

# St. Joseph's RC Primary School

"I came so that you may have life, and have it to the full." – John 10:10

## Computing

### Subject Leaders' Sequence and Progression Document

#### INTRODUCTION

The purpose of this document is to outline the approach and method that we have adopted to implement the Computing curriculum at St. Joseph's RC Primary. It sets out what we aim to achieve and the knowledge and understanding that we have assigned to each class and key stage. This has been designed based on our school's *Mission Statement, I came so that you may have life and have it to the full. John 10:10, alongside the staff and Governing Body's vision for the future of our school.* This document provides a summary of the organisation of the Computing curriculum and how our school ensures that every child's entitlement to essential knowledge and skills to equip them for the next stage of their education and for later life is catered for.

#### AIMS

- To ensure standards are high and English and Maths is taught discretely
- To ensure reading remains a high priority
- To utilise the rich resource and history of our local community of Ordsall and Manchester
- To support our school's values and ethos
- To ensure pupils leave as 'well rounded' and confident individuals
- To ensure the wider sports curriculum and the arts are a key focus

#### Key Driver Words

- Faith
- Respect
- Resilience
- Empathy
- Confidence

#### END POINTS IN THE CURRICULUM

By the end of Year 6 children will leave St. Joseph's able to use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. They will be able 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 and use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs. They will develop their understanding of the internet by

showing they 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. They will be able to use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. They will be able to 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

## **INTENT**

At St Joseph's Primary School, the Catholic faith underpins every aspect of the curriculum and is at the centre of our learning. Children are actively encouraged to 'Build God's Kingdom'.

It is our intent at St Joseph's Primary school to provide pupils with a high-quality computing curriculum that teaches pupils to use computing safely and respectfully. To understand how technology works technically and within our world so that they can use computing effectively within their education and wider life. The computing curriculum allows them to communicate, problem solve, reason and be creative within a safe and stimulating environment.

The National Curriculum for Computing states that 'computing education equips pupils to use computational thinking and creativity to understand and change the world'. Computing should be taught as part of a broad and balanced curriculum using both its obvious links to science and maths as well as enriching other curriculum areas. The aims of the National Curriculum are 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 solve problems.
- are responsible, competent, confident and creative users of information and communication technology.

At St Joseph's RC Primary school, we intend to meet the National Curriculum aims through a broad and balanced curriculum in which computing plays a vital role for all pupils from Foundation stage to Year 6.

## **CULTURAL CAPITAL**

At St. Joseph's we recognise that each child is unique, made in the image and likeness of God. Children work independently or with others, listening to their ideas and expertise and treating these with respect. They acknowledge the ownership and ideas and recognise the value of information held on ICT systems. They are aware of the security of their own and other people's information in electronic form. Children consider the origin and quality of information and whether it is fit for purpose. Children evaluate, critically, the use of ICT and recognise the strengths and limitations of ICT. Children should develop knowledge and understanding of important ideas, processes and skills and relate these to everyday experiences.

“Whether you want to uncover the secrets of the universe, or you want to pursue a career in the 21<sup>st</sup> century, basic computer programming is an essential skill to learn.” – Stephen Hawking

## IMPLEMENTATION

We provide a relevant, challenging and enjoyable curriculum for ICT and computing for all pupils, meeting the requirements of the national curriculum programmes of study for computing. Throughout the school we use computing as a tool to enhance learning throughout the curriculum. It is important to respond to new developments in technology and to equip pupils with the confidence and capability to use computing throughout their later life. Pupils enhance learning in other areas of the curriculum using computing and continually develop the understanding of how to use computing safely and responsibly.

SEND pupils benefit from appropriate differentiation of tasks/activities, extra adult support which can take the form of pre-teaching, working in mixed ability groups or support within the lesson from peers and adults.

## IMPACT

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

In computing, we use formative assessment throughout the lessons and summative assessment at the end of each topic. Teachers assess progress against the objectives for computing – WT, EXP or GD.

Computing Long Term Plan						
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<b>Year 1</b>	Online Safety and Purple Mash Explore	Coding	Grouping and Sorting Pictograms	Lego Builders Spreadsheets	Technology outside of school Maze Explorers	Animated story books
<b>Year 2</b>	Online Safety Presenting Ideas	Coding	Effective Searching	Creating Pictures	Spreadsheets	Questioning Making Music
<b>Year 3</b>	Online Safety Typing	Coding	Spreadsheets	Email	Branching Databases	Simulations Graphing
<b>Year 4</b>	Online Safety Hardware Investigators	Coding	Spreadsheets	Writing for different purposes	Logo	Animation Effective Searching

Year 5	Online Safety 3D modelling	Game Creator	Databases	Coding	Spreadsheets	Concept maps
Year 6	Online Safety	Coding	Spreadsheet	Blogging	Text Adventures/ network	Quizzing

National Curriculum Content - Computing						
EY	Understanding the World					
	Listening to a broad selection of stories, non-fiction, rhymes and poems will foster their understanding of our culturally, socially, technologically and ecologically diverse world.					
KS1	Coverage	Autumn	Spring	Summer		
	NC Skills	Pupils should be taught to: <ul style="list-style-type: none"> <li>understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions</li> <li>create and debug simple programs</li> <li>use logical reasoning to predict the behaviour of simple programs</li> <li>use technology purposefully to create, organise, store, manipulate and retrieve digital content</li> <li>recognise common uses of information technology beyond school</li> <li>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</li> </ul>				
Y1	NC Content summary	<b>Online safety and exploring purple mash</b> 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.  <b>Coding.</b> 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	<b>Grouping &amp; Sorting</b> Use technology purposefully to create, organise, store, manipulate and retrieve digital content  <b>Pictograms</b> Use technology purposefully to create, organise, store, manipulate and retrieve digital content  <b>Lego Builders</b> Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.	<b>Technology outside school.</b> Recognise common uses of information technology beyond school  <b>Maze Explorers.</b> 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.	<b>Animated Story Books.</b>	

		Use logical reasoning to predict the behaviour of simple programs. Use technology purposefully to create, organise, store, manipulate and retrieve digital content	<b>Spreadsheets.</b> Use technology purposefully to create, organise, store, manipulate and retrieve digital content	Use technology purposefully to create, organise, store, manipulate and retrieve digital content
Y2	NC Content summary	<p><b>Online Safety</b> 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.</p> <p><b>Presenting Ideas</b> Use technology purposefully to create, organise, store, manipulate and retrieve digital content</p> <p><b>Coding</b> 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.</p>	<p><b>Effective Searching</b> Use technology purposefully to create, organise, store, manipulate and retrieve digital content Recognise common uses of information technology beyond school</p> <p><b>Creating Pictures</b> Use technology purposefully to create, organise, store, manipulate and retrieve digital content</p>	<p><b>Spreadsheets</b> Use technology purposefully to create, organise, store, manipulate and retrieve digital content</p> <p><b>Questioning</b> Use technology purposefully to create, organise, store, manipulate and retrieve digital content</p> <p><b>Making Music</b> Use technology purposefully to create, organise, store, manipulate and retrieve digital content</p>

### Content Summary

KS2	Coverage	Autumn	Spring	Summer
	NC Skills	Pupils should be taught to: <ul style="list-style-type: none"> <li>design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts</li> <li>use sequence, selection, and repetition in programs; work with variables and various forms of input and output</li> </ul>		

		<ul style="list-style-type: none"> <li>• use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</li> <li>• 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</li> <li>• use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content</li> <li>• 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</li> <li>• use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact</li> </ul>		
Y3	NC Content summary for each term	<p><b>Online Safety</b> Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.</p> <p><b>Touch Typing</b> 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.</p> <p><b>Coding</b> 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</p>	<p><b>Spreadsheets</b> Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content</p> <p><b>Email</b> 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 presenting data and information. Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a</p>	<p><b>Branching Databases</b> 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.</p> <p><b>Simulations</b> 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.</p> <p><b>Graphing</b> Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of</p>

		<p>various forms of input and output.</p> <p>Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</p>	<p>range of ways to report concerns about content and contact.</p>	<p>programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.</p>
Y4	NC Content summary for each term	<p><b>Online Safety</b> Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. 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.</p> <p><b>Hardware Investigators</b> 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.</p> <p><b>Coding</b> 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.</p>	<p><b>Spreadsheets</b> Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content</p> <p><b>Writing for different purposes</b> 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.</p>	<p>Logo</p> <p>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</p> <p><b>Animation</b> 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.</p> <p><b>Effective Searching</b> Understand computer networks, including the Internet; how they can provide multiple services, such as the World Wide Web; and the opportunities they offer for</p>

		<p>Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</p> <p>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.</p>		<p>communication and collaboration.</p> <p>Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.</p>
Y5	NC Content summary for each term	<p><b>Online Safety</b> Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. 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.</p> <p><b>3D Modelling</b> 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.</p>	<p><b>Databases</b> 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.</p> <p><b>Coding</b> 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</p>	<p><b>Spreadsheets</b> 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.</p> <p><b>Concept Maps</b> 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.</p>

		<p><b>Game Creator</b> 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. Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.</p>	<p>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.</p>	
Y6	NC Content summary for each term	<p><b>Online Safety</b> 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. Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.</p> <p><b>Coding</b> Design, write and debug programs that accomplish specific goals, including</p>	<p><b>Spreadsheets</b> 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.</p> <p><b>Blogging</b> 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</p>	<p><b>Text Adventures</b> 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. 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,</p>

	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.	range of ways to report concerns about content and contact 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	evaluating and presenting data and information <b>Networks</b> 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. <b>Quizzing</b> 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.
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### Skills

YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
<b>Computing</b>					
<b>Computer Science</b>					
*Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions	*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.	*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	*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	*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	*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

<p>*Create and debug simple programs. *Use logical reasoning to predict the behaviour of simple programs.</p>	<p>*Use logical reasoning to predict the behaviour of simple programs.</p>	<p>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.</p>	<p>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.</p>	<p>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.</p>	<p>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.</p>
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### Information Technology

<p>*Use technology purposefully to create, organise, store, manipulate and retrieve digital content</p>	<p>*Use technology purposely to create, organise, store, manipulate and retrieve digital content.</p>	<p>*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</p>	<p>*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</p>	<p>*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</p>	<p>*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</p>
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		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.	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.	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.	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.
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### Digital Literacy

*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.	* 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.	*Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concern about content and contact.	*Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concern about content and contact.	*Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concern about content and contact	*Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concern about content and contact
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