Wodensfield Primary School

COMPUTING CURRICULUM PROGRESSION OVERVIEW

Early years and foundation stage

Three and four year olds	Personal, Social and Emotional Development	Remember rules without needing an adult to remind them
	Physical Development	Match their developing physical skills to tasks and activities in the setting
	Understanding the World	Explore how things work
Reception	Personal, Social and Emotional Development	Show resilience and perseverance in the face of a challenge. Know and talk about the different factors that support their overall health and wellbeing: -sensible amounts of 'screen time'
	Physical Development	Develop their small motor skills so that they can use a range of tools competently, safely and confidently.
	Expressive Arts and Design	Explore, use and refine a variety of artistic effects to express their ideas and feelings.
ELG	Personal, Social and Emotional Development Managing Self	Be confident to try new activities and show independence, resilience and perseverance in the face of challenge. Explain the reasons for rules, know right from wrong and try to behave accordingly.
	Expressive Arts and Design Creating with Materials	Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

Year Group	Networks	Programming A	Programming B	Media	Data	E-safety
Year 1	Technology around us Learners develop their understanding of technology and how it can help them. They will become more familiar with the different components of a computer by developing their keyboard and mouse skills, and also start to consider how to use technology responsibly.	Beebot This unit introduces algorithms as a set of precise instructions. Children create their own 'unplugged' algorithms to start with before moving onto beebots. They will plan routes for the beebots to move around a mat and then program the beebots to follow their algorithm.	Espresso Children will learn that computers carry out instructions to complete tasks. They will use object and command blocks to instruct the computer, and event blocks to tell the computer when things should happen. Children will run programs for a computer to execute their code.	Artist A variety of tasks throughout the year with cross-curricular links. Animals and young - Popplet Animal skins – 2Simple Missing and wanted posters – Pic Collage and Microsoft Word	Grouping data 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 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.	Online relationships Online reputation Online bullying Health, well-being, and lifestyle Privacy and Security Self-image and identity Managing information online Copyright and ownership
I can…	Explain technology as something that helps us. Locate examples of technology in the classroom Name the main parts of a computer. Switch on and log into a computer. Use a mouse in different ways. Use a keyboard to type on a computer. Open my work from a file. Create rules for using technology responsibly.	Explain that an algorithm is a list of instructions. Can program a bee-bot to follow a set of instructions. Give precise instructions. Debug when something unexpected happens. Plan and check an algorithm. Evaluate and improve a sequence.	Write code to make a character move across the screen. Know that a character is an object. Write code to make a character move in more than one direction on the screen. Decide the direction in which three characters will move and write code to make this happen.	Locate and open correct software. Create freehand digital artwork. Change line thickness and colour to create a detailed picture. Express a simple opinion about digital artwork. Take a photo using the iPad camera. Upload a saved image in Popplet and add toggles with text. Change the size and colour of toggles and text. Copy and paste an image from the Internet and add accompanying text.	Describe objects using labels. Match objects to groups. Identify the label for a group of objects Describe a property of an object. Find objects with similar properties. Choose how to group objects. Decide how to group objects to answer a question.	Recognise that there are people online who could make someone feel sad, embarrassed or upset. Give examples of when I should ask permission. Explain why it's important to be considerate online Recognise information can stay online and can be copied. Describe how to behave so not to upset others. Know how to get help from a trusted adult.

Year 2	Information Technology around us How is information technology (IT) being used for good in our lives? With an initial focus on IT in the home, learners explore how IT benefits society in places such as shops, libraries, and hospitals. Whilst discussing the responsible use of technology, and how to make smart choices when using it.	Espresso Children learn that there are all different types of input, or ways of giving the computer information. The computer processes the information and sends it back via an output device, like a screen. Learners will code objects to make things happen by clicking and releasing the mouse or using their keyboard.	Espresso Learners will investigate how buttons are another type of computer input that they can use in their code. They'll learn that buttons are objects that can be used to control another object.	Designer A variety of tasks throughout the year with cross-curricular links. Scarecrow wedding – Pic Collage Castles – 2Simple Plague poster and timeline - Publisher	Pictograms This unit introduces the learners to the term 'data'. Learners will begin to understand what data means and how this 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.	Online relationships Online reputation Online bullying Health, well-being, and lifestyle Privacy and Security Self-image and identity Managing information online Copyright and ownership
I can…	Recognise the uses and features of information technology. Find examples of information technology Sort IT by where it is found. Talk about uses of information technology. Demonstrate how IT devices work together. Say why we use IT. Talk about different rules for using IT. Say how rules can help keep me safe.	Write code to make an object move when a key is pressed. Write code to make an object in different directions and stop when different keys are pressed. Design and program an app that challenges my friend to use different keys to make characters on screen move in different directions Program an object to hide when a key is pressed. Program objects to move and hide when keys are pressed. Explain how my code makes objects Write code to make several objects move and change directions when different keys are pressed. Explain my code and say which parts of the code will execute when different keys are pressed.	Write code so that a button will make an object move when clicked. Write code so that different buttons can be used to make an object move in different directions when they are clicked. Add to my code so that a button will make the object stop, and I can explain how my code works Design and program an app and explain how it works. Explain which parts of my code will execute when different buttons are clicked.	Upload a photo into Pic Collage. Choose a suitable layout and background. Add appropriate text, changing colour and size. Create freehand digital artwork. Change colour and line thickness. Add labels using text. Suggest possible improvements.	Recognise that we can count and compare objects using tally charts. Enter data onto a computer. Use a computer to view data in a different format. Use pictograms to answer simple questions about objects. tally objects using a common attribute. Create a pictogram to arrange objects by an attribute. Use a computer program to present information in different ways. Share what I have found out using a computer. Give simple examples of why information should not be shared.	Explain how other people may look and act differently online and offline. Explain why I should ask before sharing things. Explain why I have the right to say 'no' Know who can help if something happens online without my consent. Explain how information put online about someone can last a long time. Explain what bullying is and how people can bully others. Use simple keywords in search engines. Describe the difference between 'made up' and 'true' Explain what voice activated searching is and know it's not a real person. Explain simple guidance for using technology in different technology. Explain rules for keeping information private Recognise content on the internet may belong to other people.

Year 3	Connecting computers 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.	Scratch Children will write an algorithm in a flow chart. They will understand and use repetition within algorithms. Next, learners will use a range of inputs and selection within a program. They will plan a program in Scratch using inputs, repetition and selection before creating it. Finally, they will debug their Scratch program.	Scratch 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.	Word processing skills In this unit, children will learn to use various features for formatting text. It focuses on some important computer skills and introduces children to screenshots and the Snipping Tool, and secure use of passwords.	Branching databases (Science) 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.	Online relationships Online reputation Online bullying Health, well-being, and lifestyle Privacy and Security Self-image and identity Managing information online Copyright and ownership
I can…	Explain how digital devices function. Identify input and output devices Recognise how digital devices can change the way that we work Explain how a computer network can be used to share information Explore how digital devices can be connected Recognise the physical components of a network	Write an algorithm in a flow chart. Understand and use repetition within algorithms and programs. Use a range of inputs and selection within an algorithm. Plan a program in Scratch using inputs, repetition and selection. Create a program using repetition, selection and inputs. Debug your Scratch program	Explain how a sprite moves in an existing project Create a program to move a sprite in four directions Adapt a program to a new context Develop my program by adding features Identify and fix bugs in a program Design and create a maze-based challenge	Use basic computer skills. Change the case of text. Align text. Use bullets and numbering. Use the keyboard. Insert and format text boxes	Create questions with yes/no answers. Identify the attributes needed to collect data about an object. Create a branching database. Explain why it is helpful for a database to be well structured. Plan the structure of a branching database Independently create an identification tool.	Know what 'identity' is. Understand people can change their identity depending on what they do online. Give reasons why someone should only share information with people they trust. Describe that people with similar likes/interests can get together online. Explain why people might change their minds about trusting people. Explain the importance of giving permission. Explain why copying someone else's work without permission isn't fair. Understand that certain activities have age restrictions. Explain how to search for information online. Explain what autocomplete is. Explain that not all opinions shared online are true. Explain how the internet can be used to buy and sell. Explain how too much time online can have a negative impact.

Year 4	The internet Learners will apply their knowledge and understanding of networks, to appreciate the internet as a 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.	Kodu Learners will learn how to use a variety of tools to design and then create a world within Kodu. They will investigate the use of selection looking at the 'when' and 'do' frames in Kodu, before visualising a coin quest game. Children will use their plan using selection to create the game in Kodu. Children will have the opportunity to adapt their games to incorporate any ideas they have to enhance the model game they have created.	Kapow unit: Digital charm Pupils will state and/or describe the advantages and disadvantages of existing products (timers). They will look at how Micro:bit features could be used as part of a design idea and write a program that displays a timer on the Micro:bit based on their chosen seconds/minutes. Children will suggest where the errors are, if testing is unsuccessful, by comparing the correct code to their own. They will evaluate the immediate appeal of the Micro:bit timer and how it might function. Finally they will express which stages of the project they enjoyed or found more challenging.	Presenter/ broadcaster Learners will initially examine devices capable of recording digital audio, which will include identifying the input device (microphone) and output devices (speaker or headphones) if available. 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.	Data logging (Science) Pupils will consider how and why data is collected over time. Pupils will consider the senses that humans use to experience the environment and how computers can use special input devices called sensors to monitor the environment. Pupils 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. Pupils will spend time using a computer to review and analyse data. They will pose questions and then use data loggers to automatically collect the data needed to answer those questions.	Online relationships Online reputation Online bullying Health, well-being and lifestyle Privacy and Security Self-image and identity Managing information online Copyright and ownership
I can…	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 (WWW) Describe how content can be added and accessed on the World Wide Web (WWW) Recognise how the content of the WWW is created by people evaluate the consequences of unreliable content	Create a 3D world within Kodu. Identify the concept of selection. Use selection with Kodu. Use selection to create an end to the game. Use selection to adapt the Coin Quest game. Give feedback to other learners	Problem solve by suggesting potential features on a Micro:bit and justifying my ideas. Drawing and manipulating 2D shapes, using computer-aided design. Follow a list of design requirements. Analyse and evaluate an existing product. Understand that in programming a 'loop' is code that repeats something again and again until stopped. Write a program to control (button press) and/ or monitor (sense light) that will initiate a flashing LED algorithm.	Identify that sound can be digitally recorded. Use a digital device to record sound. Explain that a digital recording is stored as a file. Explain that audio can be changed through editing. Show that different types of audio can be combined and played together. Evaluate editing choices made	Explain that data gathered over time can be used to answer questions Use a digital device to collect data automatically Explain that a data logger collects 'data points' from sensors over time Use data collected over a long duration to find information Identify the data needed to answer questions Use collected data to answer questions	Know that online and offline identities can be different. Describe positive ways to act online. Describe safe and fun experiences in a range of online environments. Describe how to find out information by searching online. Explain what fake news means. Describe ways people can be bullied through a range of media. Make my own decisions regarding content (facts/opinions) Recognise that there are methods to encourage people to buy things online. Explain that technology can be designed to impersonate living things. Explain that technology can be a good and bad distraction. Identify times I need to limit technology. Describe strategies to keep personal information private. Know some online services store information. Consider who owns content and whether I have the right to use it.

Year Group	Networks	Programming A	Programming B	Media	Data	E-safety
Year 5	Sharing info (Wikis) Children will understand that servers on the Internet are located across the planet using 'traceroute' to see the path data takes across the internet. They will learn how email is sent across the Internet and understand how the Internet enables us to collaborate.	Scratch In this unit, pupils develop their knowledge of selection by revisiting how conditions can be used in programs 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 using the Scratch programming environment. They use their knowledge of writing programs and using selection to control outcomes to design a quiz in response to a given task and implement it as a program.	Scratch Children learn how to simulate the control within an audio system using selection, repetition and variables. They will create sprites to use as buttons and use broadcasts across sprites to control different systems. Finally, peer assess their simulations, taking on feedback positively.	Film maker 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 have the opportunity to reflect on and assess their progress in creating a video.	Flat file databases This unit looks at how a flat-file database can be used to organise data in records. Pupils use tools within a database to order and answer questions about data. They create graphs and charts from their data to help solve problems. They use a real-life database to answer a question, and present their work to others.	Online relationships Online reputation Online bullying Health, well-being and lifestyle Privacy and Security Self-image and identity Managing information online Copyright and ownership
I can…	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 Contribute to a wiki, blog or discussion to add researched facts. Use tools to refine searches. Take into account the reliability of different sources of information. Create a wiki, blog or discussion to gather collective knowledge. Comment on the appropriateness, validity and bias of information.	Explain how selection is used in computer programs. Relate that a conditional statement connects a condition to an outcome. Explain how selection directs the flow of a program. Use a design format to outline my project. Identify the outcome of user input in an algorithm. Create a program that uses selection. Evaluate my program. Extend my program further.	Use variables and inputs within Scratch. Use repetition and variables. Design a numeracy game using variables, selection and repetition. Program the game you have designed using variables, selection and repetition. To peer assess algorithms.	Explain what makes a video effective. Identify and find features on a digital video recording device. Make use of a microphone. Capture video using a range of filming techniques. Outline the scenes of my video. Store, retrieve, and export my recording to a computer. Explain how to improve a video by reshooting and editing. Recognise that my choices when making a video will impact the quality of the final outcome. Evaluate my video and share my opinions.	Use a form to record information. Compare paper and computer-based databases. Outline how grouping and then sorting data allows us to answer questions. Explain that tools can be used to select specific data. Explain that computer programs can be used to compare data visually. Apply my knowledge of a database to ask and answer real-world questions.	Explain how identity online can be copied, modified or altered. Give examples of technology-specific forms of communication (emojis, memes, gifs) Explain that there are some people I communicate with who may want to do me harm. Describe how people can collaborate constructively. Describe how information can be used to make judgements and why they might be incorrect. Recognise online bullying can be different to physical bullying. Explain how someone can get help. Describe how 'banter' might be perceived as bullying. Explain how to block abusive users. Explain benefits and limitations of search technologies. Explain key concepts: information, reviews, fact, opinion, belief, reliability, evidence, stereotype, hoax, fake news. Explain that some websites have different agendas and content can be commercially boosted.

						Recognise the benefits and risks of accessing information on health and well-being. Explain what a strong password is and create one. Explain apps may read and share data and explain permissions. Assess and justify when it's acceptable to use the work of others.
Year 6	Communication Ranking search engines Children will learn how we find information 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. They will then investigate different methods of communication, before focusing on internet-based communication. Finally, they will evaluate which methods of internet communication to use for particular purposes.	Variables 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. In Lessons 2, 3, and 5, which follow the Use-Modify-Create model, learners experiment with variables in an existing project, then modify them, before they create their own project. In Lesson 4, learners focus on design. Finally, in Lesson 6, learners apply their knowledge of variables and design to improve their games in Scratch.	Kapow: Navigating the world Children will incorporate key information from a client's design request such as 'multifunctional' and 'compact' in their design brief. They will write a program that displays an arrow to indicate cardinal compass directions with an 'On start' loading screen. Children will identify errors (bugs) in the code and suggest ways to fix (debug) them. They will identify key industries that use 3D CAD modelling and why. Children will be able to recall and describe the name and use of key tools used in Tinkercad (CAD) software. They will combine more than one object to develop a finished 3D CAD model in Tinkercad. Finally, children will complete a product pitch plan that includes key information.	Designer During this unit, 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, including combining 3D objects to make a house and examining the differences between working digitally with 2D and 3D graphics. Learners will progress to making accurate 3D models of physical objects, such as a pencil holder, which include using 3D objects as placeholders. Finally, learners will examine the need to group 3D objects, then go on to plan, develop, and evaluate their own 3D model of a photo frame.	Spreadsheets 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 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.	Online relationships Online reputation Online bullying Health, well-being and lifestyle Privacy and Security Self-image and identity Managing information online Copyright and ownership
I can…	Complete a web search to find specific information. Refine my search. Compare results from different search engines. Explain why we need tools to find things online Recognise the role of web crawlers in creating an index Relate a search term to the search engine's index Explain that search results are ordered	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. Design a project that builds on a given example. Use my design to create a project. Evaluate my project.	Develop design criteria to fulfil the client's request. Place and manoeuvre 3D objects, using CAD. Change the properties of, or combine one or more 3D objects, using CAD. Program an N,E, S,W cardinal compass. Explain how my program fits the design criteria and how it would be useful as part of a navigation tool.	Select, move, and delete a digital 3D shape. Identify how graphical objects can be modified Position 3D objects in relation to each other. Select and duplicate multiple 3D objects. Identify the 3D shapes needed to create a model of a real-world object. Group a digital 3D shape and a placeholder to create a hole in an object.	Create a data set in a spreadsheet. Build a data set in a spreadsheet. Apply an appropriate format to a cell. Explain that formulas can be used to produce calculated data. Create a formula, which includes a range of cells. Apply a formula to multiple cells by duplicating it.	Critically evaluate online content and challenge inappropriate representations. Explain the importance of asking until I get the help needed. Explain how sharing something online may have a positive or negative impact. Explain that taking or sharing inappropriate images even with permission may have consequences. Explain ways to develop a positive online reputation. Explain

	Explain that a search engine follows rules to rank relevant pages Suggest some of the criteria that a search engine checks to decide on the order of results. Explain the different ways in which people communicate Identify that there are a variety of ways of communicating over the internet Choose methods of communication to suit particular purposes		Explain the key functions and features of my navigation tool to the client as part of a product concept pitch. Demonstrate a functional program as part of a product concept.	Design a digital model by combining 3D objects. Develop and improve a digital 3D model	Create a spreadsheet to plan an event. Choose suitable ways to present data.	strategies to protect online reputation. Describe how to capture bullying content as evidence. Explain how to report online bullying. Explain how to use search technologies effectively. Explain why some people present opinions as facts. Define the terms influence, manipulation and persuasion. Understand how persuasive design can influence peoples' choices. Explain that information on a large number of sites can still be inaccurate or untrue. Recognise and discuss the pressures that technology can place on someone. Assess and action strategies to limit the impact of technology on health. Describe effective ways to manage passwords. Describe how and why people should keep software up to date. Describe simple ways to increase privacy. Understand online services have terms and conditions. Demonstrate how to make references to and acknowledge sources used from the internet.