St Joseph's RC Primary School
Long Term Plan – Computing Key Skills and Knowledge

Computing

National Curriculum

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 technologiesKS2

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.

Computing Key Knowledge

Reception	Y1	Y2	Y3	Y4	Y5	Y6
Listen carefully to rhymes and songs, paying attention to how they sound. · Learn rhymes, poems and songs. · Know and talk about the different factors that support their overall health and wellbeing: – sensible amounts of 'screen time' –	• Know that an algorithm is a set of instructions to solve a problem. • Recognise that they can identify and fix errors in simple algorithms when steps are out of order. • Understand that they can make logical attempts to fix unexpected	• Know that an algorithm is a set of instructions to complete a task and that being precise is important for converting algorithms into code. • Recognise that they can create simple programs, identify errors, and correct them. • Know that they can organise data and	• Know that they can break down a simple real-life situation into an algorithm and fix errors • Recognise that they can design and code a program with a simple sequence and experiment with timers for repetition	• Know that they design algorithms using coding structures for selection and repetition to accomplish tasks in code. • Understand that they use timers for repetition effects programs. • Recognise that they design	• Recognise that they test and debug programs, using logical methods to identify the approximate cause of bugs • Understand that they can translate algorithms with sequence, selection, and repetition into code,	• Know that they can break down complex tasks into smaller, manageable steps using coding structures • Recognise that they apply logical methods to test and debug their programs, identifying specific issues in the code.

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	outcomes in their code. • Know that they can read code one line at a time and predict the overall effect of a program. • Recognise that they can sort, collate, edit, and store digital content, and follow simple instructions to access online resources. • Understand that they can identify examples of technology both in and out of school • Know that keeping information like usernames and passwords private is important, and they demonstrate this by saving their work in a secure space.	retrieve specific data for simple searches. • Recognise that they can edit digital data, like music compositions • Understand that they use a variety of media, including photos, text, and sound, in their digital content. • Know that they can retrieve relevant digital content using search engines • Understand that they know the implications of inappropriate online searches and how to share content safely online. • Know that they can use email safely, report inappropriate content, and understand the importance of online safety.	effects. • Know that the Internet can be used for communication • Recognise that they can use search engines to perform simple searches and retrieve digital content. • Understand that they can collect, analyse, and present data using software and choose the right tool for the task. • Recognise that they understand the importance of keeping passwords secure and the consequences of not doing so. • Know how to report unacceptable content or contact.	programs in logical steps and use methods like tracing and step-through to identify and correct errors in code. • Understand online safety implications. • Know that they understand how a search engine works and can appraise webpages for credibility and information. • Recognise that they can make improvements to digital solutions. • Know that they can explore online safety concepts and help others understand its importance while knowing how to report inappropriate content.	• Know that they are beginning to consider code structure for future debugging • Recognise that they understand the value of computer networks and the importance of keeping personal information safe. • Understand that they can collaboratively create and share digital content using software features like collaborative mode. • Recognise that they relate appropriate online behavior to their right to personal privacy and the mental well-being of themselves and others.	• Recognise that they can connect parts of a program to explain how a complex algorithm works. • Understand the difference between the internet and the World Wide Web. • Understand WAN and LAN concepts and how they access the internet in school. • Understand that they apply critical thinking skills when communicating and assessing information online. • Know that they connect to their audience when creating digital content, assessing and refining their work.

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Computing Key Skill						
Aspect	Y1	Y2	Y3	Y4	Y5	Y6
Computer Science	**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.	**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.	**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.	**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.	**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.	**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.
Digital Literacy	**Recognise** common uses of information technology beyond school. **Use technology safely** and respectfully, keeping personal information private; identify where	**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	**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.

	to go for help and support when they have concerns about content or contact on the internet or other online technologies.	about content or contact on the internet or other online technologies.					
Information Technology	Use technology **purposefully** to **create, organise, store, manipulate and retrieve** digital content.	Use technology **purposefully** to **create, organise, store, manipulate and retrieve** digital content	**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 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 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 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.
Vocabulary	Algorithm, Code, Computer, Program, Debugging, Instructions, Sequence, Action, Command, Input, Output, Menu, Save, Search, Login, Password, Private, Sound, Edit, Object, Technology.	Action, Algorithm, Bug, Button, Click, Collision, Command, Debug, Event, Execute, Image, Instructions, Interaction, Object, Output, Predict, Properties, Run, Scale, Scene, Sequence.	Algorithm, Code, Debug/Debugging, Event, Object, Input, Output, Properties, Test, Sequence, Bug, Timer, Action, Alert, Program, Password, Reliable Source, Data, Spreadsheet, Graph	Action, Alert, Algorithm, Background, Button, Code blocks, Command, Co-ordinates, Debug/Debugging, Design, Event, Execute, Flowchart, Input, Object, Properties, Repeat, Run, Selection, Sequence, Variable.	Algorithms, Debugging, Programming, Data Handling, Networks, Digital Literacy, Computational Thinking, Software, Hardware, Input/Output Devices, E-Safety, Cloud Computing, Internet, Information Retrieval, Online Communication, Binary, Coding, Scratch, Simulations, Devices, Control Systems	Algorithm, Debugging, Decomposition, Event, Function, Input, Object, Output, Selection, Sequence, Simulation, Variable, Data, Phishing, Password, Blog, Database, Image, Formula, Spreadsheet, Wi-Fi