. Additionally, they will gain knowledge about data representation methods and technologies. They will also be introduced to emerging technologies such as artificial intelligence, robotics, and virtual reality, expanding their awareness of the digital landscape and fostering a sense of excitement.
Experiences	Pupils will engage in hands on experiences, coding projects, and interactive activities, allowing them to apply their skills and knowledge. They will design and develop their own interactive games and PowerPoints, applying programming concepts they have learned. They will also participate in the coding of hardware such as Microbits, where they will program these versatile pieces of kit to perform specific tasks. These experiential learning opportunities will provide them with practical, real-world application of their computing skills.
Technology	Our curriculum will expose children to diverse technologies, tools, and apps, empowering them to navigate and adapt to ever evolving technology. They will have access to a variety of software applications, online coding platforms, and emerging technologies. They will explore the use of technology in different contexts, such as data analysis, creative media production, and problem solving. They will also learn to critically evaluate and select appropriate technologies to solve specific challenges, providing valuable expertise for children as they go in to the wider world.
Sustained	The curriculum fosters a love for learning and prepares pupils for the pursuit of lifelong knowledge in the field of computing and technology. They will be encouraged to explore their own interests and pursue independent projects, nurturing their curiosity and passion for the subject. They will have access to online resources, coding communities, and coding clubs, providing opportunities for continuous learning beyond the classroom. The curriculum will also promote reflection and self assessment, allowing pupils to monitor their progress, set goals, and take ownership of their learning journey.

British Values and Spiritual, Moral, Social and Cultural Learning in Computing

British Values: Collaborative work in computing develops mutual respect for differing opinions, beliefs and abilities of others. In addition, children develop a respect for the resources used and understand the importance of looking after them. They learn to appreciate the value of similarities and differences can learn to show tolerance. Computing also enables children to appreciate the importance of staying safe online and respecting others.

Spiritual: We encourage the children to use technology creatively, fostering their imagination and self-expression. Learning such as designing digital artworks and creating stories on coding platforms enable children to explore their spiritual and imaginative capabilities. We explore how ideas in computing have inspired them and the work of others. Self-esteem is promoted through opportunities to share their work with others.

Moral: In computing, children learn the importance of staying safe online, considering the benefits and potential dangers of the internet. We discuss the moral implications of cyber bullying and the consequences of different courses of actions. During the 'Online Safety' modules of the curriculum, that are taught in every year group, pupils investigate moral and ethical issues online and learn appropriate responses.

Cultural: We teach the children to be sensible users of technology. We empower pupils to apply their computing skills and knowledge to the wider curriculum. We help children develop an awareness of their audience when communicating in a digital environment.

Social: In computing lessons, we teach the children to be sensible users of technology. We empower pupils to apply their computing skills and knowledge to the wider curriculum. We help children develop an awareness of their audience when communicating in a digital environment.

Long Term Plan

	Autumn Term	Spring Term	Summer Term
Year 1	Online safety and exploring Purple Mash	Spreadsheets	Coding
	Grouping and Sorting	Maze Explorers	Lego Builders
	Pictograms	Animated Story Books	Technology outside school
Year 2	Coding	Questioning	Creating Pictures
	Online Safety	Effective Searching	Presenting Ideas
	Spreadsheets		
Year 3	Coding	Email	Branching Databases
	Online Safety	Touch Typing	Simulations
	Spreadsheets	Writing for different audiences	Presenting
Year 4	Coding	Online safety	Logo
	Spreadsheets	Hardware Investigators	Animation
		Writing for Different Audiences	Effective Searching
			Making Music
Year 5	Coding	Spreadsheets	3D Modelling
	Databases	Game creator	Concept Maps
	Online Safety		Word Processing
Year 6	Coding	Quizzing	Text Adventures
	Networks	Spreadsheet	Online Safety
	Understanding Binary		Blogging

Key:

Computer Science	Information Technology	Digital Learning

Long Term Plan: Early Years Foundation Stage

- I can hold a mouse with my fingers on the correct buttons
- I can use a mouse accurately to click and drag objects on the screen
- I can find all the letters of the alphabet on a keyboard
- I can put spaces between words
- I can select colours when painting on the computer
- I can try the different tools that I can draw on the computer
- I can make music using a computer
- I can understand why it is not sensible to eat and drink whilst using a technological device

According to the Early Years Foundation Stage Statutory Framework, children should be taught:
- Understanding the world involves guiding children to make sense of their physical world and their community. The frequency and range of personal experiences increases their knowledge and sense of the world around them – from visiting parks, libraries and museums to meeting important members of society.
- In addition, listening to a broad selection of stories, non-fiction, rhymes and poems will foster their understanding of a culturally, socially, technologically and ecologically diverse world.
- As well as building important knowledge, this extends their familiarity with words that support understanding across domains. Enriching and widening children's vocabulary will support later reading comprehension.

The new vocabulary the EYFS children will use will include:
- Computer
- Mouse
- Click
- Drag
- Drop
- Devices
- Technology
- Private
- Login
- Password

In the EYFS, the children will be taught to:

Area of Computing	Progression of skills
Mouse and trackpad skills	• Clicking, navigating using the movement of the mouse • Dragging and dropping
Keyboard skills	• Simple typing, capital letters and function keys such as 'enter' • Match lower case and capital letters
Drawing skills	• Choosing pens and style • Composing drawn images on screen • Know about the undo function
Sounds	• Begin to make sounds using tools on the computer • Record sounds

Safety and privacy	• Begin to understand the concept of ownership and privacy • Know how to recognise when they are not something • Know how to say no to something
Hardware	• Begin to recognise different parts of the computer • Know how to look after different pieces of computing equipment • Understand basic computer hygiene, including handwashing, being gentle and keeping food and drink away from devices

Long Term Plan: Year 1

- I can explain that an algorithm is a set of instructions
- I know that a computer program turns an algorithm into code that a computer can understand
- I can work out what is wrong when the steps are out of order in instructions
- I can try and fix my code if it isn't working properly
- I can make good guesses of what is going to happen in a program

According to the National Curriculum, children should be taught:

- 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

The new vocabulary the Year 1 children will use will include:

	Tier 1	Tier 2	Tier 3
Online Safety	private, button, password	menu device, log in, file name, log out	alert avatar, icon
Grouping and Sorting	sort	groups	criteria
Pictograms	compare,	pictogram, record results, title data, collect data,	
Lego builders	computer, ,	instruction, program	debugging, code,
Maze Explorers	direction, challenge, instruction, left, right,	route, undo, command,	algorithm, unit
Animated Stories	sound,	animation, edit, sound effect, clip art gallery, font, text	E-Book
Coding	action, background,	command, event, input	algorithm, code, debugging, execute, debug,
Spreadsheets	button,	calculations, image,	column, cell, move cell, lock cell, data, row, value, spreadsheet

In Year 1, the children will be taught to:

Area of Computing	Learning Focus	Progression of skills
Digital learning	Online Safety	• Know how to log in safely and understand why that is important • To be able to create a picture • Know how to save work and open again at a future date • Become familiar with using Purple Mash

Computer Science	Grouping and Sorting	• Sort items using a range of criteria
Information Technology	Pictograms	• Understand that data can be represented in picture format • Contribute to a class pictogram • Use a pictogram to record results
Computer Science	Lego builders	• Follow and create simple instructions on the computer • Consider how the order of instructions affects the result
Computer Science	Maze Explorers	• Understand the functionality of the basic direction skills • Understand how to create and debug an algorithm • Understand how to change and extend the algorithm list
Information Technology	Animated Stories	• Add animals to a pictures • Add a sound effect or voice recording to a picture • Use copy and paste to create additional pages
Computer Science	Coding	• Understand what instructions are • Understand that computer programs work by following instructions called code • Use code to make a computer program • Understand what an event is • Begin to understand how code executes when a program is run • Plan a computer program
Information Technology	Spreadsheets	• Understand what a spreadsheet looks like • Navigate around a spreadsheet and enter data • Add images to a spreadsheet • Use 'move cell' and 'lock' tools

Long Term Plan: Year 2

- I can explain an algorithm is a set of instructions to complete a task.
- I know I need to carefully plan my algorithm so it will work when I make it into code.
- I can design a simple program using 2Code that achieves a purpose
- I can find and correct some errors in my program
- I can say what will happen in a Program
- I can spot something in a program that has an action or effect (does something)

According to the National Curriculum, children should be taught:

- 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

The new vocabulary the Year 2 children will use will include:

	Tier 1	Tier 2	Tier 3
Coding	bug, button, background,	command, action	algorithm, collision detection, click events,
Online Safety	search, sharing, secure	personal information, private information, internet, email	attachment, filter, digital footprint,
Spreadsheets	block graph, copy, label, table,	data, drag	cell, equals, row, total, column,
Questioning	record, search, question, sort	field, pictogram, data, database	binary tree,
Effective Searching	web page, World Wide Web, Web Site	search engine, internet web address,	domain, network, digital footprint,
Creating Pictures	art, , fill, style,	palette	pointillism, surrealism, ,impressionism,
Presenting Ideas	fact file, quiz	mind map, presentation,	node,

In Year 2, the children will be taught to:

Area of Computing	Learning Focus	Progression of skills
Computer Science	Coding	• Understand what an algorithm is • Create a computer program using an algorithm • Understand the collision detection event • Understand that algorithms follow a sequence • Understand what different events do in code • Create a program using a given design • Know what debugging means

		• Understand the need to test a debug a program repeatedly
Digital learning	Online safety	• Know how to refine searches • Know how email is used as a communication tool • Open and send simple online communications in the form of email • Understand the information put online leaves a digital footprint • Think critically about the information that is left online • Identify steps that can be taken to keep personal data secure
Information Technology	Spreadsheets	• Use copying, cutting and pasting shortcuts • Add and edit data in a table layout • Use data to manually create a block graph
Information Technology	Questioning	• Use yes/no questions to separate information • Construct a binary tree to separate different items • Use a database to answer more complex search questions • Use the search tool to find information
Digital Learning	Effective Searching	• Understand terminology associated with the internet and searching • Develop a better understanding of how to search the internet
Information Technology	Creating Pictures	• Recreate arts of work using technology
Information Technology	Presenting Ideas	• Learn how to create a presentation

Long Term Plan: Year 3

Milestones – By the end of Year 3, children will demonstrate…

- I can base a written algorithm for a program upon a real-life situation
- I can design an algorithm carefully, thinking about what I want the program to do and how I could turn my algorithm into code
- I am able to design a program thinking logically about the sequence of steps required
- I can experiment with timers in my programs
- I can experiment with the effect of using repeat commands
- I can identify the difference in using the effect of a timer or repeat command in my code
- I can identify an error in my program and fix it
- can read programs with several steps and predict what it will do.
- I can identify different ways that the Internet can be used for communication
- I can use email such as 2Email to respond to others appropriately and attach files

According to the National Curriculum, children should be taught:

- 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
- 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

The new vocabulary the Year 3 children will use will include:

	Tier 1	Tier 2	Tier 3
Coding	action, background,	click event, command, code, debug, debugging,	alert bug, detection event, algorithm, collision,
Online Safety	password, internet, permission, website	appropriate, blog, spoof, inappropriate, reputable source, vlog,	verify,
Spreadsheets	bar graph, less than, more than, spreadsheet,	advance mode, data, cell address, columns, pie chart, table, quiz tool,	spin tool,
Touch Typing	key, space bar, typing	posture	
Email	address book, email, attachment, inbox, save to draft,	cc, bcc, compose, trusted contact	

Branching Databases	data,	database, branching database, debugging	binary tree
Simulations	decision	analysis, modelling, evaluation	simulation
Presenting	animation, media, layer,	slide, transition, slideshow,	border properties,

In Year 3, the children will be taught to:		
Area of Computing	**Learning Focus**	**Progression of skills**
Computer Science	Coding	• Understand what a flowchart is and how flowcharts are used in computer programming • Understand there are different types of timers • Understand how to use the repeat command • Use coding knowledge to create a range of programs • Understand the importance of nesting
Digital Learning	Online Safety	• Know what makes a safe password, how to keep passwords, safe and the consequences of giving the passwords away • Understand how the internet can be used to help us communicate effectively • Consider if what can be read on websites is always true • Discuss why PEGI restrictions exist • Learn about the meaning of age restrictions symbols on digital media and devices • Know where to turn for help if they see inappropriate content or have inappropriate contact from others
Information Technology	Spreadsheets	• Add and edit data in a table layout • Find out how spreadsheet programs can automatically create graphs from data • Introduce the 'more than', 'less than' and 'equals' tools • Learn about describing cells using their addresses
Information Technology	Touch Typing	• Introduce typing terminology • Understand the correct way to sit at the keyboard • Learn how to use the home, top and bottom and top rows • Practice the keys typed with the left hand • Practice the keys typed with the right hand
Digital Learning	Email	• Open and respond to an email • Write an email to someone from an address book • Know how to use email safely • Add an attachment to an email
Information Technology	Branching databases	• Sort objects using just yes/no questions • Complete a branching database
Information Technology	Simulations	• Find out what a simulation is and understand the purpose of simulations • Explore a simulation, making choices and discussing their effects • Evaluate a more complex simulation
Information Technology	Presenting	• Add media to a presentation • Add animations into a presentation • Add timings into a presentation

Long Term Plan: Year 4

According to the National Curriculum, children should be taught:

- 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
- 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

The new vocabulary the Year 4 children will use will include:

	Tier 1	Tier 2	Tier 3
Coding	action, background, design	algorithm, execute, alert,	code blocks,
Online safety	attachment	collaborate, plagiarism, cookies, ransomware, virus, copyright, SMART rules, watermark	adfly, spam, malware, citation, phishing,
Spreadsheets	average, column, spreadsheet, chart	budget, formula,	

Writing for different audiences	format, opinion, reporter,	campaign, font, genre, viewpoint	
Logo	grid, prediction, procedure, repeat, run speed,	Logo commands, pen up, Logo, pen down,	multi line mode,
Animation	animation,	frames per second, pause, frame, stop motion	onion skinning,
Effective Searching	internet, key words,	balanced view, reliability, results page	Easter eggs,
Hardware Investigators	input,	Components, graphics card, hard drive, motherboard, network card, output, RAM, software	peripherals, CPU,

In Year 4 the children will be taught to:		
Area of Computing	**Learning Focus**	**Progression of skills**
Computer Science	Coding	• Create a simple computer program • Begin to understand selection in computer programming • Understand how an IF statement works • Understand how to use co-ordinates in computer programming • Understand how an IF/ELSE statement works • Use a number variable
	Online Safety	• Understand how children can protect themselves from online identity theft • Understand that information put online leaves a digital footprint or trail and this can aid identity theft • Identify the risks and benefits of installing software including apps • Understand that copying the work or others and presenting it as their own is called 'plagiarism' and to consequences of plagiarism • Identify positive and negative influences of technology on health and the environment • Understand the importance of balancing game and screen time with other parts of their lives
Information Technology	Spreadsheets	• Explore how the numbers entered into cells can be set to either currency or decimal • Explore the use of the display of decimal places • Find out how to add formulae to a cell • To use the line graphing tool with appropriate data
Information Technology	Writing for different audiences	• Explore how font size and style can affect the impact of a text
Computer Science	Logo	• Learn the structure of the language of 2Logo • Input simple instructions into 2Logo • Use 2Logo to create letter shapes • Use and build procedures in 2Logo

Information Technology	Animation	• Learn how animations are made by hand • Learn about onion skinning in animation • Add background and sounds to animations • Know about 'stop motion' animation
Digital Learning	Effective Searching	• Locate information on the search results page • Use search effectively to find out information • Assess whether an information source is true and reliable
Computer Science	Hardware Investigators	• Understand the different parts that make up a desktop computer • Recall the different parts that make up a computer

Long Term Plan: Year 5

Milestones – By the end of Year 5, children will demonstrate…

- I can make more complex real life problems into algorithms for a program
- I can test and debug my programs as I work
- I can convert (translate) algorithms that contain sequence, selection and repetition into code that works
- I can create a playable game
- I show an understanding of the impact of sharing digital content online
- I know how to reference sources in my work
- U can use formulae within a spreadsheet
- I can plan, design and create a game
- I know what a word processing tools is for
- I can use Microsoft Word to add and edit images in a word document

According to the National Curriculum, children should be taught:

- 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
- 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

The new vocabulary the Year 5 children will use will include:

	Tier 1	Tier 2	Tier 3
Coding	action, flowchart, algorithm,	abstraction, efficient, decomposition	concatenation,
Online Safety	password, communication,	copyright, identity theft, PEGI rating, encrypt, phishing, spoof, validity	Creative Common Licence, citation, malware,
Spreadsheets	rows, data, advance mode, spreadsheet, format, columns, formula,	variable, totalling tool	formula wizard,
Databases	arrange, data, group, chart, search, record, sort	collaborative, field, database report, , statistics,	avatar

Game Creator	animation, computer game, image, instruction,	customise, interactive, texture, perspective, screenshot, playability	
3D Modelling	2D, 3D, points, net, template	pattern fill,	Computer Aided Design (CAD), 3D printing,
Concept Maps	concept, collaborate, connection	story model, concept map,	node,
Word Processing	bulleted lists, copy and paste, document, cells, font, readability	merge, cursor, formatting, text wrapping, caption,	caps lock, page orientation, copyright,

In Year 5 the children will be taught to:		
Area of Computing	**Learning Focus**	**Progression of skills**
Computer Science	Coding	- Begin to simplify code - Create a playable game - Know what decomposition and abstraction are in Computer Science - Use decomposition to make a plan of a real-life situation - Understand how to use friction in code - Begin to understand what a function is and how functions work in code - Understand what the different variable types are and how the are used differently - Understand how to create a string
Digital Learning	Online Safety	- Understand the impact that sharing digital content can have - Review sources of support when using technology - Know how to maintain secure passwords - Understand the advantages, disadvantages, permission, and purposes of altering an image digitally and the reasons for this - Be aware of appropriate and inappropriate text, photographs and videos and the impact of sharing these online - Know how to reference sources in their work
Information Technology	Spreadsheet	Use formulae within a spreadsheet
Information Technology	Databases	- Know how to search a database for information - Create a database
Computer Science	Game Creator	- Plan and design a dame - Create a game that is playable by others
Information Technology	3D Modelling	- Explore the effect of moving points when designing - Design a 3D model to fit certain criteria - Refine and print a model
Information Technology	Concept Maps	- Understand the need for visual representation when generating and discussing complex ideas - Understand the uses of a concept map - Create a concept map - Understand how a concept map can be used to retell stories and information

Information Technology	Word Processing	• Know what a word processing tool is for • Add and edit images in a word document • Know how to use text wrapping with images and text] • Change the look of text within a document • Add features to a document to enhance its look and usability

Long Term Plan: Year 6

Milestones – By the end of Year 6, children will demonstrate…

- I can design and create a playable game
- I can use flowcharts to test and debug a program
- I can discuss appropriate online behaviour and how this can protect self from possible danger, bullying and inappropriate behaviour
- I can talk about the importance of balancing game and screen time with other parts of my life
- I know the purpose of writing a blog and can write and post a blog
- I understand how binary is used in computer science
- I can navigate and enter data into a Microsoft Excel spreadsheet

According to the National Curriculum, children should be taught:

- 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
- 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

The new vocabulary the Year 6 children will use will include:

	Tier 1	Tier 2	Tier 3
Coding	action, co-ordinates, algorithm,	event, command, execute, run, flowchart, debug	decomposition,
Online Safety	print screen, secure websites, screen time,	data analysis, location sharing, inappropriate, spoof	phishing,
Blogging	approval	blog post, archive, vlog, blog, commenting,	
Text Adventures	section, function	text based adventures, debugging	sprite,
Networks	switch, network,	hub, World Wide Web, router, wifi	wide area network (WAN), local area network (LAN),
Quizzing	audience,	audio, case sensitive, cloze, clone, preview, quiz	

			base 2, bit, transistor, byte, kilobyte, megabyte, gigabyte, terabyte
Understanding Binary			
Spreadsheets	chart,	formulae, auto fit	conditional formatting, formula bar, cell reference, computational model, delimiter,

In Year 6 the children will be taught to:		
Area of Computing	**Learning Focus**	**Progression of skills**
Computer Science	Coding	• Design a playable game with a timer and a score • Plan and use selection and variables • Understand how the launch command works • Understand how functions are created and called • Use flowcharts to test and debug a program • Create a simulation of a room in which devices can be controlled
	Online Safety	• Identify benefits and risks of mobile devices broadcasting the location of the user • Identify secure sites by looking for privacy seals of approval • Review the meaning of digital footprints and how and why people use their information and online presence to create a virtual image of themselves as a user • Have a clear idea of appropriate online behaviour and how this can protect themselves from possible danger, bullying and inappropriate behaviour • Understand the importance of balancing game and screen time with other parts of their lives • Identify the positive and negative influences of technology on health and the environment
Information Technology	Blogging	• Identify the purpose of writing a blog • Understand how to write a blog and a blog post • Understand how to contribute to an existing blog
Information Technology	Text Adventures	• Find out what a text-based adventure game is • Plan and create a text-based adventure game
Computer Science	Networks	• Find out what a LAN and WAN are • Know how we access the internet in school • Think about what the future might hold
Information Technology	Quizzing	• Explore and create quizzes • Make a quiz that requires the player to search a database
Computer Science	Understanding Binary	• Examine how whole number s are used as the basis for representing all types of data in digital systems • Understand that binary represent the 1s and 0s and these represent the on and of electrical states respectively in hardware and robotics • Represent the state of an object in a game as active or inactive using the respective binary values of 1 or 0

Information Technology	Spreadsheets	• Navigate and enter data into cells • Introduce some basic data formulae into Excel • Demonstrate how Excel can make complex data clear by manipulating the way it is presented • Use formulae for percentages, average, max and min in spreadsheets