The Curriculum for Computing at Cavalry

Our curriculum is based on the schemes of work provided by the National Centre for Computing Education. These ensure that children are taught knowledge and skills and understanding across four key areas:

- Computer systems and networks
- Programming
- Creating media
- Data and information

We also use Project Evolve (based on "Education for a Connected World") to assess children's knowledge, skills and understanding in the area of online safety and digital literacy then teach a systematic programme to equip them to keep themselves safe in our online world. This has links with our PSHE curriculum, and our policies for safeguarding and online safety.

Progression of skills in Technology/Computing in Reception

Links to new Early Learning Goals 2021	What it looks like in practice at Cavalry	Prepares for Year 1
Technology Around Us - links to ELG Understanding the World - Past and Present (similarities between past and now)	Use a range of different technologies to support learning, including cameras, ipads, smart boards. Provide a range of equipment to represent technology and computers in the role play areas to support role play of present times including mobile phones, keyboards, electrical home equipment. Draw attention to and discuss the development of technology and use photographs to show examples of how technology has advanced over a relatively short period of time.	**Computer Systems and Network** Technology around us
Digital writing - links to ELG Physical development - Fine motor skills (begin to show accuracy and care when drawing) **EA&D - Creating with material** (share creations and explain processes)	Use old or laminated copies of keyboards in the writing areas and other areas such as roleplay so that children become familiar with the layout of the keyboard as they begin to learn letters. Learn which icons will add letters/text to images on the smartboard or ipad.	**Creating Media** Digital Writing

Digital painting - links to ELG **Physical development - Fine motor skills** (begin to show accuracy and care when drawing) **EA&D - Creating with material** (share creations and explain processes)	Use the drawing tools on the smart board in the classroom as well as on the ipads to begin to create images. Understand how to change colours, fill, add shapes and different lines. Be able to explain to others how they created their picture and why they made the choices they did.	**Creating Media** **Digital Painting**
Digital programming - links to ELG **Understanding the World - The Natural World** (make observations of animals and plants, Understand some important processes and changes) **Creative Development - Creating with Materials** (Share their creations, explaining the process they have used; - Make use of props and materials when role playing characters in narratives and stories) **Creative Development - Being Imaginative and Expressive** (Perform songs, rhymes, poems and stories with others)	Use photographs and video clips to show an awareness of images being able to tell a story or convey meaning to an audience. Take photographs of the world around them to show changes in the environment (Spring), observe animals and their changes (photographs or videos of frogs in the pond or ladybirds on the willow changing during their lifecycle), observe the changes of plants from seed to seedling, plant and fruit through photographs. Video stories being told and roleplay,songs, rhymes or poems, sharing their creations with others whether that is in class, in the wider school or on the Reception learning website for parents to view.	**Digital Programming** **Intro to animation**
Data and Information - links to ELG **Understanding the World - The Natural World** (make observations of animals and plants, Explore the natural world around them) **Understanding the World - People, Culture and Communities** (Describe their immediate environment using knowledge from observation, Explain some similarities and differences between life in this country and life in other countries)	Use digital microscope to look closely at insects and be able to group them according to their attributes e.g. wings, number of legs etc Take photographs to be able to use when describing their environment and when observing plants and animals. Use programmes such as Google Earth and Google maps to look closely at places in their community and in other countries to discuss similarities and differences. Use the images to help group the information they gain e.g. hot countries, cold countries, countryside and cities etc Use videos such as the Monglian family constructing and living in a ger to inspire the children to make their own videos to show similarities and differences between life in this country and other countries.	**Data and Information** **Grouping Data**

Physical programming - links to ELG **Personal, Social and Emotional Development - Self regulation** (Set and work towards simple goals, show an ability to follow instructions involving several ideas or actions) **Managing Self** (Be confident to try new activities and show independence, resilience and perseverance in the face of challenge) **Physical Development - Gross Motor Skills** (Negotiate space and obstacles safely, with consideration for themselves and others)	Work with peers to create obstacle courses or trails that must be followed in a certain order or route. Give instructions to peers to negotiate an obstacle course using positional language. Follow the instructions given by others to negotiate a course. Set goals to achieve this and show perseverance and resilience to complete the course. Begin to use simple programmable robots such as beebots to explore the use and effects of simple algorithms.

Physical Programming Moving a Robot

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Autumn	**Computer Systems and Network** Technology around us	**Computer Systems and Network** IT around us	**Computer Systems and Network** Connecting Computers	**Computer Systems and Network** The Internet	**Computer Systems and Network** Sharing Information	**Programming** Variables in Games
	Project Evolve: Self Image & Identity Online Relationships	Project Evolve: Self Image & Identity Online Relationships Online Reputation	Project Evolve: Self Image & Identity Online Relationships Online Reputation	Project Evolve: Self Image & Identity Online Relationships Online Reputation	Project Evolve: Self Image & Identity Online Relationships Online Reputation	Project Evolve: Self Image & Identity Online Relationships Online Reputation
Spring	**Physical Programming** Moving a Robot	**Creating Media** Digital Photography	**Programming** Sequence in Music	**Creating Media Photo Editing**	**Creating Media** Video Editing	**Data and Information** Spreadsheets

	Project Evolve: Online Reputation Online Bullying Managing Online Information	Project Evolve: Online Bullying Managing Online Information	Project Evolve: Online Bullying Managing Online Information	Project Evolve: Online Bullying Managing Online Information	Project Evolve: Online Bullying Managing Online Information	Project Evolve: Online Bullying Managing Online Information
Summer	**Creating Media** **Digital Writing**	**Data and Information** **Pictograms**	**Data and Information** **Branching Databases**	**Programming** **Repetition in Games**	**Data and Information** **Flat File Databases**	**Creating Media** **Web Page Creating**
	Project Evolve: Health, Well-Being Lifestyle Privacy and Security Copyright & Ownership	Project Evolve: Health, Well-being and Lifestyle Privacy and Security Copyright and Ownership	Project Evolve: Health, Well-being and Lifestyle Privacy and Security Copyright and Ownership	Project Evolve: Health, Well-being and Lifestyle Privacy and Security Copyright and Ownership	Project Evolve: Health, Well-being and Lifestyle Privacy and Security Copyright and Ownership	Project Evolve: Health, Well-being and Lifestyle Privacy and Security Copyright and Ownership

NC Objective	Year 1	Year 2
Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions Create and debug simple programs. Use logical reasoning to predict the behaviour of simple programs	- Explain what a given command will do - Combine four direction commands to make sequences - Plan a simple program - Find more than one solution to a problem	- Explain what a given set of instruction will do - Use logical reasoning to predict the outcome of a program - Plan a simple program - Debug simple programs that they or others have created
Recognise common uses of information technology beyond school Use technology safely and respectfully, keeping personal information private	- Identify technology and the main parts of a computer - Use a mouse in different ways - Use a keyboard to type and edit text	- Recognise the uses and features of information technology - Identify information technology in the home and beyond school

Identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.	- Identify, give examples and discuss rules to keep us safe and healthy when we are using technology in and beyond the home	- Explain how information technology benefits us - Show how to use information technology safely - Recognise that choices are made when using information technology
Use technology purposefully to create, organise, store, manipulate and retrieve digital content	- Add and remove text on a computer - Make careful choices when changing text, creating a design and painting a digital picture on a computer - Use the shape tool and the line tools - Format shapes and lines on a computer - Add and format text within a shape - Search, select and resize images - Use a computer on my own to create a design - Use a computer on my own to paint a picture - Compare writing on a computer with writing on paper - Compare painting a picture on a computer and on paper - Explain decisions on selecting tools	- Explain that animation is a sequence of drawings or photographs - Use duplication in presentation software - Use resizing and rotation to animate a scene - Create a smooth animation by sequencing a series of frames - Enter data and view data on a computer in different formats - Explain that we can present information using a computer - Use a computer program to present and share information in different ways - Use a computer to experiment with pitch and duration - Use a computer to create and refine a musical pattern - Create music on a computer for a purpose - Review and refine our computer work

NC Objective	Year 3	Year 4	Year 5	Year 6
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,	Sequence in music - Identify that each sprite is controlled by the commands I choose - Start a program in different ways - Explore programs and experiment with the order of commands	Logo - Create a program in a text-based language - Explain what 'repeat' means. - Modify a count-controlled loop to produce a given outcome. - To decompose a program into parts To create a program that uses		Scratch - Define a 'variable' as something that is changeable - Explain why a variable is used in a program - Choose how to improve a game by using variables - Use my design to create a project

and repetition in programs Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs	- Make design choices for their program - Plan and create a project	count-controlled loops to produce a given outcome Scratch - Create a game which uses repetition to create a moving collected item and an enemy. - Use repetition to make lines of code more efficient - Demonstrate control on the effect of repetition within a program - Debug and make predictions on complete programs		- Evaluate and improve my project
Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; & 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 Use technology safely, respectfully and responsibly; recognise acceptable/ unacceptable behaviour; identify a range of ways to report concerns about content and contact	Connecting computers - Explain how digital devices function - Identify input and output devices - Recognise how digital devices can change the way we work - Explain how a computer network can be used to share information - Recognise the physical components of a network	The Internet - Describe how networks physically connect to other networks - Recognise how networked devices make up the internet - Outline how websites can be shared via the World Wide Web - Describe how content can be added and accessed on the World Wide Web - Recognise how the content of the WWW is created by people - Evaluate the consequences of unreliable content	Sharing information - Explain that computers can be connected together to form systems - Recognise the role of computer systems in our lives - Recognise how information is transferred over the internet - Explain how sharing information online lets people in different places work together - Evaluate different ways of working together online Flat File databases - Use a form to record information - Compare paper and computer-based databases - Apply my knowledge of a database to ask and answer real-world questions - Explain that tools can be used to select data to answer questions - Explain that computer programs can be used to compare data visually - Apply my knowledge of a	Communication - Identify how to use a search engine - Describe how search engines select results - Explain how search results are ranked - Recognise why the order of results is important, and to whom

			database to ask and answer real-world questions	
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	Branching database - Create Yes/No questions - Identify the object attributes needed to arrange the objects in a tree structure - Create a branching database - Identify objects using a branching database - Compare the information shown in a pictogram (Y2) with a branching database	Photo Editing - Explain that digital images can be changed - Change the composition of an image - Describe how images can be changed for different uses - Make good choices when selecting different tools - Recognise that not all images are real	Video Editing - Recognise video as moving pictures, which can include audio - Identify digital devices that can record video - Capture video using a digital device - Recognise the features of an effective video -Identify that video can be improved through reshooting and editing - Consider the impact of the choices made when making and sharing a video	Spreadsheets - Identify questions which can be answered using data - Explain that objects can be described using data - Explain that formulas can be used to produce calculated data and apply them to data. - Create a spreadsheet to plan an event - Choose suitable ways to present the data.