At Owston Park Primary Academy, our Computing curriculum is organised around the key substantive concepts of Computer Science, Information Technology and Digital Literacy. These concepts provide a framework through which pupils develop a coherent understanding of technology and its role in the modern world. Pupils explore how computers follow instructions and solve problems, how technology can be used to create, organise and present information, and how digital technologies can be used safely, responsibly and effectively. These concepts are carefully sequenced, revisited and deepened over time, enabling pupils to build secure and connected computing knowledge.
Alongside this, pupils develop their disciplinary knowledge through Computational Thinking, learning to decompose problems, recognise patterns, identify important information through abstraction, create and follow algorithms, debug errors and evaluate solutions. Through these processes, pupils learn to think and work as computer scientists by designing, creating, testing and improving digital solutions to a range of problems.

Our Computing Concepts



Computer Science
How computers follow instructions, solve problems and are programmed



Information Technology
How technology can be used to create, organise and present information



Digital Literacy
How technology can be used safely, responsibly and effectively

	Key Concepts Covered	Vocabulary	Substantive Knowledge	Disciplinary Knowledge
EYFS	Computer Science, Information Technology & Digital Literacy.	button, camera, computer, device, game, instructions, iPad, keyboard, photograph, program, robot, screen, technology	Children begin to recognise and use a range of digital technologies found at home and school. They understand that technology can be used to create, communicate, play and learn. Through exploration and practical experiences, children discover that some devices follow instructions and can be programmed to carry out simple actions. They begin to understand that technology should be used safely and that adults can help them if something online worries or confuses them.	Explore and use a range of technological devices independently and with support. Follow and give simple instructions. Recognise that instructions must be followed in a sequence. Use programmable toys and simple digital applications. Notice patterns and predict what might happen next. Create simple digital content such as photographs, drawings and recordings. Solve simple problems through trial and improvement. Talk about how technology is used at home and school. Use technology safely and know when to ask an adult for help.
Y1	Computer Science, Information Technology & Digital Literacy.	algorithm, camera, capture, code, computer, debug, device, digital, edit, instructio, landscape, photograph, portrait, program, sequence, technology	Children understand that computers and digital devices follow instructions. They kno that programs are created using a sequence of commands and that mistakes can be found and corrected through debugging. They understand that technology can be used to create digital content, including photographs and simple digital documents. They know that photographs can be captured, edited, improved and changed using technology and begin to understand that not all digital images are real or unchanged. They recognise that technology is used both inside and outside school and can be used safely and responsibly to create, organise and communicate information.	Following and creating simple alorithms, identifying and correcting simple errors, and using technology to create digital content. Begin to recognise patterns, use simple problem-solving strategies and evaluate their digital work. Use technology safely and responsibly, including seeking permission before taking photographs of others and understanding that digital content can be changed.
Y2	Computer Science, Information Technology & Digital Literacy.	algorithm, capture, code, debug, device, digital content, digital music, edit, icon, instruction, Microsoft Word, note, pattern, pulse,	Children understand that computers follow instructions and that programs are created using algorithms and sequences. They know that errors within programs can be identified and corrected through debugging. They understand that technology can be used to create, organise and present digital content,	Children continue to develop computational thinking by creating and following algorithms, recognising patterns, debugging programs and evaluating outcomes. They use digital tools purposefully to create and

		rhythm, sequence, tempo, technology	including artwork, documents, branching databases and music. They know that digital tools have different functions and can be selected for different purposes. They understand that music can be created digitally using patterns, rhythms, notes and tempo and can be reviewed and edited to improve the final outcome. They recognise that technology is used for a range of purposes beyond school and can be used safely, responsibly and effectively.	modify content, organise information and solve simple problems. They begin to select appropriate technologies for different tasks and can review, edit and improve their digital work. Children use technology safely and responsibly when creating, sharing and storing digital content.
Y3	Computer Science, Information Technology & Digital Literacy.	algorithm, animation, branching database, data, decomposition, device, frame, graph, iMotion, input device, looping, onion skinning, output device, repetition, search engine, sequencing, software, storyboard	Children understand that programs are designed to achieve specific goals and can be improved through debugging. They know that algorithms can use sequencing, repetition, looping and decomposition to solve problems efficiently. They understand the difference between input and output devices and how these allow users to interact with technology. They know that digital content can be created through animation and understand how individual frames combine to create the illusion of movement. They understand that animations are planned using storyboards and can be reviewed, evaluated and improved. They know that information can be organised digitally using branching databases, graphs and charts, and that search engines can be used to locate relevant information.	Develop computational thinking by designing, writing, testing and debugging increasingly complex programs. Break problems into smaller parts through decomposition, recognise patterns and use loops and repetition to improve efficiency. use technology to create animations, organise information, evaluate digital outcomes and suggest improvements. Use logical reasoning to predict the behaviour of simple programs and explain how digital systems work.
Y4	Computer Science, Information Technology & Digital Literacy.	algorithm, chart, debug, decomposition, digital content, graph, input device, LED, loop, Micro:Bit, output device, PowerPoint, program, Publisher, repetition, results, search engine, sequence, software	Children understand that programs can be written to control hardware and achieve specific outcomes. They know how sequencing, repetition, looping and decomposition can be used to create more efficient programs. They understand how hardware and software work together and can identify input and output devices, including those found on a Micro:Bit. They know that search engines return a range of results and that keywords can be used to locate relevant information. They understand that technology can be used to create, organise and present digital content using a range of software, including Publisher and PowerPoint. They know that graphs and charts can be created digitally to organise, analyse and present information.	Design, create, test and debug programs using hardware and software. Use decomposition to break problems into manageable steps and use logical reasoning to predict and evaluate outcomes. Select appropriate digital tools to create content, search effectively for information, organise data and communicate ideas. Evaluate work and improve solutions through testing, review and refinement.

Y5	Computer Science, Information Technology & Digital Literacy.	algorithm, copyright, debug, design, evaluate, free-use images, input device, loop, output device, PowerPoint, program, repetition, sequencing, webpage, website	Children understand that programs can be designed, written and debugged to achieve increasingly complex goals. They know how sequencing, repetition, looping and decomposition improve the efficiency and accuracy of programs. They understand how hardware and software interact through input and output devices and can explain how digital systems process information. They know that websites and webpages are forms of digital content which must be carefully planned, designed and evaluated for a specific audience and purpose. They understand how copyright affects the use of digital content and can identify and use appropriate free-use resources. They know that search engines return different results depending on the search terms used and can use effective searches to gather relevant information. They understand that digital content can be created, refined and evaluated to communicate information clearly and effectively whilst remaining safe, accurate and appropriate for its intended audience.	Apply computational thinking by designing, testing, debugging and improving solutions to increasingly complex problems. Use logical reasoning to predict the behaviour of programs, decompose problems into manageable parts and evaluate digital products against success criteria. Select appropriate digital tools for specific purposes and create, edit and refine digital content for a target audience whilst applying safe and responsible online behaviours. Evaluate the effectiveness of webpages and digital products and make improvements based on clear criteria.
Y6	Computer Science, Information Technology & Digital Literacy.	abstraction, algorithm, debug, decomposition, digital content, evaluate, network, online safety, program, search engine, sequence, software, variable, website	Children understand how increasingly complex programs are designed, created and debugged using computational thinking. They know that algorithms can be refined through decomposition, abstraction, sequencing and evaluation. They understand how information is stored, communicated and presented digitally and can select appropriate software to create purposeful digital content. They know how search engines, websites and online services operate and critically evaluate digital information. They understand their responsibilities as digital citizens and recognise how technology can be used safely, responsibly and effectively in different contexts.	Independently apply computational thinking by decomposing problems, recognising patterns, using abstraction and designing efficient algorithms. Test, debug and evaluate programs systematically and justify improvements. Select and use appropriate software and technologies to solve problems, create content and communicate effectively, whilst demonstrating safe, responsible and critical use of digital technologies.

Concept development over time

Key Focus	 Computer Science	 Information Technology	 Digital Literacy
EYFS Technology Exploration	Children begin to understand that technology responds to actions and instructions.	Exploring devices to create, communicate and investigate.	Beginning to understand safe and appropriate use of technology with adult support.
Y1 Coding & Programming	Algorithms, sequencing, simple programming and debugging.	Using devices to interact with simple programs.	Using devices safely and appropriately.
Y1 Photography	Understanding that technology captures and stores information.	Capturing, editing and creating digital images.	Understanding permission, image editing and that digital images may not always be genuine.
Y2 Coding & Programming	Developing algorithms, sequencing and debugging programs.	Applying coding skills through digital tools.	Safe and responsible use of technology.
Y2 Digital Music	Recognising patterns, sequences and logical structures within music creation.	Creating, editing and reviewing digital music using software.	Responsible use of digital tools and content creation.
Y2 Information Technology	Applying logical thinking to digital tasks.	Creating digital content, using software tools, branching databases and managing files.	Understanding safe and effective use of technology

Y3 Coding & Programming	Decomposition, repetition, loops and debugging.	Applying programming knowledge using different software.	Safe use of software and devices.
Y3 Animation	Understanding how instructions and sequencing create movement.	Planning, creating, reviewing and improving animations.	Evaluating digital content and working responsibly with digital media.
Y3 Information Technology	Applying logical thinking to create digital outcomes.	Creating, organising and presenting digital content using a range of software.	Safe and appropriate use of technology and digital information.
Y4 Coding & Programming	More complex programming, logical reasoning and debugging.	Applying programming for practical purposes.	Responsible and safe use of technology.
Y4 Micro:Bit	Physical computing, algorithms, loops, inputs and outputs.	Using hardware and software together to solve problems.	Understanding appropriate and responsible use of computing devices.
Y4 Information Technology	Applying logical thinking to organise data.	Searching, organising and presenting information using a range of software.	Evaluating the reliability and suitability of information sources.
Y5 Coding & Programming	Creating efficient programs using decomposition, sequencing and repetition.	Applying programming skills to increasingly complex contexts.	Responsible and safe use of technology.
Y5 Website Design	Applying computational thinking to plan digital structures.	Creating, evaluating and improving webpages for a purpose and audience.	Copyright, safe searching and appropriate use of online content.
Y5 Information Technology	Applying logical reasoning when organising and presenting information.	Selecting and using digital tools to create, organise and communicate information for different audiences.	Evaluating information sources and using technology responsibly.
Y6 Coding & Programming	Sophisticated algorithm design, abstraction, debugging and evaluation.	Applying programming to solve increasingly complex problems.	Understanding responsibilities as a digital citizen.

Y6 Information Technology	Applying computational thinking when creating digital solutions.	Selecting, using and evaluating digital tools to create and communicate information.	Critically evaluating online information and using technology safely, responsibly and effectively.