The Federation of Stoke Hill Schools

Computing Progression

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Understanding Technology	***Pupils show increasing familiarity with digital devices, such as iPads or interactive whiteboards.*** ***Pupils engage in activities that involve accessing and interacting with digital content.***	***Pupils recognise and can give examples of common uses of information technology they encounter in their daily routine.*** ***Pupils engage in activities that involve accessing and interacting with digital content, including still and moving images, video, audio and simple text.***	***Pupils recognise common uses of information technology beyond school, including those which they don't frequently encounter in their daily routine.*** ***Pupils understand that computers are not intelligent but can appear to be when following algorithms. They can share examples of this.***	***Pupils understand that computers (in various forms) generally accept inputs and produce outputs and can give examples of this.*** ***Pupils develop a basic understanding of how computers can be linked to form a local network such as those found in schools.*** ***Pupils are aware of some of the services offered by the Internet and can describe when they are, and are not, using online technologies.***	***Pupils understand the role of web browsers when viewing web pages and can explain how individual web pages can be found (e.g. by clicking on a favourite link, search result or by typing in a URL).*** ***They recognise that there is a difference between the Internet and the World Wide Web.*** ***Pupils recognise and describe some of the services offered by the Internet, especially those used for communication and collaboration.***	***Pupils understand and can explain how computer networks work, and know that the Internet is a collection of computers connected together.*** ***Pupils know that there is a difference between the Internet and the World Wide Web and understand that the web is just one of the services offered by the Internet (as well as, e.g. email and VoIP services such as Skype)***	***Pupils begin to understand how data travels across networks in packets and how these can be broken up and reconstructed.*** ***They appreciate how search results are ranked, including an understanding of the role of 'relevance' and 'importance' in finding and presenting results.***
Content	Children will be exposed to digital technology used by adults daily, during routines such as the register, lunch choice and story videos. Ensure to spend time narrating some of these processes aloud and allowing children the opportunity to interact with digital content. Other examples can include math games or interactive resources (White Rose, Topmarks), science activity (Explorify), BBC bitesize quizzes and games,	**Computer Systems and Networks – Technology Around Us** Develop your learners' 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. Key vocabulary: Computer, mouse,	**Computer Systems and Networks - IT 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. Key vocabulary: Computers: PC, laptop, tablet, hardware, software	**Computer Systems and Networks - Connecting Computers** Challenge your learners to develop their understanding of digital devices, with an initial focus on inputs, processes, and outputs. Start by comparing digital and non-digital devices, before introducing them to computer networks that include network infrastructure devices like routers and switches. Key vocabulary: data, computer network, server, network switch,	**Computer Systems and Networks - 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	**Computing Systems and Networks - Sharing Information** In this unit, learners will develop their understanding of computer systems and how information is transferred between systems and devices. Learners will consider small-scale systems as well as large-scale systems. They will explain the input, output, and process aspects of a variety of different real-world systems. Key vocabulary:	**Computing Systems and Networks - Communication** 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 responsibly by considering what

	educational videos and music on YouTube. Found below, when programming or creating digital outcomes, there are several examples of opportunities for children to develop in their understanding of technology. Teacher may supplement this with their own additions.	keyboard, hardware, software		wireless access points, output devices	reliable it is, and understand the consequences of false information. This unit requires devices with an internet connection. Chrome Music Lab is used in one lesson to demonstrate content which can be produced on the World Wide Web. Key vocabulary: the internet, World Wide Web, website, network, digital content, data, programs	System, input, output, computer network, the internet, World Wide Web, data, search engine, results	should and should not be shared on the internet. Note: Some of the content in this unit was previously included in the Year 5 – 'Computer systems and networks' unit, so some learners may have already completed similar activities. Where this is the case, the context for the activity has been changed. Key vocabulary: System, networks, [internet] address, data, packets, protocol, transfer, public. private
Programming	***Pupils can give commands to a Bee-bot (or similar) to make it move for a particular purpose.*** ***Pupil can predict what happens before a press/swipe/click happens on a digital device.***	***Pupils create, debug and implement instruction (simple algorithms) as programs on a range of digital devices.*** ***Pupils understand that digital devices follow precise and unambiguous instructions.*** ***Pupils understand that digital devices simulate real situations.***	***Pupils understand that algorithms are implemented as programs on digital devices.*** ***Pupils create and debug programs to achieve specific goals.*** ***Pupils use the principles of logical reasoning to plan and predict the behaviour of simple programs.*** ***Pupils solve real and imaginary problems on and off screen.***	***Pupils create programs to accomplish specific goals:*** - ***using an increasing range of digital devices and applications.*** - ***exploring and understanding the impact of changing instructions.*** - ***using sequence and repetition*** - ***decomposing problems both on and off screen using the principles of logical reasoning in order to resolve problems.***	***Pupils create and debug programs.*** ***They can:*** - ***use sequence and repetition.*** - ***refine algorithms to improve efficiency*** - ***control or simulate physical systems*** ***Pupils begin to explore and notice the similarities and differences between programming languages and use this knowledge to help them create and debug programs efficiently.***	***Pupils create, deconstruct and refine programs to accomplish specific goals.*** ***They can:*** - ***improve efficiency*** - ***use selection within programs*** - ***use a range of simple inputs and outputs to control or simulate physical systems.*** ***Pupils use logical reasoning to explain how some algorithms work and to detect and correct errors in programs.*** ***They independently employ strategies to solve problems.***	***Pupils deconstruct, improve and create programs including:*** - ***using selection and working with variables.*** - ***using the principles of logical reasoning*** - ***challenging themselves by making simple programs increasingly complex and employ a variety of strategies to solve problems.*** ***Pupils can explain why they have structured algorithms as they have and describe the effect this has on a program.***

Content	Children should be provided the opportunity to work with the Bee-Bot floor robots, or similar. This can be practiced unplugged (using pictorial resources) as well as with the physical robots. Resources such as Bee-Bot mats can be found or created (Twinkl is one place for this) to make links to other curriculum learning, for example, an under the sea mat. Key vocabulary: Instruction, robot, outcome	**Programming A - Moving a Robot** This unit introduces learners 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 floor robot command 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. **Bee Bot App** This app makes use of Bee-Bots functionality and enables children to improve their skills in directional language, programming sequences of forwards, backwards, left and right turns. Key vocabulary: programming, algorithm, robot, outcome, debug	**Programming B - An Introduction to Animation** This unit introduces learners 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. Learners will also be introduced to the early stages of program design through the introduction of algorithms. Key vocabulary: programming, algorithm, outcome, debug, sprite, code, blocks	**Programming B - Events and Actions** This unit explores the links between events and actions, whilst consolidating prior learning relating to sequencing. Learners will begin by moving a sprite in four directions (up, down, left and right). They will 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. Key vocabulary: program, algorithm, event, outcome, debug, sprite, code, blocks	**Programming A - Repetition in Shapes** This unit looks at repetition and loops within programming. Pupils will create programs by planning, modifying, and testing commands to create shapes and patterns. They will use Logo, a text-based programming language. Key vocabulary: program, algorithm, loop, repetition, modify, test, text-based code	**Programming B - Selection in quizzes** 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. Key vocabulary: condition, selection, infinite loop, outcome, branch	**Programming B - Sensing** 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 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. Key vocabulary: sensing, emulator, variable, condition, input, algorithm, program

Digital Literacy	***Pupils demonstrate curiosity and purposeful exploration when using a range of technology.*** ***Pupils are guided in making simple choices to achieve specific goals when accessing online content, such as selecting a suitable game or interactive activity.***	***Pupils increasingly use a range of technology to enquire with purpose, accessing and creating digital content such as still and moving images, video, audio and text.*** ***With appropriate levels of support, pupils collect data (e.g. numerical, research facts etc.) which they are able to retrieve, store and manipulate.*** ***They can present and communicate their learning to others in a variety of ways.*** ***With support, pupils are beginning to access and retrieve online content, making appropriate choices to achieve specific goals.***	***Pupils increasingly use a range of technology to enquire with purpose, accessing and creating digital content such as still and moving images, video, audio and text.*** ***With appropriate levels of support, pupils collect data (e.g. numerical, research facts etc.) which they are able to retrieve, store and manipulate.*** ***They can present and communicate their learning to others in a variety of ways.*** ***With support, pupils are beginning to access and retrieve online content, making appropriate choices to achieve specific goals.***	***Pupils are confident and creative users of technology. They are beginning to make informed choices about the appropriateness of digital content they access and create, using an increasing range of digital resources and devices*** ***Pupils identify, collect and manipulate different types of data (e.g. numerical data from science experiments, words, still and moving images etc.) which they present as information, showing a greater awareness of purpose and audience.*** ***Pupils become more discerning in their choice of search technology to accomplish specific goals. They understand the need for efficiency when conducting searches, choosing keywords carefully.***	***Pupils are confident and creative users of technology. They are beginning to make informed choices about the appropriateness of digital content they access and create, using an increasing range of digital resources and devices*** ***Pupils identify, collect and manipulate different types of data (e.g. numerical data from science experiments, words, still and moving images etc.) which they present as information, showing a greater awareness of purpose and audience.*** ***Pupils become more discerning in their choice of search technology to accomplish specific goals. They understand the need for efficiency when conducting searches, choosing keywords carefully.***	***Pupils are confident, capable and creative users of technology, selecting and making effective use of digital resources and devices for purpose and effect. They create programs, systems and digital content, thinking carefully about aesthetics, functionality and impact on the user.*** ***They identify, collect and analyse different types of data (e.g. Numerical, words, images, video etc.) which they manipulate and re-present as information for a variety of audiences and purposes.*** ***Pupils are discerning in evaluating digital content. They use search technologies effectively to respond to enquiries and support their learning.***	***Pupils are confident, capable and creative users of technology, selecting and making effective use of digital resources and devices for purpose and effect. They create programs, systems and digital content, thinking carefully about aesthetics, functionality and impact on the user.*** ***They identify, collect and analyse different types of data (e.g. Numerical, words, images, video etc.) which they manipulate and re-present as information for a variety of audiences and purposes.*** ***Pupils are discerning in evaluating digital content. They use search technologies effectively to respond to enquiries and support their learning.***
Content	**All suggested apps are installed on SHINS iPads** **Lingumi App** **English Speech and Language development** Children can learn new words and phrases through 'lessons' in this app. Children will see a question from the teacher at the end of each lesson and can reply with a voice recording or video to help practise speaking words and phrases. **Draw and Tell App** **Story Telling and Art** Draw and Tell is a creative app that brings children's	**Creating Media - digital painting** Explore the world of digital art and its exciting range of creative tools with your learners. Empower them to create their own paintings, while getting inspiration from a range of other artists. Conclude by asking them to consider their preferences when painting with, and without, the use of digital devices. Key Vocabulary: [with reference to online tools] line, shape, fill, undo, erase, save	**Creating Media - digital writing** Promote your learners' understanding of the various aspects of using a computer to create and change text. Learners will familiarise themselves with typing on a keyboard and begin using tools to change the look of their writing, and then they will consider the differences between using a computer and writing on paper to create text. Key vocabulary: [with reference to online tools] cursor, undo, save, bold, underline, italics, font, caps lock	**Creating Media - Desktop Publishing** During this unit, 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	**Creating Media - Video Editing** This unit gives learners the opportunity to learn how to create short videos in 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. Active learning is encouraged through guided questions and by working in small groups to investigate the use of devices and software. Learners are guided with step-by-step support to take their idea from conception to completion. At the teacher's discretion, the use of green screen can be incorporated into this	**Creating Media - Web page design** This unit introduces learners to the creation of 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. Key vocabulary: [with reference to online tools] HTML, Web page, website, layout, media,	**Creating Media - 3D Modelling** 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, then go on to plan, develop, and evaluate their own 3D model of a building.

	stories to life. Children can use the tool to draw, colour, decorate with stickers, create animations and record stories. **Tayasui Sketches App** **Digital Art – Sketching and Painting** An app for creating digital art, with various realistic and beautiful tools for sketching and painting online. **Breathe, Think, Do** This app will support teaching skills such as problem solving, self-control, planning, and task persistence. Key Vocabulary: [with reference to online tools] draw, paint, erase, new, delete, save, close			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. Key vocabulary: [with reference to online tools] text, images, font, template, placeholder, layout, publish	unit. At the conclusion of the unit, learners have the opportunity to reflect on and assess their progress in creating a video. Key vocabulary: [with reference to online tools] digital, camera angle, storyboard, scenes, capture, reshoot, edit, cut	copyright, fair use, navigation	Key vocabulary: [with reference to online tools] perspective, resize, rotate, duplicate, group, modify, combine, CAD
E-safety	***Pupils begin to understand they can choose who they share information about themselves with.*** ***With support, pupils can engage in online activities safely.*** ***When working with digital devices, pupils understand to ask a grown up for help, when needed.***	***Pupils understand that information about themselves may be personal, and they can choose who to share it with.*** ***With support, pupils can manage their online activity safely, recognising which information should be kept private. They can explain what it means to stay safe online and older pupils identify some of the potential risks associated with the online world.*** ***They communicate safely and respectfully using a range of digital devices, making links to their behaviour in the physical world.*** ***Pupils start to develop strategies for managing concerns about online content or contact; seeking help and support when needed.***		***Pupils, review their online activity, including maintaining amending online profiles, communication channels and publishing spaces to ensure they do not inadvertently reveal personal details.*** ***Pupils show respect for content created by others by acknowledging sources, commenting respectfully and responsibly on other people's work and respecting privacy. They are discriminating about what they share and whether any permission is needed to do so.*** ***Pupils can identify a range of potential online risks including inappropriate contact or content and can identify ways of seeking support and reporting concerns. They exercise caution when receiving attachments and following web links contained in messages.***		***Pupils continue to maintain, review and amend online identities, considering the potential impact of these on their digital footprint. They communicate in a wide variety of ways and pay careful attention to what details might be inadvertently revealed.*** ***They engage in an increasing range of online communities safely, respectfully and responsibly both with friends and the wider online community. With adult support, they actively consider and use safety and security settings on a range of digital devices.*** ***When using online resources and search technologies, pupils are increasingly discerning about what information they gather, checking the validity of data and showing due respect to privacy and copyright.*** ***Pupils can recognise a range of potential online risks, including inappropriate contact or content and can identify ways of seeking support and reporting concerns.***

Content							
	Project Evolve **Self-image and Identity** - I can recognise, online or offline, that anyone can say 'no' - 'please stop' - 'I'll tell' - 'I'll ask' to somebody who makes them feel sad, uncomfortable, embarrassed or upset. **Online Relationships** - I can recognise some ways in which the internet can be used to communicate. - I can give examples of how I (might) use technology to communicate with people I know. **Copyright and Ownership** - I know that work I create belongs to me. - I can name my work so that others know it belongs to me.	**Project Evolve** **Privacy and Security** - I can explain how passwords are used to protect information, accounts and devices - I can recognise more detailed examples of information that is personal to someone. - I can explain why it is important to always ask a trusted adult before sharing any personal information online, belonging to myself or others. **Online Relationships** - I can give examples of when I should ask permission to do something online and explain why this is important. - I can use the internet with adult support to communicate with people I know. **Managing Online information** - I know how to get help from a trusted adult if we see content that makes us feel sad, uncomfortable, worried or frightened.	**Project Evolve** **Self-image and Identity** - I can explain how other people may look and act differently online and offline - I can give examples of issues online that might make someone feel sad, worried, uncomfortable or frightened; I can give examples of how they might get help. **Online Reputation** - I can explain how information put online about someone can last for a long time. **Health, Wellbeing and Lifestyle** - I can explain simple guidance for using technology in different environments and settings e.g. accessing online technologies in public places and the home environment. (Link to acceptable user agreement)	**Project Evolve** **Privacy and Security** - I can describe simple strategies for creating and keeping passwords private. - I can give reasons why someone should only share information with people they choose to and can trust. I can explain that if they are not sure or feel pressured then they should tell a trusted adult. **Copyright and Ownership** - I can explain why copying someone else's work from the internet without permission isn't fair and can explain what problems this might cause. **Online Relationships** - I can explain what it means to 'know someone' online and why this might be different from knowing someone offline. - I can explain how someone's feelings can be hurt by what is said or written online. - I can explain the importance of giving and gaining permission before sharing things online; how the principles of sharing online is the same as sharing offline e.g. sharing images and videos.	**Project Evolve** **Online Bullying** - I can describe ways people can be bullied through a range of media (e.g. image, video, text, chat). - I can explain why people need to think carefully about how content they post might affect others, their feelings and how it may affect how others feel about them (their reputation). **Managing Online Information** - I can analyse information to make a judgement about probable accuracy and I understand why it is important to make my own decisions regarding content and that my decisions are respected by others. - I can explain that technology can be designed to act like or impersonate living things (e.g. bots) and describe what the benefits and the risks might be. **Health, Wellbeing and Lifestyle** - I can explain how using technology can be a distraction from other things, in both a positive and negative way. - I can identify times or situations when someone may need to limit the amount of time they use technology e.g. I can suggest strategies to help with limiting this time.	**Project Evolve** **Self-image and Identity** - I can explain how identity online can be copied, modified or altered. - I can demonstrate how to make responsible choices about having an online identity, depending on context. **Privacy and Security** - I can explain how many free apps or services may read and share private information (e.g. friends, contacts, likes, images, videos, voice, messages, geolocation) with others. **Online Relationships** - I can explain that there are some people I communicate with online who may want to do me or my friends harm. I can recognise that this is not my / our fault. - I can describe some of the ways people may be involved in online communities and describe how they might collaborate constructively with others and make positive contributions. (e.g. gaming communities or social media groups). **Online Reputation** - I can describe ways that information about anyone online can be used by others to make judgments about an individual and why these may be incorrect	**Project Evolve** **Online Bullying** - I can describe how to capture bullying content as evidence (e.g screen-grab, URL, profile) to share with others who can help me. - I can explain how someone would report online bullying in different contexts. **Health, Wellbeing and Lifestyle** - I recognise and can discuss the pressures that technology can place on someone and how / when they could manage this. **Copyright and Ownership** - I can demonstrate the use of search tools to find and access online content which can be reused by others. - I can demonstrate how to make references to and acknowledge sources I have used from the internet. **Managing Online Information** - I can demonstrate how to analyse and evaluate the validity of 'facts' and information and I can explain why using these strategies are important.