

Christ Church C.E Primary School

Computing and ICT Scheme of Work for Year 4

Term	Unit title & summary	Expectations	Computing Programme of Study	Software Apps	Hardware	Cross Curricular Links
Autumn 1	We are toy designers Prototyping an interactive toy	<ul style="list-style-type: none"> Design and make an on-screen prototype of a computer-controlled toy. Understand different forms of input and output (such as sensors, switches, motors, lights and speakers). Design, write and debug the control and monitoring program for their toy. 	Focus: Computational thinking <ul style="list-style-type: none"> Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems. 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. 	Software: Scratch Apps: Web browser and Snap!	<ul style="list-style-type: none"> Laptops Desktops Microphones and speakers 	<ul style="list-style-type: none"> English D & T Music
E-Safety Coverage						
The pupils again need to think carefully about copyright in sourcing images and other media for their toy prototypes and presentations, or if uploading their own work to the Scratch community. If the pupils do participate in the online Scratch community, they should think through how to do so in a safe and responsible manner, and should obtain their parents consent. If pupils link their programs to hardware, they need to take care to work safely with a range of tools and electronic equipment.						
Autumn 2	We are software developers Developing a simple educational game	<ul style="list-style-type: none"> Develop an educational computer game using selection and repetition. Understand and use variables. Start to debug computer programs. Recognise the importance of user interface design, including consideration of input and output. 	Focus: Programming <ul style="list-style-type: none"> 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. 	Software: Scratch/Snap! Apps: Snap! In the web browser.	<ul style="list-style-type: none"> Laptops Desktops Microphones (not essential) 	<ul style="list-style-type: none"> English Maths Languages
E-Safety Coverage						
The pupils need to consider copyright when sourcing images or media for their programs and/or uploading their own work to the Scratch community site. Searching for content for their programs or viewing others games also offers an opportunity to develop safe search habits. If the pupils participate in the Scratch community, they need to think about what information they can share and how to participate positively in an online community, as well as obtaining parental permission.						

Term	Unit title & summary	Expectations	Computing Programme of Study	Software Apps	Hardware	Cross Curricular Links
Spring 1	We are meteorologists Presenting the weather	<ul style="list-style-type: none"> Understand different measurement techniques for weather, both analogue and digital. Use computer-based data logging to automate the recording of some weather data. Use spreadsheets to create charts. Analyse data, explore inconsistencies in data and make predictions. Practise using presentation software and optionally, video. 	Focus: Productivity <ul style="list-style-type: none"> Work with variables and various forms of input and output. Use logical reasoning to explain how some simple algorithms work. 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. 	Software: Microsoft Excel,/Google Sheets, web browser, Microsoft Powerpoint/IWB software Apps: Weather Station by Netamo, Weather Station UK, Numbers	<ul style="list-style-type: none"> Equipment for measuring weather 	<ul style="list-style-type: none"> English Maths Science Geography

E-Safety Coverage

The pupils consider the importance of obtaining and using accurate data for any information-processing work. If the pupils film one another, they need to ensure appropriate permission is obtained and that recordings are made, edited and shown in safe, respectful and responsible ways. The pupils should think carefully about the implications of uploading their films to the school network or to the internet.

Spring 2	We are musicians Producing digital music	<ul style="list-style-type: none"> Use one or more programs to edit music. Create and develop a musical composition, refining their ideas through reflection and discussion. Develop collaboration skills. Develop an awareness of how their composition can enhance work in other media. 	Focus: Creativity <ul style="list-style-type: none"> Use sequence, selection and repetition in programs; work with variables and various forms of input and output. Understand computer networks, including the internet; and the opportunities they offer for communication and collaboration. 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. 	Software: Isle, Audacity, LMMS/GarageBand, MuseScore (optional) Apps: Isle of Tune, GarageBand	<ul style="list-style-type: none"> Laptops Desktops iPads Microphones Midi instruments 	<ul style="list-style-type: none"> Maths Music
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E-Safety Coverage

The pupils need to think about copyright when sourcing audio or publishing their compositions. They are encouraged to use Creative Commons licensed content if working with others' audio files. There's an opportunity to discuss how copyright relates to music performed in school as well as illegal downloading and sharing of copyrighted music.

Term	Unit title & summary	Expectations	Computing Programme of Study	Software Apps	Hardware	Cross Curricular Links
Summer 1 (Year 3 unit)	We are bug fixers Finding and correcting bugs in programs	<ul style="list-style-type: none"> Develop a number of strategies for finding errors in programs. Build up resilience and strategies for problem solving. Increase knowledge and understanding of Scratch. Recognise a number of common types of bug in software. 	Focus: Computational thinking <ul style="list-style-type: none"> 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. 	Software: Scratch 2.0, Screen-o-matic (if appropriate) Apps: Snap! In the web browser	<ul style="list-style-type: none"> Laptops Desktops iPads Microphone (if appropriate) 	<ul style="list-style-type: none"> English Maths Science

E-Safety Coverage

The pupils consider the implications of bugs in software. Participating in the Scratch community would enable the pupils to help others with their projects as well as allowing them to receive help on their own. Participation requires parental permission, and the pupils should consider what behaviour is acceptable online.

Summer 2	We are HTML editors Editing and writing HTML	<ul style="list-style-type: none"> Understand some technical aspects of how the internet makes the web possible. Use HTML tags for elementary mark up. Use hyperlinks to connect ideas and sources. Code up a simple web page with useful content. Understand some of the risks in using the web. 	Focus: Computer networks <ul style="list-style-type: none"> 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; know a range of ways to report concerns and unacceptable behaviour. Use and combine a variety of software (including internet services) to accomplish given goals, including presenting information. 	Software: Firefox, Brackets Apps: Safari, Koder	<ul style="list-style-type: none"> Laptops Desktops iPads 	<ul style="list-style-type: none"> English History
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E-Safety Coverage

The pupils learn how easy it is to create content for the web. The unit provides an opportunity to address some of the risks of using the web, and how pupils could best keep themselves safe while doing so. They learn how easily web pages can be modified, which provides an opportunity to consider the reliability of web-based content.