



St Joseph's Catholic Primary School

Computing Progression of knowledge and skills

| National Curriculum & EYFS | | N | R | Y1 | Y2 | Y3 | Y4 | Y5 | Y6 |
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| Digital Literacy | E-safety Nursery & reception Understanding the world Explain the reasons for rules, know right from wrong and try to behave accordingly. KS1 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. | Children know the people who keep them safe when online Children know not to search online without an adult | Children know the people who keep them safe when online Children know not to search online without an adult | Children understand the importance of keeping information, such as usernames and passwords, private. They know who their trusted adults are and to tell them if they are concerned when online | Children know ways to hide their identity online such as using an avatar and how to search on appropriate websites. Children begin to understand things can be shared electronically They develop an understanding of using email safely and know ways of reporting inappropriate behaviours and content to a trusted adult. | | | | |
| | E safety KS2 Use technology safely, respectfully and responsibly: recognise acceptable/unacceptable behaviour: identify a range of ways to report concerns about content and contact | | | | | Children take ownership of their work and save this in their own private space. They demonstrate the importance of having a secure password and not sharing this with anyone else. They know some negative | Children know a range of ways of reporting inappropriate content and contact. They know how to respond to cyberbullying Children can help others to understand the importance of online safety. | Children have a secure knowledge of online safety rules and ways to behave. They know many ways to report concerns about content or contact. Children know a range of consequences to a poor digital footprint | Children can identify more discreet inappropriate behaviours They recognise the value in preserving their privacy when online for their own and other people's safety. They have a strong understanding of |

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| | | | | | | consequences of failure to keep passwords safe and secure. They understand the importance of staying safe and communicating respectfully They know more than one way to report unacceptable content and contact. | They know some consequences of sharing online and age restrictions that apply to social media platforms/networks. They know how to access built in safety features within social networking sites. | They know the risks associated with downloading links and emails that might contain malicious software. | inappropriate uses of online services and can offer suggestions to minimise risks e.g reducing screen time, allowing notifications. Children know there are laws to protect their online data. |
| | <p>Technology</p> <p>Nursery & reception Understanding the world- How things work</p> <p>KS1 Recognise common uses of information technology beyond school</p> | Children develop an understanding of what technology is. They play in settings with a variety of technology in everyday life e.g supermarket till, traffic lights, scanners, cash machines etc | Children develop an understanding of what technology is. They play in settings with a variety of technology in everyday life e.g supermarket till, traffic lights, scanners, cash machines etc | Children understand what is meant by technology and can identify a variety of examples both in and out of school. They can make a distinction between objects that use technology and those that do not e.g. a laptop vs. a chair. | Children can retrieve relevant, purposeful digital content using a search engine. Children make links between technology they see around them and technology out of school e.g in shops, banks and hospitals | | | | |
| <p>Information Technology</p> | <p>Search technologies</p> <p>Nursery- Personal, Social and Emotional Development Remember rules without needing an adult to remind them.</p> <p>Reception Personal, Social and Emotional Development - Show resilience and perseverance in the face of a challenge.</p> <p>KS2</p> | Children scan QR codes to access pictures and words | Children scan QR codes to access pictures, words, stories and songs | | | Children know the layout, features and function of a search engine. They know how to access hyperlinks to webpages. Children know a range of ways to search online e.g search engine, QR codes and URL's. | Children search with more complexity, checking the accuracy of key words. and can evaluate the content. Children can retrieve relevant, purposeful digital content in a range of ways e.g search engine, QR codes and URL's. They understand plagiarism, how to | Children know that search results are ranked and how to improve a webpage ranking. They know how to spot fake online news and understand to check for bias. They know their work is protected by copyright laws. | Children have a good understanding of how to search effectively online for information and are show good judgment when evaluating websites. |

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| | <p>Use search technologies effectively: appreciate how results are selected and ranked and be discerning in evaluating digital content.</p> | | | | | | credit work at a basic level and to summarise text into their own words to avoid plagiarism | | |
| | <p>Software- Presentation software Nursery- Personal, Social and Emotional Development Remember rules without needing an adult to remind them.</p> <p>Reception Personal, Social and Emotional Development - Show resilience and perseverance in the face of a challenge.</p> <p>KS1 Use technology purposefully to create, organise, store, manipulate and retrieve digital content</p> <p>KS2 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> | Children play with a range of devices such as a digital camera, Ipad and interactive whiteboard. They develop their drawing and reading skills through a range of apps | Children play with a range of devices such as a digital camera, Ipad and interactive whiteboard. They develop their drawing and reading skills through a range of apps | Children can follow simple instructions to access online resources. They know that work can be stored to particular folders. Children develop an understanding of how to create digital work and begin to use a keyboard to create and manipulate work. They create content as a class and create simple story books and pictograms | Children start to organise data using database and learn how to retrieve specific data for conducting simple searches. Children are able to edit more complex digital data such as music compositions. They continue to use their keyboard skills to create and manipulate work. They create digital mind maps | Children develop the skill of collecting, naming, saving and retrieving content. Children are introduced to common presentation software and search online for suitable images. They know how to insert graphs and start to format text. | Children can collect, name, save and retrieve and content on a range of presentation and animation software. They search online for create branching databases and are able to sort and arrange the data. They use a range of tools to format text and add drawings, photos and sound. | Children make appropriate improvements to their content and select suitable software. They create more complex databases and are able to sort and arrange the data. They can add voiceovers and are more secure when editing film. | Children consider the audience when selecting suitable presentation software. They evaluate their design and content as they create and edit accordingly. Children create spreadsheets and are able to use formulas to calculate. They can add hyperlinks to create non-linear presentations. |
| Computer science | <p>Computer Networks</p> <p>KS2 Understand computer networks including the internet: how they can provide multiple services,</p> | | | | | Children know networks connect devices and provide access to the WWW and that these can be wired or wireless. | | Children know firewalls can protect them from malicious software attacks | Children know different types of network such as LAN and WAN networks. They know how firewalls |

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| | <p>such as the world wide web: and the opportunities they offer for communication and collaboration.</p> | | | | | <p>They develop an understanding of input and output devices.</p> | | | <p>protect their network. Children have a good understanding of significant people and events within computing that have contributed to online communication and collaboration Children can explain how they have evaluated content seen online.</p> |
| | <p>Computer Science- Programming Nursery- Personal, Social and Emotional Development Remember rules without needing an adult to remind them.</p> <p>Reception-Personal, Social and Emotional Development -Show resilience and perseverance in the face of a challenge.</p> <p>KS1 Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.</p> | <p>Children are exposed to everyday algorithms e.g going into assembly, getting ready for lunch.</p> | <p>Children are exposed to everyday algorithms e.g going into assembly, getting ready for lunch.</p> | <p>Children know an algorithm is a set of instructions to complete a specific task. They are exposed to decomposition by breaking down a big task into smaller parts. Children create class paper-based algorithms with precise instructions</p> | <p>Children know that an algorithm turns a computer algorithm into code for the computer to understand. They are exposed to decomposition by breaking down a big task into smaller parts. They show an awareness of using precise instructions.</p> | | | | |
| | <p>Nursery & Reception- Personal, Social and Emotional Development - Show resilience and perseverance in the face of a challenge.</p> | <p>Children are exposed to simple decomposition during focused tasks e.g what are the steps to make a pancake?</p> | <p>Children are exposed to simple decomposition during focused tasks e.g what are the steps to make a pancake?</p> | <p>Children can read code 1 line at a time and predict the outcome. They use sequencing to give simple directional</p> | <p>Children can read code 1 line at a time and predict the outcome giving reasons why. They can sequence more complex steps</p> | | | | |

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| | <p>KS1 Use logical reasoning to predict the behaviour of simple programs.</p> | <p>Children use simple sequencing e.g what do I do first, next, last? Children play with simple remote toys that help them develop an understanding of sequencing by directing the car to move. They are exposed to simple abstraction e.g does it matter what filling goes inside the pancake?</p> | <p>Children use simple sequencing e.g what do I do first, next, last? Children play with simple remote toys that help them develop an understanding of sequencing by directing the car to move. They are exposed to simple abstraction e.g does it matter what filling goes inside the pancake?</p> | <p>commands to each other around their classroom and then use simple directional commands with a Beebot- eg left/right/forward /back.</p> | <p>such as putting musical notes in order then move onto directional commands with simple degrees of rotation to move an onscreen robot</p> | | | | |
| | <p>Nursery & Reception Reception-Personal, Social and Emotional Development -Show resilience and perseverance in the face of a challenge.</p> <p>KS1 Create and debug simple programs.</p> | <p>Children experience simple debugging during focused tasks e.g have I forgotten one of the steps? and through the use of remote controlled cars e.g Why won't the car move the right way?</p> | <p>Children experience simple debugging during focused tasks e.g have I forgotten one of the steps? and through the use of remote controlled cars e.g Why won't the car move the right way?</p> | <p>Children can identify what is wrong in a sequence of instructions and make logical attempts to fix the problem</p> | <p>Children can identify and correct some errors within an algorithm and have a growing awareness of the need to be logical</p> | | | | |
| | <p>KS2 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>Children turn real life situations into algorithms with unambiguous instructions. They know decomposition is to break down a big task into smaller parts and abstraction is to identify unimportant parts of a task.</p> | <p>Children create algorithms with unambiguous instructions. They use decomposition to break down a task and abstraction to identify unimportant parts of a task.</p> | <p>Children create algorithms with more precise instructions. They use decomposition to break down tasks and abstraction to identify unimportant parts of a task.</p> | <p>Children create algorithms with precise instructions. They use decomposition to break down a task and abstraction to identify unimportant parts of a task.</p> |

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| | <p>KS2 Use sequence, selection and repetition in programs: work with variables and various forms of input and output.</p> | | | | | <p>Children use sequencing, repetition and simple selection to program flow charts. When sequencing gaming code they work with repetition such as timers to avoid typing out unnecessary code.</p> | <p>Children use sequencing and repetition to move an onscreen robot. They use directional commands with any degree of turn. They also work with repetition to avoid typing out unnecessary code. When programming during gaming, children use variables such as lives and scores. They use variables to store data e.g lives/scores.</p> | <p>Children use sequencing, repetition and simple selection to program flow charts. When programming for gaming, children use selection commands such as IF/ELSE to allow more than one block of code to be run. They use variables such as lives, scores and time.</p> | <p>Children use flow diagrams and Tabs to organise code into sequence. They use IF/ELSE commands to allow selection and use a range of inputs such as text and outputs such as sounds or text. When sequencing physical systems, children include sub routines. They are able to program physical systems to be controlled by an interface.</p> |
| | <p>KS2 Use logical reasoning to explain how simple algorithms work and to detect and correct errors in algorithms and programs.</p> | | | | | <p>Children use logical reasoning to predict an outcome and to debug. They spot most errors and make suitable attempts to debug them</p> | <p>Children use logical reasoning to predict an outcome. They spot most errors and make suitable attempts to debug them</p> | <p>Children are able to test and debug their code as they go along. They use logical methods to try and identify errors but may need help to identify specific lines of code.</p> | <p>Children can organise code into tabs and read back through code using logical methods and a systematic approach to try and identify incorrect lines of code. They make suitable attempts to fix them use logical methods</p> |