

Overview of units

Unit	Learning outcomes	Computing programme of study	Software	Hardware
5.1 We are game developers Developing an interactive game	Pupils learn to: ● create original artwork and sound for a game ● design and create a computer program for a computer game, which uses sequence, selection, repetition and variables ● detect and correct errors in their computer game ● use iterative development techniques (making and testing a series of small changes) to improve their game.	● Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems and solving 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.	Main: ● Scratch Alternatives: ● Snap! ● Kodu	● Laptop/desktop/Chromebook computers or tablets ● Microphones (optional)
5.2 We are cryptographers Cracking codes	Pupils learn to: ● be familiar with semaphore and Morse code ● understand the need for private information to be encrypted ● encrypt and decrypt messages in simple ciphers ● appreciate the need to use complex passwords and to keep them secure ● have some understanding of how encryption works on the Internet.	● 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 technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	● Scratch	● Laptop/desktop/Chromebook computers or tablets
5.3 We are architects Creating a virtual space	Pupils learn to: ● understand the work of architects, designers and engineers working in 3-D ● develop familiarity with a simple CAD (computer-aided design) tool ● develop spatial awareness by exploring and experimenting with a 3-D virtual environment ● develop greater aesthetic awareness.	● 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 information.	Main: ● Trimble SketchUp ● Screen recorder Alternatives: ● CoSpaces ● Minecraft Education Edition	● Laptop/desktop/Chromebook computers or tablets

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5.4 We are web developers Making sense of the Internet and building a website	Pupils learn: - the name and function of components making up the school's network - how information is passed between the components that make up the Internet - what the source code for a web page looks like, and how it can be edited - how a website can be structured - how to add content to a web page.	- 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 range of ways to report concerns about content and contact. - Be discerning in evaluating digital content.	- Google Chrome - Google Sites	Laptop/desktop/Chromebook computers or tablets
5.5 We are adventure gamers Creating an interactive adventure using presentation software	Pupils learn: - how to plan a non-linear presentation - to create text as part of a presentation - to add and edit images in a presentation - to use hyperlinks for navigation between the slides of a presentation - to record and add audio narration to a presentation - to use commenting tools to give feedback on a presentation.	- Use search technologies effectively. - Use a variety of software (including Internet services) on a range of digital devices to design and create content that accomplish given goals, including presenting information. - Use technology safely, respectfully and responsibly.	Main: - Google Slides - Voice Recorder Alternative: - Microsoft PowerPoint	Laptop/desktop/Chromebook computers or iPads (reduced functionality)
5.6 We are VR designers Experimenting with virtual and augmented reality	Pupils learn to: - explore real-world and imagined locations in VR (if possible) - create 360° photosphere images - link physical objects to digital content using QR codes - create their own VR scene - program objects and interactions in VR.	- 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. - 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 information.	Main: - Google Street View (Google Maps) - GarageBand - CoSpaces Alternative: - Voice Recorder	Main: - iPads/tablets Alternatives: - Smartphones - Google Cardboard