

Unlocking Every Child's Potential as a Unique Child of God

Year 6 Computing Curriculum 2025

Children Should be taught:

Co2/1.1 design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts

Co2/1.2 use sequence, selection, and repetition in programs; work with variables and various forms of input and output

Co2/1.3 use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs

Co2/1.4 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

Co2/1.5 use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content

Co2/1.6 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.

Co2/1.7 use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact

Term 1 – WWII	Term 2 – Incredible Earth	Term 3 – Being Human
<p>Online Safety - Lessons 1 & 2</p> <p>Children will describe online issues that give us negative feelings and know how to get help. They will explore the impact and consequences of sharing online.</p> <p>Computing Systems and Networks: Bletchley Park and the History of Computing. (L1-4)</p> <p>Children will explore the world of computing by decoding ciphers and investigating the vital role Bletchley Park played during World War II. They will examine the contributions of key figures in computing history, including Ada Lovelace, Tim Berners-Lee, Steve Jobs, and Margaret Hamilton. As part of their learning, pupils will study the evolution of computers over time and discover how computer gaming has developed in a relatively short period. They will design a computer of the future. To demonstrate their understanding, they will create a presentation showcasing their findings.</p> <ol style="list-style-type: none"> 1. To understand there are many different types of secret codes. 2. To understand the importance of having a secure password. 3. To recognise the importance of the history of computers and create a well-researched presentation. 4. To design a computer of the future. <p>Presentation Skills</p>	<p>Online Safety - Lesson 3</p> <p>Children will know how to create a positive online reputation.</p> <p>Data handling: Mars Rover 1 (L 1,2,4)</p> <p>Children will research and calculate the distance from Earth to Mars and learn that due to the vast distance, information collected by the Mars Rover has to be translated into binary code. They will then perform their own binary calculations.</p> <p>Digital Design: Mars Rover 2 (L 1,4,5)</p> <p>Children will explore how pixels and binary code form digital images and then use 3D design software to create 3D objects.</p>	<p>Online Safety - Lessons 4 & 5</p> <p>Children will describe how to capture bullying content as evidence and manage personal passwords effectively.</p> <p>Programming: Introduction to Python (L 1-4)</p> <p>Children will be introduced to text based programming, exploring the capabilities and commands of LOGO and creating basic designs. They will explore how nested loops change the look of their design and develop their computational thinking skills of decomposition to help them alter a picture using Python. They will use loops in Python to create their own pieces of Islamic art tinkering with different values to create different shapes and test, change & explain what their program does.</p> <p>Computing systems and networks: Exploring AI (L1,2,5)</p> <p>Children will explore what AI is and how it generates text, images and code as well as learning about creating and refining prompts to improve AI responses. They will consider the ethical implications of AI and its potential to replace human roles.</p>

<p>Children will produce a series of documents ensuring they are competent in using the main MS Office applications</p> <p>In Microsoft Word, children will learn to name and save a document, use the spacebar, backspace and enter keys, and type capital letters and special characters. They will develop skills to cut, copy and paste text, format it effectively, and insert images and tables. They will also create lists, use keyboard shortcuts, insert hyperlinks, and organise text on the page to present their work clearly and professionally.</p> <p>In Microsoft PowerPoint, children will learn to create and save a presentation, add and format text, and insert images. They will be able to add, delete, and duplicate slides, as well as insert and delete text boxes. They will explore drawing and customising lines, arrows, and shapes, and learn how to insert tables, audio, and video. In addition, they will change slide backgrounds and layouts, and enhance their presentations by adding slide transitions and animations.</p> <p>In Microsoft Excel, children will learn to create and add data to a spreadsheet. They will develop skills to resize rows and columns, merge cells, and format data, including aligning and wrapping text. They will also format cells, sort data, and use functions such as SUM and AVERAGE. Finally, they will learn to create charts to present their data clearly and effectively.</p>		
<p>Key Vocab:</p> <p>brute force hacking, cipher, password, secure technological advancement, trial and error.</p>	<p>Key Vocab:</p> <p>8-bit binary, binary code, byte, Mars Rover CAD, pixel</p>	<p>Key Vocab:</p> <p>Algorithm, nested loop, remix, repeat, decomposition AI, AI-generated text, algorithm Authenticity, ethical, prompt, refine</p>
<p>Curriculum enhancement:</p>	<p>Curriculum enhancement:</p>	<p>Curriculum enhancement:</p>
<p>Essential Skills & Knowledge:</p> <p>Pupils who are secure will be able to:</p> <ul style="list-style-type: none"> • Explain that codes can be used for a number of different reasons and decode messages. • Explain how to ensure a password is secure and how this works. • Explain the importance of historical figures and their contribution towards computer science. • Know the first computers were created at Bletchley Park to crack the Enigma code to help the war effort in World War 2. • Present information about their historical figures in an interesting and engaging manner. 	<p>Essential Skills & Knowledge:</p> <p>Pupils who are secure will be able to:</p> <ul style="list-style-type: none"> • Identify some types of data the Mars Rover could collect (for example, photos). • Explain how the Mars Rover transmits the data back to Earth and the challenges involved. • Read any number in binary, up to eight bits. • Read binary numbers and grasp the concept of binary addition. <p>Pupils who are secure will be able to:</p> <ul style="list-style-type: none"> • Create a pixel picture, explaining that a pixel is the smallest element 	<p>Essential Skills & Knowledge:</p> <p>Pupils who are secure will be able to:</p> <ul style="list-style-type: none"> • Iterate ideas, testing and changing throughout the lesson and explain what their program does. • Use nested loops in their designs, explaining why they need two repeats. • Alter the house drawing using Python commands; use comments to show a level of understanding around what their code does. • Use loops in Python and explain what the parts of a loop do. <p>Pupils who are secure will be able to:</p>

<p>5. Develop an idea for a computer of the future and create a simple design.</p>	<p>of a digital image and that binary is used to code and transfer this data.</p> <ul style="list-style-type: none"> • Begin to use 3D design tools and understand the importance of using an online community responsibly. 	<ul style="list-style-type: none"> • Explain what AI is and its basic functions. • Identify real-life applications of AI that are commonly used in everyday life. • Identify how AI understands and processes text and image prompts. • Generate and refine prompts to achieve the best possible response from AI. • Explain the key ethical considerations of AI. • Debate the potential of AI replacing human roles, presenting well-structured arguments.
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E-Safety – Follow education for a connected world statements/Project Evolve.

It is important that learning outcomes are interpreted within contexts that are relevant to the learner’s experience and are achieved through learning that is matched to the readiness of the learner.

<u>Self-image and identity</u>	<u>Online relationships</u>	<u>Online reputation</u>
<p>I can identify and critically evaluate online content relating to gender, race, religion, disability, culture and other groups, and explain why it is important to challenge and reject inappropriate representations online.</p> <p>I can describe issues online that could make anyone feel sad, worried, uncomfortable or frightened. I know and can give examples of how to get help, both on and offline.</p> <p>I can explain the importance of asking until I get the help needed.</p>	<p>I can explain how sharing something online may have an impact either positively or negatively.</p> <p>I can describe how to be kind and show respect for others online including the importance of respecting boundaries regarding what is shared about them online and how to support them if others do not.</p> <p>I can describe how things shared privately online can have unintended consequences for others. e.g. screen-grabs.</p> <p>I can explain that taking or sharing inappropriate images of someone (e.g. embarrassing images), even if they say it is okay, may have an impact for the sharer and others; and who can help if someone is worried about this.</p>	<p>I can explain the ways in which anyone can develop a positive online reputation.</p> <p>I can explain strategies anyone can use to protect their ‘digital personality’ and online reputation, including degrees of anonymity.</p>

<u>Online bullying</u>	<u>Health, well-being and lifestyle</u>	<u>Privacy and security</u>
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<p>I can describe how to capture bullying content as evidence (e.g. screen-grab, URL, profile) to share with others who can help me.</p> <p>I can explain how someone would report online bullying in different contexts.</p>	<p>I can describe common systems that regulate age-related content (e.g. PEGI, BBFC, parental warnings) and describe their purpose.</p> <p>I recognise and can discuss the pressures that technology can place on someone and how / when they could manage this.</p> <p>I can recognise features of persuasive design and how they are used to keep users engaged (current and future use).</p> <p>I can assess and action different strategies to limit the impact of technology on health (e.g. night-shift mode, regular breaks, correct posture, sleep, diet and exercise).</p>	<p>I can describe effective ways people can manage passwords (e.g. storing them securely or saving them in the browser).</p> <p>I can explain what to do if a password is shared, lost or stolen.</p> <p>I can describe how and why people should keep their software and apps up to date, e.g. auto updates.</p> <p>I can describe simple ways to increase privacy on apps and services that provide privacy settings.</p> <p>I can describe ways in which some online content targets people to gain money or information illegally; I can describe strategies to help me identify such content (e.g. scams, phishing).</p> <p>I know that online services have terms and conditions that govern their use.</p>
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Managing online information		Copyright and ownership
<p>I can explain how search engines work and how results are selected and ranked.</p> <p>I can explain how to use search technologies effectively.</p> <p>I can describe how some online information can be opinion and can offer examples.</p> <p>I can explain how and why some people may present 'opinions' as 'facts'; why the popularity of an opinion or the personalities of those promoting it does not necessarily make it true, fair or perhaps even legal.</p> <p>I can define the terms 'influence', 'manipulation' and 'persuasion' and explain how someone might encounter these online (e.g. advertising and ad targeting and targeting for fake news).</p> <p>I understand the concept of persuasive design and how it can be used to influence peoples' choices.</p>	<p>I can demonstrate how to analyse and evaluate the validity of 'facts' and information and I can explain why using these strategies are important.</p> <p>I can explain how companies and news providers target people with online news stories they are more likely to engage with and how to recognise this.</p> <p>I can describe the difference between on-line misinformation and dis-information.</p> <p>I can explain why information that is on a large number of sites may still be inaccurate or untrue. I can assess how this might happen (e.g. the sharing of misinformation or disinformation).</p> <p>I can identify, flag and report inappropriate content.</p>	<p>I can demonstrate the use of search tools to find and access online content which can be reused by others.</p> <p>I can demonstrate how to make references to and acknowledge sources I have used from the internet.</p>