The LIFE Rural Primary Computing Year A

Years 5 and 6

Key Knowledge – Factual information that children will acquire in the topic

Skills Progression – the building of key skills that children will develop as they go through the year groups and through the topic

Rationale – to include: why you teach this topic at all, why you teach it at your school and why you teach it in this sequence. Please make reference to any cross curricular links, school values and British Values

Subject Intent Statement

The Rural Primary Computing Curriculum, which uses the Rising Stars scheme, ensures that pupils are equipped to use a range of computational thinking skills and creativity in order to understand the way that technology is used throughout the world. Well-planned and inspiring lessons lead to boundless creativity within the way technology is used and shared by the pupils. Teaching across the Rural Primaries equips children to be able to use the internet and other technology safely and compassionately, use a range of programmes with confidence and apply their skills in order to analyse and solve problems. Children will approach tasks with courageous optimism, building upon the skills they have learnt year by year, ensuring they are ready to use these in the wider world as well as coping with the way that technology is constantly evolving.

Topic	Key Knowledge	Skills Progression	Rationale
We are game developers	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 interactive 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.	• **Why we study this –** Pupils need to consider copyright when sourcing images or media for their games and uploading their own work to the Scratch community site. • **Why we study this in the Rural Primaries -**Online Safety: Pupils consider some personal implications of playing games • **Why we study this at this time of year** – The games created link to the cross-curricular learning about 'Invaders, traders and raiders'
We are Web Developers	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.	• **Why we study this –** Pupils learn about how networks, including the Internet, operate. They learn that data transmitted via the Internet is not always encrypted. • **Why we study this in the Rural Primaries -** Online Safety: Pupils learn how easy it is to create content for the web. • **Why we study this at this time of year –** The learning about he Web is linked to cross-curricular learning about 'Extreme Earth.'
We are adventure gamers	Pupils learn: ● how to plan a non-linear presentation ● to create text as part of a	● 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.	• **Why we study this -** Pupils should observe good practice when searching for and selecting digital

	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 technology safely, respectfully and responsibly.	content. • **Why we study this in the Rural Primaries -** Online Safety: Establish ground rules of respect and kindness and ensure that pupils' contributions can be identified. • **Why we study this at this time of year** – The unit is used with cross-curricular links to 'Who let the God's out' as children can base their presentation on Ancient Greece.
We are architects	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.	• **Why we study this -** Pupils should observe good practice when searching for and selecting digital content • **Why we study this in the Rural Primaries -**Online Safety**:** Pupils should think about copyright when adding content to their model or publishing images or videos of their model. • **Why we study this at this time of year** – Cross-curricular links are made to their learning on North America as they children learn about the art and architecture of American artists. This unit extends the learning to examining architecture using a computer.
We are VR designers	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	● 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.	• **Why we study this –**The Street View activities provide an opportunity for pupils to consider privacy issues in real world contexts. • **Why we study this in the Rural Primaries-**Online Safety: Pupils should know how to switch off location recording. Pupils should understand why photospheres

	● create their own VR scene ● program objects and interactions in VR.		uploaded to Google should have any faces, number plates or other personal information blurred. • **Why we study this at this time of year** – Cross-curricular links are made to Native American civilisation and exploring it virtually.
We are advertisers	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.	• **Why we study this -** Pupils create short advertising videos. They learn the importance of observing school policy in relation to videoing, and the need to obtain consent. • **Why we study this in the Rural Primaries -** Online Safety. They recognise the need to use video search platforms in restricted or education-specific modes and bring to mind what they should do if they encounter inappropriate content. **Why we study this at this time of year** - Advertisements are created linked to the cross-curricular topic of survival.

Appendix – Key Vocabulary

Unit	Key vocabulary
We are game developers	**Algorithm:** a sequence of precise instructions or steps (sometimes a set of rules) to achieve an objective **Background:** scenery and other unchanging elements in a game **Bug:** an error or mistake in a program or algorithm, causing the computer or robot to behave in a manner that was not originally intended **Code:** instructions (or sometimes rules) that can be understood by a computer **Debug:** correct mistakes in a computer program or algorithm Iterative development: a trial and improvement approach in which each successive version builds on the previous one by the fixing of mistakes or the adding of features **Logical reasoning:** a systematic approach to solving problems or deducing information using a set of universally applicable and totally reliable rules **Program:** an automated solution to a problem **Scratch:** simple, block-based programming language in which programs for characters are built by snapping together code blocks **Sprite:** a graphical character in a program that can be given its own sequence of instructions
We are Web Developers	**Creative Commons:** copyright licensing scheme where the creator of an original work allows others to use it without seeking further permission, subject to a number of agreed conditions **Hyperlinks:** text or images that, when clicked, opens another page or moves to another part of the document **Hypertext mark-up language (HTML):** predominant language for web pages **Hypertext transfer protocol (HTTP):** standard protocol for the request and transmission of HTML web pages between browser and web server **Internet:** global network connecting computers and local networks using automated switches, routers and fibre optic, copper wire and radio connections **Internet Protocol (IP) addresses:** numeric addresses uniquely specifying computers directly connected to the Internet Network switch: dedicated computer hardware that routes data packets to particular connections according to their IP address header **Packets of data:** a small set of numbers that get transmitted together via the Internet, typically enough for 1000 or 1500 characters

	Protocol: a set of agreed rules and procedures for communication **Tag:** component of HTML to show the purpose of the following text, such as a link, paragraph text or image **Uniform Resource Locator (URL):** a standard for specifying the location on the Internet of certain data files Web browser: program running on a user's computer which requests and displays web pages **HTTP Web server:** computer connected to the Internet that stores web pages, transmitting these to web browsers as HTTP requests are received **World Wide Web:** the HTML and other documents stored on individual web servers connected via the Internet and accessible via HTTP
We are adventure gamers	**Abstraction**: a process of managing complexity by setting to the side irrelevant detail and concentrating on function rather than form **Colour value:** the amount of red, green and blue light present in a pixel, each on a scale from 0 to 255 **Creative Commons:** copyright licensing scheme which permits some re-use of content without additional permission, subject to specified conditions **Hyperlink:** text or images that, when clicked, opens another page or moves to another part of the document **MP3:** compressed audio format, making it easy to store and transmit near-CD quality audio files **Pixel:** picture element – one of the small squares that makes up a digital image **Safe search:** automatic filtering of search results to remove most, if not all, adult and other inappropriate content
We are architects	**Computer-aided design (CAD):** using computer software to help design real-world artefacts, from engineering components to buildings **Creative Commons:** copyright licensing scheme where the creator of an original work allows others to use it without seeking further permission **Photorealistic:** an image indistinguishable (or nearly indistinguishable) from a digital photograph **Render:** to create a 2-D image from a 3-D virtual scene
We are VR designers	**Accelerometer:** hardware component providing data on changes in motion, typically in three directions **Augmented reality (AR):** digital layer superimposed on a view of the real world **Global positioning system (GPS):** this system allows a user to determine their exact location using a network of satellites

	Google Cardboard: low-cost VR headset, typically made from cardboard and plastic lenses, which repurposes a smartphone as a VR display **Photosphere:** spherical collection of photographs so that the image displayed matches the direction viewed **QR Code:** 2-D array of light and dark squares used to encode text in a way that can be read using a smartphone or tablet camera **Share Code:** CoSpaces shortcut to allow those with the software to view a scene created by another user **Stereographic:** a pair of slightly different images created with a slight offset, and shown to left and right eyes to create the illusion of depth **Virtual reality (VR):** simulated, immersive 3-D representation of a real or imagined scene
We are advertisers	**Creative Commons:** licensing scheme where the creator of an original work allows others to use it without seeking further permission, subject to a number of agreed conditions **Export**: to save media in a format such that it can be watched, listened to or read by others without access to the editing software used in its production **Final cut:** stage of video production in which the footage is in its finished form in the editing software **Rough cut:** stage of video production in which scenes and shots are assembled in the correct sequence but without the attention to detail needed in the final cut **Rushes:** unedited footage from a video recording **Storyboard:** planning document for video or animation in which each scene, or sometimes shot, is drawn