

St Helena's Church of England Primary School
Computing and ICT Progression of Teaching and Learning Plan.

The curriculum objectives have been split into phases to ensure coverage. From Year 1, our children should be introduced to modern technology, its benefits and practical opportunities inside and outside school. This foundation will set children up for success in KS2 and their further educational careers.

Purpose of study

A high-quality computing education equips pupils to use computational thinking and creativity to understand and change the world. Computing has deep links with mathematics, science and design and technology, and provides insights into both natural and artificial systems. The 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. Computing also ensures that pupils become digitally literate - able to use, and express themselves and develop their ideas through, information and communication technology - at a level suitable for the future workplace and as active participants in a digital world

Aims

The national curriculum for computing aims to ensure that all pupils:

- can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation*
- can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems*
- can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems*
- are responsible, competent, confident and creative users of information and communication technology*

(National Curriculum)

KS1 (Years 1 and 2)

Curriculum objectives:

Key stage 1

Pupils should be taught to:

- 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

(National Curriculum)

Phase 1 (Years 1 and 2)

Year Group	Teaching		
One (14 Weeks)	Purple Mash Unit	Curriculum Objectives Explored	Other Learning Opportunities
	Unit 1.1: Online Safety and Exploring Purple Mash (4 Weeks)	<ul style="list-style-type: none"> • <i>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</i> 	<p>Children need to be aware of online safety and the acceptable use of technology.</p> <p>Children could be given the opportunity of exploring the additional PM Unit 1.6 (Animated Story Books) as a literacy/publishing/drama activity.</p>
	Unit 1.5: Maze Explorers (3 Weeks)	<ul style="list-style-type: none"> • <i>understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions</i> • <i>create and debug simple programs</i> 	<p>Coding can be explored conceptually through sequencing in maths, and sequencing in PE. It is imperative that children</p>
	Unit 1.7: Coding (6 Weeks)	<ul style="list-style-type: none"> • <i>use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about</i> 	

		<p><i>content or contact on the internet or other online technologies</i></p> <ul style="list-style-type: none"> <i>understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions</i> <i>create and debug simple programs</i> <i>use technology purposefully to create, organise, store, manipulate and retrieve digital content</i> 	<p>are exposed to coding in both years 1&2 to set up success in the next phase.</p>
	Unit 1.9: Technology Outside School (1 Week)	<ul style="list-style-type: none"> <i>recognise common uses of information technology beyond school</i> 	
Two (12 Weeks)	Purple Mash Unit	Curriculum Objectives Explored	Other Learning Opportunities
	Unit 2.1: Coding (5 Weeks)	<ul style="list-style-type: none"> <i>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</i> <i>understand what algorithms are, how they are implemented as programs on</i> 	<p>Children need to be aware of online safety and the acceptable use of technology.</p> <p>It is imperative that children are exposed to</p>

		<p><i>digital devices, and that programs execute by following precise and unambiguous instructions</i></p> <ul style="list-style-type: none"> • <i>create and debug simple programs</i> 	<p>coding in both years 1&2 to set up success in the next phase.</p>
	<p>Unit 2.5: Effective Searching (3 Weeks)</p>	<ul style="list-style-type: none"> • <i>recognise common uses of information technology beyond school</i> • <i>use technology purposefully to create, organise, store, manipulate and retrieve digital content</i> 	<p>Children could explore the additional PM Unit 2.3 (Spreadsheets) in Science learning to present data collected in experiments.</p>
	<p>Unit 2.8: Presenting Ideas (4 Weeks)</p>	<ul style="list-style-type: none"> • <i>use technology purposefully to create, organise, store, manipulate and retrieve digital content</i> 	<p>Children could explore the additional PM Unit 2.7 (Making Music) could be used alongside music to teach elements of composition.</p>

KS2 (Years 3, 4, 5 and 6)

Curriculum objectives:

Key stage 2

Pupils should be 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

Phase 2 (Years 3 and 4)

Year Group	Teaching		
Three (12 Weeks)	Purple Mash Unit	Curriculum Objectives Explored	Other Learning Opportunities
	Unit 3.1: Coding (6 Weeks)	<ul style="list-style-type: none"> • <i>design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts</i> • <i>use sequence, selection, and repetition in programs; work with variables and various forms of input and output</i> • <i>use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</i> 	<p>Unit 3.4: Touch Typing could be explored in word processing sessions to give children the opportunity to become familiar with a QWERTY keyboard and increase processing speed.</p> <p>In LKS2, it is imperative that children begin to explore how ICT can be used across the wider curriculum. This can best be explored through the use of Microsoft Office.</p>
	Unit 3.5: Email (including email safety) (6 Weeks)	<ul style="list-style-type: none"> • <i>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</i> • <i>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,</i> 	<p>Children should begin to use Word to process and publish their written work, and explore how they can use: colour/font; shapes/images; tables and bullet points to present work.</p>

		<p><i>including collecting, analysing, evaluating and presenting data and information</i></p> <ul style="list-style-type: none"> <i>use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact</i> 	<p>Children should be exposed to PowerPoint presentations to present their learning. They should explore animation; slide transition and choosing suitable graphics.</p> <p>Publisher should be used to publish posters and advertising of school/theme-based events.</p>
Four (14 Weeks)	Unit 4.2: Online Safety (3 Weeks)	<ul style="list-style-type: none"> <i>use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact</i> <i>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</i> 	<p>In Year 4, children must be taught how to make the most effective use of search engines. They should be given ample opportunities to use the internet to research a given topic. They should also begin using the internet for support with vocabulary, and finding images to inspire artwork/further understanding. This should be linked with internet safety, and the teaching of reliable/appropriate internet sources.</p> <p>In LKS2, it is imperative that children begin to explore how ICT can be used across the wider curriculum. This can best</p>
	Unit 4.5: Logo (4 weeks)	<ul style="list-style-type: none"> <i>use sequence, selection, and repetition in programs; work with variables and various forms of input and output</i> <i>use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</i> 	

			be explored through the use of Microsoft Office.
Unit 4.6: Animation (3 Weeks)	<ul style="list-style-type: none"> • <i>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</i> 		Children should begin to use Word to process and publish their written work, and explore how they can use: colour/font; shapes/images; tables and bullet points to present work.
Unit 4.7 Effective Searching (3 Weeks)	<ul style="list-style-type: none"> • <i>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</i> • <i>use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content</i> 		Children should be exposed to PowerPoint presentations to present their learning. They should explore animation; slide transition and choosing suitable graphics.
Unit 4.8: Hardware Investigators (1 Weeks)	<ul style="list-style-type: none"> • <i>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</i> 		Publisher should be used to publish posters and advertising of school/theme-based events.

Phase 3 (Years 5 and 6)

Year Group	Teaching		
Five (11 Weeks)	Purple Mash Unit	Curriculum Objectives Explored	Other Learning Opportunities
	Unit 5.1: Coding (6 Weeks)	<ul style="list-style-type: none"> • <i>design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts</i> • <i>use sequence, selection, and repetition in programs; work with variables and various forms of input and output</i> • <i>use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</i> • <i>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</i> 	<p>In UKS2, children need to continue on their digital literacy journey started in LKS2.</p> <p>They should be given opportunities to publish their written work digitally, using Word. They should also continue with their keyboard fluency with regular typing opportunities.</p> <p>PowerPoint should continue to be use to format research/group projects and could be used to develop confidence with presenting knowledge with peers. By UKS2, they should be taking a more mature approach to slide design and font/animation</p>
	Unit 5.5: Game Creator (5 Weeks)	<ul style="list-style-type: none"> • <i>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</i> 	

		<i>content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information</i>	choices that fit the purpose and audience of the piece of work. Children could begin using Excel to format spreadsheets of data from Science enquiries/research. This could also be used in Maths to generate digital graphs to present data.
Six (13 Weeks)	Unit 6.2: Online Safety (3 Weeks)	<ul style="list-style-type: none"> • <i>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</i> • <i>use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content</i> • <i>use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact</i> 	They should continue to have opportunities to use the internet for research, and should be making more informed choices of how appropriate content is for the task at hand, and how reliable the source is.
	Unit 6.3: Spreadsheets (6 Weeks)	<ul style="list-style-type: none"> • <i>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</i> 	PSHE discussions regarding internet safety and the dangers of social media should continue to happen in UKS2, considering their age and vulnerability online.
	Unit 6.6: Networks (4 Weeks)	<ul style="list-style-type: none"> • <i>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</i> 	