

Overview of units

Unit	Learning outcomes	Computing programme of study	Software	Hardware
6.1 We are toy makers Coding and physical computing	Pupils learn: - how computers use stored programs to connect input to output - how to generate and evaluate designs in response to a brief - to plan a complex project by decomposing it into smaller parts - to work with physical components of a system - how to design and write a program for an embedded system - to use criteria to provide others with feedback on their work.	- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems. - Use sequence, selection, and repetition in programs; work with 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: - MakeCode Alternative: - Scratch	- Laptop/desktop/Chromebook computers or tablets - micro:bits
6.2 We are computational thinkers Mastering algorithms for searching, sorting and maths	Pupils learn to: - develop the ability to reason logically about algorithms - understand how some key algorithms can be expressed as programs - understand that some algorithms are more efficient than others for the same problem - understand common algorithms for searching and sorting a list.	- Design, write and debug programs that accomplish specific goals. - 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: - Google Maps - Scratch Alternative: - Snap!	Laptop/desktop/Chromebook computers or iPads
6.3 We are publishers Creating a yearbook or magazine	Pupils learn to: - manage or contribute to large collaborative projects, facilitated using online tools - write and review content - source digital media while demonstrating safe, respectful and responsible use - design and produce a high-quality print document.	- Understand computer networks including the Internet 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.	Main: - Google Docs - Microsoft Publisher Alternatives: - Book Creator - Microsoft Word	- Laptop/desktop/Chromebook computers - Digital cameras - iPads

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6.4 We are connected Developing skills for social media	Pupils learn: - about appropriate rules or guidelines for a civil online discussion - how search results are selected and ranked - how to argue their point effectively, supporting their views with sources - how to counter someone else's argument while showing respect and tolerance - how to judge the reliability of an online source - some strategies for dealing with online bullying.	- Understand the opportunities computer networks offer for communication and collaboration. - Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. - Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content.	- School blogging platform (such as WordPress) - Padlet	Laptop/desktop/Chromebook computers or iPads
6.5 We are advertisers Creating a short television advert	Pupils learn to: - think critically about how video is used to promote a cause - storyboard an effective advert for a cause - work collaboratively to shoot original footage and source additional content - acknowledge intellectual property rights - work collaboratively to edit the assembled content to make an effective advert.	- 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.	Main: - iMovie Alternatives: - Microsoft Photos - WeVideo	- Laptop/desktop/Chromebook computers - Digital cameras/tablets
6.6 We are AI developers Learning about artificial intelligence and machine learning	Pupils learn: - how decision trees can be trained automatically to classify data - how speech recognition works - how a neural net recognises images - to train a neural net to classify images - to train a machine learning system to identify sentiments - to consider some ethical principles in designing AI systems.	- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. - Use and combine a variety of software 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.	- Scratch (Machine Learning for Kids version) - Audacity - Google Chrome	- Laptop/desktop/Chromebook computers iPads - Smart speaker (Google Home/Amazon Echo) optional