East Ravendale CE Primary School

Computing Curriculum Long Term Plan Years 1-6

EYFS - Computing runs through the EYFS Framework. Here are suggested activities you may see in the provision.

UW	L	PD	CL	PSED	EAD	M
Role play with a range of devices both working and broken	Beebots for story mapping	Use of technology to develop fine motor skills	Giving instructions as a link to early coding	Recording feelings, videos. Links to e-safety and keeping safe	Use of graphics to aid creativity	Directional language

Cycle A

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1/2	Technology around us	Digital painting	Moving a robot	Grouping data	Digital writing	Programming animations
Curriculum area	Computing systems and networks	Creating media	Programming A	Data and information	Creating media	Programming B
What will they learn?	Learners will develop their understanding of technology and how it can help them in their everyday lives. They will start to become familiar with the different components of a computer by developing their keyboard and mouse	Learners will develop their understanding of a range of tools used for digital painting. They then use these tools to create their own digital paintings, while gaining inspiration from a range of artists' work. The unit concludes	Learners will be introduced to early programming concepts. Learners will explore using individual commands, both with other learners and as part of a computer program. They will identify what each command for the floor	This unit introduces learners to data and information. Labelling, grouping, and searching are important aspects of data and information. Searching is a common operation in many applications, and requires an understanding that to	Learners will develop their understanding of the various aspects of using a computer to create and manipulate text. They will become more familiar with using a keyboard and mouse to enter and remove text. Learners will also consider how	Learners will be introduced to on-screen programming through ScratchJr. Learners will explore the way a project looks by investigating sprites and backgrounds. They will use programming blocks to use, modify, and create programs.

	skills. Learners will also consider how to use technology responsibly.	with learners considering their preferences when painting with and without the use of digital devices.	robot does and use that knowledge to start predicting the outcome of programs. The unit is paced to ensure time is spent on all aspects of programming and builds knowledge in a structured manner. Learners are also introduced to the early stages of program design through the introduction of algorithms.	search data, it must have labels. This unit of work focuses on assigning data (images) with different labels in order to demonstrate how computers are able to group and present data. During this unit, learners will be logging on to the computers, opening their documents, and saving their documents.	to change the look of their text and will be able to justify their reasoning in making these changes. Finally, learners will consider the differences between using a computer to create text and writing text on paper. They will be able to explain which method they prefer and explain their reasoning for choosing this.	Learners will also be introduced to the early stages of program design through the introduction of algorithms.
Why here, why now?	Building on from EYFS where pupils experimented and explored with a range of technology pupils in Y1/2 will begin to develop skills using a computer in order to prepare them for further learning.	In this unit pupils will learn that art can be made using technology. They will begin to develop skills in using digital art programmes to prepare them for using more complex programmes and software in KS2.	This unit will introduce pupils to basic programming and how they can begin to build a simple program, through giving instructions to move a robot or other mechanical resource.	Pupils will need to build their skills in using different programmes and building a bank of work which they are able to open, edit and save. They will require these skills throughout the computing curriculum and will link to other subjects.	Once the pupils have learned the skills in their previous unit they will now be able to make further changes to documents and use digital software to aid them within the whole curriculum.	This unit builds on skills from earlier in the year. Pupils will now begin to develop skills in writing programs and will start to add backgrounds, sprites and input more complex instructions via the computer.
Year 3/4	The Internet	Audio production	Repetition in shapes	Data logging	Photo editing	Repetition in games
Curriculum area	Computing systems and networks	Creating media	Programming A	Data and information	Creating media	Programming B
What will they learn?	Learners will apply their knowledge and understanding of networks, to appreciate the internet as a	Learners will identify the input device (microphone) and output devices (speaker or headphones)	Learners will create programs by planning, modifying, and testing commands to create shapes and patterns.	Learners will consider how and why data is collected over time. Learners will consider the senses that humans	Learners will develop their understanding of how digital images can be changed and edited, and how they can then	Learners will explore the concept of repetition in programming using the Scratch environment.

	network of networks which need to be kept secure. They will learn that the World Wide Web is part of the internet and will be given opportunities to explore the World Wide Web for themselves in order to learn about who owns content and what they can access, add, and create. Finally, they will evaluate online content to decide how honest, accurate, or reliable it is, and understand the consequences of false information.	required to work with sound digitally. Learners will discuss the ownership of digital audio and the copyright implications of duplicating the work of others. In order to record audio themselves, learners will use Audacity to produce a podcast, which will include editing their work, adding multiple tracks, and opening and saving the audio files. Finally, learners will evaluate their work and give feedback to their peers.	They will use Logo, a text-based programming language.	use to experience the environment and how computers can use special input devices called sensors to monitor the environment. Learners will collect data as well as access data captured over long periods of time. They will look at data points, data sets, and logging intervals. Learners will spend time using a computer to review and analyse data. Towards the end of the unit, learners will pose questions and then use data loggers to automatically collect the data needed to answer those questions.	be resaved and reused. They will consider the impact that editing images can have, and evaluate the effectiveness of their choices.	The unit begins with a Scratch activity similar to that carried out in Logo in Programming unit A, where learners can discover similarities between two environments. Learners look at the difference between count-controlled and infinite loops, and use their knowledge to modify existing animations and games using repetition. Their final project is to design and create a game which uses repetition, applying stages of programming design throughout.
Why here, why now?	As children become more proficient with using the internet, and spend less time being supervised on the web they need to learn to behave responsibly and stay safe online.	This unit builds on from learning in KS1 and allows pupils to gain more understanding and experience in layering sound with pictures or film.	Building on from using Beebots in EYFS and Scatch in KS1 pupils will be able to use these skills using a different type of software.	Building on from KS1 where pupils learned how to add data they will now begin to analyse sets of collected data which will enable them to use prescribed database software in UKS2.	This unit builds on pupils understanding of the reality of images on the internet from earlier in the year. They will experiment with editing images and how these images can distort people's perceptions.	This builds on from learning in KS1 and earlier in the year and children should now be able to combine skills and knowledge from different programs.
Year 5/6	Systems and searching	Video production	Selection in physical computing	Flat-file databases	Introduction to vector graphics	Selection in quizzes

Curriculum area	Computing systems and networks	Creating media	Programming A	Data and information	Creating media	Programming B
What will they learn?	Learners develop their understanding of computer systems and how information is transferred between systems and devices. Learners consider small-scale systems as well as large-scale systems. They explain the input, output, and process aspects of a variety of different real-world systems. Learners discover how information is found on the World Wide Web, through learning how search engines work (including how they select and rank results) and what influences searching, and through comparing different search engines.	Learners will learn how to create short videos by working in pairs or groups. As they progress through this unit, they will be exposed to topic-based language and develop the skills of capturing, editing, and manipulating video. Learners are guided with step-by-step support to take their idea from conception to completion. At the conclusion of the unit, learners will have the opportunity to reflect on and assess their progress in creating a video.	Learners will use physical computing to explore the concept of selection in programming through the use of the Crumble programming environment. Learners will be introduced to a microcontroller (Crumble controller) and learn how to connect and program it to control components (including output devices – LEDs and motors). Learners will be introduced to conditions as a means of controlling the flow of actions in a program. Learners will make use of their knowledge of repetition and conditions when introduced to the concept of selection (through the 'if...then...' structure) and write algorithms and programs that utilise this concept. To conclude the unit, learners will design and make a working model of a fairground carousel that will	This unit looks at how a flat-file database can be used to organise data in records. Learners will use tools within a database to order and answer questions about data. They will create graphs and charts from their data to help solve problems. They will also use a real-life database to answer a question and present their work to others.	In this unit, learners start to create vector drawings. They learn how to use different drawing tools to help them create images. Learners recognise that images in vector drawings are created using shapes and lines, and each individual element in the drawing is called an object. Learners layer their objects and begin grouping and duplicating them to support the creation of more complex pieces of work.	Learners will develop their knowledge of 'selection' by revisiting how 'conditions' can be used in programming, and then learning how the 'if... then... else...' structure can be used to select different outcomes depending on whether a condition is 'true' or 'false'. They represent this understanding in algorithms, and then by constructing programs in the Scratch programming environment. They learn how to write programs that ask questions and use selection to control the outcomes based on the answers given. They use this knowledge to design a quiz in response to a given task and implement it as a program. To conclude the unit, learners evaluate their program by identifying how it meets the requirements of the task, the ways they have improved it, and

			demonstrate their understanding of how the microcontroller and its components are connected, and how selection can be used to control the operation of the model. Throughout this unit, learners will apply the stages of programming design.			further ways it could be improved.
Why here, why now?	This unit builds on previous learning and enables pupils to further study the internet and develop further understanding of how search engines work. This will prepare them for KS3 learning.	This unit builds on knowledge and skills developed in Y3/4 for photo editing and pupils will now work with more complex video editing and publishing.	Building on skills and understanding gained in previous years pupils will now apply programming skills and understand how they can use programming to control models and other machines.	This unit builds o the pupils ability to store data from year 3/4 and they will now build their own files and present these to a wider audience.	In this unit children will move away from using pre-selected images and begin to create their own using media tools. This will prepare them for learning in KS3 where they will be exposed to more complex programs.	This unit pulls together their experience in Scratch and allows pupils to further develop an understanding of algorithms.

Cycle B

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1/2	IT around us	Digital photography	Robot algorithms	Pictograms	Digital music	Programming quizzes
Curriculum area	Computing systems and networks	Creating media	Programming A	Data and information	Creating media	Programming B
What will they learn?	Learners will develop their understanding of what information	Learners will learn to recognise that different devices can be used to	This unit develops learners' understanding of instructions in	Learners will begin to understand what the term data means and	Learners will be using a computer to create music. They will listen	Learners begin to understand that sequences of

	technology (IT) is and will begin to identify examples. They will discuss where they have seen IT in school and beyond, in settings such as shops, hospitals, and libraries. Learners will then investigate how IT improves our world, and they will learn about the importance of using IT responsibly.	capture photographs and will gain experience capturing, editing, and improving photos. Finally, they will use this knowledge to recognise that images they see may not be real.	sequences and the use of logical reasoning to predict outcomes. Learners will use given commands in different orders to investigate how the order affects the outcome. They will also learn about design in programming. They will develop artwork and test it for use in a program. They will design algorithms and then test those algorithms as programs and debug them.	how data can be collected in the form of a tally chart. They will learn the term 'attribute' and use this to help them organise data. They will then progress onto presenting data in the form of pictograms and finally block diagrams. Learners will use the data presented to answer questions.	to a variety of pieces of music and consider how music can make them think and feel. Learners will compare creating music digitally and non-digitally. Learners will look at patterns and purposefully create music.	commands have an outcome and make predictions based on their learning. They use and modify designs to create their own quiz questions in ScratchJr and realise these designs in ScratchJr using blocks of code. Finally, learners evaluate their work and make improvements to their programming projects.
Why here, why now?	This unit builds on the pupils' understanding of technology from EYFS as they begin to identify how technology is used in various areas of their lives.	This unit builds on learning from EYFS as pupils' begin to use different forms of technology for taking images, and develops their understanding of how images made with technology may differ from what they actually see.	This unit builds on from EYFS as pupils begin to experiment with simple programming and develop their understanding of how to solve issues with a program.	This unit develops pupils' understanding of data in preparation for further units where they will be required to collect and input using different data collection programs.	This unit is the pupils' first opportunity to develop music using technology. This will link to their music sessions and they will use skills developed in EYFS to create their	This unit builds on from the Spring term unit as pupils begin to input their own designs into a specified program. This will prepare them for Y3/4 where they will be expected to add further layers into Scratch.
Year 3/4	Connecting computers	Stop-frame animation	Sequencing sounds	Branching databases	Desktop publishing	Events and actions in programs
Curriculum area	Computing systems and networks	Creating media	Programming A	Data and information	Creating media	Programming B

What will they learn?	Learners will develop their understanding of digital devices, with an initial focus on inputs, processes, and outputs. They will also compare digital and non-digital devices. Next, learners will be introduced to computer networks, including devices that make up a network's infrastructure, such as wireless access points and switches. Finally, learners will discover the benefits of connecting devices in a network.	Learners will use a range of techniques to create a stop-frame animation using tablets. Next, they will apply those skills to create a story-based animation. This unit will conclude with learners adding other types of media to their animation, such as music and text.	This unit explores the concept of sequencing in programming through Scratch. It begins with an introduction to the programming environment, which will be new to most learners. They will be introduced to a selection of motion, sound, and event blocks which they will use to create their own programs, featuring sequences. The final project is to make a representation of a piano. The unit is paced to focus on all aspects of sequences, and make sure that knowledge is built in a structured manner. Learners also apply stages of program design through this unit.	Learners will develop their understanding of what a branching database is and how to create one. They will use yes/no questions to gain an understanding of what attributes are and how to use them to sort groups of objects. Learners will create physical and on-screen branching databases. To conclude the unit, they will create an identification tool using a branching database, which they will test by using it. They will also consider real-world applications for branching databases.	Learners will become familiar with the terms 'text' and 'images' and understand that they can be used to communicate messages. They will use desktop publishing software and consider careful choices of font size, colour and type to edit and improve premade documents. Learners will be introduced to the terms 'templates', 'orientation', and 'placeholders' and begin to understand how these can support them in making their own template for a magazine front cover. They will start to add text and images to create their own pieces of work using desktop publishing software. Learners will look at a range of page layouts thinking carefully about the purpose of these and evaluate how and why desktop publishing is used in the real world.	This unit explores the links between events and actions, while consolidating prior learning relating to sequencing. Learners begin by moving a sprite in four directions (up, down, left, and right). They then explore movement within the context of a maze, using design to choose an appropriately sized sprite. This unit also introduces programming extensions, through the use of **Pen** blocks. Learners are given the opportunity to draw lines with sprites and change the size and colour of lines. The unit concludes with learners designing and coding their own maze-tracing program.

Why here, why now?	This unit builds on from Y1/2 as pupils learn how to connect multiple devices. This will prepare them for Y5/6 where they will begin to share projects through shared devices.	This unit builds on from Y1/2 as pupils will use their understanding of adding music and sounds to their animations.	This unit builds on skills developed in Y1/2 using the Scratch Jr program and pupils will begin to create more complex programs. This will prepare them for further in the year when they will be expected to produce more complex programs.	This unit builds on from Y1/2 as pupils will begin to create databases with multiple options. This will lead them into future learning using programs, such as Excel, to collate data.	This unit will allow pupils to develop skills in publishing in preparation for learning in Y5/6 where these skills will aid them in creating web pages.	This unit builds on earlier learning in Y3/4 as pupils now begin to add additional layers of programming in Scratch Jr which they will also use in Y5/6 before they add further variables into a given program.
Year 5/6	Communication and collaboration	Web page creation	Variables in games	Spreadsheets	3D Modelling	Sensing movement
Curriculum area	Computing systems and networks	Creating media	Programming A	Data and information	Creating media	Programming B
What will they learn?	In this unit learners explore how data is transferred over the internet. Learners initially focus on addressing, before they move on to the makeup and structure of data packets. Learners then look at how the internet facilitates online communication and collaboration; they complete shared projects online and evaluate different methods of communication. Finally, they learn how to communicate	Learners will be introduced to creating websites for a chosen purpose. Learners identify what makes a good web page and use this information to design and evaluate their own website using Google Sites. Throughout the process, learners pay specific attention to copyright and fair use of media, the aesthetics of the site, and navigation paths.	This unit explores the concept of variables in programming through games in Scratch. First, learners find out what variables are and relate them to real-world examples of values that can be set and changed. Then they use variables to create a simulation of a scoreboard.	This unit introduces the learners to spreadsheets. They will be supported in organising data into columns and rows to create their own data set. Learners will be taught the importance of formatting data to support calculations, while also being introduced to formulas and will begin to understand how they can be used to produce calculated data. Learners will be taught how to apply formulas that include a range of	Learners will develop their knowledge and understanding of using a computer to produce 3D models. Learners will initially familiarise themselves with working in a 3D space, moving, resizing, and duplicating objects. They will then create hollow objects using placeholders and combine multiple objects to create a model of a desk tidy. Finally, learners will examine the benefits of grouping and ungrouping 3D objects,	This unit is the final KS2 programming unit and brings together elements of all the four programming constructs: sequence from Year 3, repetition from Year 4, selection from Year 5, and variables (introduced in Year 6 – 'Programming A'. It offers pupils the opportunity to use all of these constructs in a different, but still familiar environment, while also utilising a physical device – the micro:bit. The unit begins with a simple

	responsibly by considering what should and should not be shared on the internet.			cells, and apply formulas to multiple cells by duplicating them. Learners will use spreadsheets to plan an event and answer questions. Finally, learners will create charts, and evaluate their results in comparison to questions asked.	then go on to plan, develop, and evaluate their own 3D model of a building.	program for pupils to build in and test within the new programming environment, before transferring it to their micro:bit. Pupils then take on three new projects in Lessons 2, 3, and 4, with each lesson adding more depth.
Why here, why now?	This unit leads into pupils learning in Y7 as they understand and demonstrate responsible use of sharing information through a range of media and programs.	This unit builds on from previous learning as pupils are now able to add created media into a web page of their own design.	This unit builds on learning from Y3/4 and pupils have the opportunity to explore how they can set and change different variables within a program and relate this to real-life examples.	This unit builds on pupils' experience using spreadsheets, such as excel, and they will develop their understanding of using formulas in a more specific way.	This unit develops pupils understanding of how digital programming can produce models in the 'real world'. This will lead into KS3 learning across computing and DT.	This unit ties together the pupils learning throughout all year groups using Scratch Jr. Here pupils will have the opportunity to showcase their understanding of the program and evaluate their learning.