St. Paul's Long-Term Plan

Computing - National Curriculum Overview

EYFS – Pupils are guided to explore how things work, including different types of technology. Children match their developing physical skills to activities and develop small motor skills so that they can use a range of tools competently, safely and confidently.

KS1 - Pupils are taught to:

- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.
- Use sequence, selection, and repetition in programs; work with variables and various forms of input and output.
- Use logical reasoning to explain how some simple algorithms work and 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.

KS2 - Pupils are taught to:

- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
- Use sequence, selection, and repetition in programs; work with variables and various forms of input and output.
- Use logical reasoning to explain how some simple algorithms work and 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.

EYFS Understanding the World	KS1 Computing	KS2 Computing
	Computer Science	**Computer Science**
	Digital Literacy	**Digital Literacy**
	Information Technology	**Information Technology**

Computing Intent

At St Paul's C.E. Primary School, we understand the immense value that technology plays not only in supporting the Computing and whole school curriculum but overall in the day-to-day life of our school. Our aims are to fulfil the requirements of the National Curriculum for Computing whilst also providing enhanced collaborative learning opportunities, engagement in rich content and supporting pupil's conceptual understanding of new concepts which support the needs of all our pupils.

"A high-quality computing education equips pupils to use computational thinking and creativity to understand and change the world…core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming. Building on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems and a range of content." - National Curriculum

Computing teaching has links with mathematics, science and design and technology and our aim is to provide a broad and balanced curriculum whilst ensuring that pupils become digitally literate and digitally resilient. Technology is ever evolving and we aim to develop pupils who can use and express themselves, develop their ideas through information and communication technology at a suitable level for the future workplace and as active participants in a digital world.

The aims of our Computing curriculum are to develop pupils who:
Are responsible, competent, confident and creative users of information and communication technology.
Know how to keep themselves safe whilst using technology and on the internet and be able to minimise risk to themselves and others.
Become responsible, respectful and competent users of data, information and communication technology.
Can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems.
Can analyse problems in computational terms, and have repeated practical experience writing computer programs in order to solve such problems.
Can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation.
Become digitally literate and are active participants in a digital world.
Are equipped with the capability to use technology throughout their lives.
Understand the importance of governance and legislation regarding how information is used, stored, created, retrieved, shared and manipulated.
Have a 'can do' attitude when engaging with technology and its associated resources.

Utilise computational thinking beyond the Computing curriculum.
Understand and follow the SMART E-Safety rules.
Understand the E-Safety messages can keep them safe online.
Know who to contact if they have concerns.
Apply their learning in a range of contexts, e.g. at school and at home.

St Paul's "Golden Threads"

Our computing curriculum supports our whole school intent of promoting reading, emotional wellbeing and caring for all creation by:

- Using technology and websites such as Bug Club to support children's progress in reading.
- Units such as the Purple Mash "Animated Storybook" unit in Year One allow children the opportunity to create their own digital story book and share these with others.
- Children use what they have been taught in Computing across the curriculum, including using their computing knowledge and reading skills to conduct research into other topics they are learning about.
- Children are taught how to look after their emotional well-being and how to stay safe while they are online. This is promoted across the school through participation in Online Safety week.
- Children are also taught how to care for others online and how to report any concerns they have for themselves or others.

	Autumn One	Autumn Two	Spring One	Spring Two	Summer One	Summer Two
Nursery	**"Who lives in my house?"** **Technology in the home:** Role play (technological toys e.g. iron, microwave, telephone, computer) To use and operate simple technological devices in everyday life. (Technology in the world around us)	**"Where does the day go at night?"** **Fireworks digital painting:** Children to create a digital fire work painting using 2Paint a picture. *To draw pictures on a computer/ipad using mouse/touch screen technology.* Introduction to: Digital Literacy and Computational Thinking.	**"What colours can we see around the world?"** **Rainbow digital painting:** Children to create a digital painting on 2Paint a picture, naming the colours they have used. *To draw pictures on a computer/ipad using mouse/touch screen technology.* Introduction to: Digital Literacy and	**"What would you find on the farm?"** **Simple City Farm:** Children to use Simple City Farm on Purple Mash to create their own farm. *To move objects on a screen using a mouse/touch screen technology* Introduction to: Information Science	**"What will you find at the bottom of the garden?"** **Robot caterpillar.** To explore how to make the robot caterpillar move. *To choose the correct buttons to press to make things happen/move.* Introduction to: Coding/Programming	**"What will we find at the seaside?"** **Bee Bots:** To explore how to use the bee bots. *To choose the correct buttons to press to make things happen/move* Introduction to: Coding/Programming

	Introduction to: Digital Literacy and Computational Thinking.		Computational Thinking.			
Reception	**"Awesome Autumn" Units from Barefoot Computing.**	**"Winter Warmer" Units from Barefoot Computing.**	**"Busy Bodies" Unit from Barefoot Computing.**	**"Springtime" Units from Barefoot Computing.**	**"Summer Fun" Units from Barefoot Computing.**	**"Boats Ahoy!" Units from Barefoot Computing.**
Year 1	**Unit 1.1 Online Safety & Exploring Purple Mash** 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. **Unit 1.2: Grouping and Sorting** Understand what algorithms are; how they are implemented as programs on digital devices; and that programs	**Unit 1.3: Pictograms** Use technology purposefully to create, organise, store, manipulate and retrieve digital content. **Unit 1.4: Lego Builders** Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.	**Unit 1.5: Maze Explorers** 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 **Unit 1.6 Animated Story Books** Use technology to purposefully create, organise, story, manipulate and retrieve digital content.	**Unit 1.7: Coding** 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	**Unit 1.8: Spreadsheets** Use technology to purposefully to create, organise, store, manipulate and retrieve digital content.	**Unit 1.9: Technology outside of school** Recognise common uses of information technology beyond school.

	execute by following precise and unambiguous instructions.					
Year 2	**Unit 2.1: Coding** 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.	**Unit 2.2: Online Safety** 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. **Unit 2.3: Spreadsheets** Use technology purposefully to create, organise, store, manipulate and retrieve digital content	**Unit 2.4: Questioning** Use technology purposefully to create, organise, store, manipulate and retrieve digital content **Unit 2.5: Effective searching** Use technology purposefully to create, organise, store, manipulate and retrieve digital content Recognise common uses of information technology beyond school	**Unit 2.6: Creating Pictures** Use technology purposefully to create, organise, store, manipulate and retrieve digital content	**Unit 2.7: Making Music** Use technology purposefully to create, organise, store, manipulate and retrieve digital content	**Unit 2.8: Presenting ideas.** Use technology purposefully to create, organise, store, manipulate and retrieve digital content
Year 3	**Unit 3.1: Coding** Design, write and	**Unit 3.2: Online Safety** Use technology safely,	**Unit 3.4: Touch typing** Select, use and	**Unit 3.6: Branching Databases**	**Unit 3.7: Simulations** Select, use and	**Unit 3.9: Presenting** Select, use 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	respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. **Unit 3.3: Spreadsheets** 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.	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. **Unit 3.5: Email (inc. email safety)** 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. 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	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.	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. **Unit 3.8: Graphing** 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.	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.

			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.			
Year 4	**Unit 4.1: Coding** 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	**Unit 4.2: Online Safety** 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.	**Unit 4.3: Spreadsheets** 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.	**Unit 4.4: Writing for different audiences** 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. **Unit 4.5: Logo** Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by	**Unit 4.6: Animation** 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. **Unit 4.7: Effective Searching** 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	**Unit 4.8: Hardware Investigators** 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. **Unit 4.9: Making Music** 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.

	detect and correct errors in algorithms and programs. 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.			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.	collaboration. Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.	
Year 5	**Unit 5.1: Coding** 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	**Unit 5.3: Spreadsheets** 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.	**Unit 5.2: Online Safety** 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/unacce	**Unit 5.5: Game Creator** Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. Select, use and combine a variety of software (including internet services) on a range of digital	**Unit 5.6: 3D Modelling** 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. **Unit 5.7: Concept Maps**	**5.8 Word Processing** 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.

	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. 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.		ptable behaviour; identify a range of ways to report concerns about content and contact. **Unit 5.4: Databases** 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.	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.	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.	
Year 6	**Unit 6.1: Coding** Design, write and debug programs that accomplish specific goals, including	**Unit 6.3: Spreadsheets** Select, use and combine a variety of software (including internet services) on a range of digital devices to design and	**Unit 6.2 Online Safety** Understand computer networks, including the Internet; how they can provide multiple services, such as the	**Unit 6.5: Text adventures** Design, write and debug programs that accomplish specific goals, including	**Unit 6.7: Quizzing** Select, use and combine a variety of software (including internet services) on a range of digital devices	**6.9: Spreadsheets** Select, use and combine a variety of software (including internet services) on a range of digital

	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. 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,	create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.	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. Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. **Unit 6.4 Blogging** 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. Select, use and	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. 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. **Unit 6.6: Networks** Understand computer	to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information. **Unit 6.8: Understanding Binary** Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs. 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,	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.

	analysing, evaluating and presenting data and information.		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	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.	evaluating and presenting data and information.	