Manor Primary School
Computing Progression of Skills Overview

Computing Progression of Skills	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Digital Literacy	Log onto the school network Work on the network and save in a prepared folder Purposefully use suggested digital tools for work. Use technology safely and sensibly and discuss how technology is used in and beyond school. Know who to talk to if any technology or online system makes children feel worried or uncomfortable. Show awareness that there are rules about taking or using images of other people.	Logon to the server and develop awareness of some of the areas on the network Demonstrate how work is stored on the school network. Save and retrieve work in prepared folders on the network; generally using suitable file names. Keeping personal information safe and understanding that you do not share online. Talking about using technology for work in and beyond school. Sharing work with others; begin to use feedback and self-review to improve work Demonstrate understanding of the need to use technology safely and respectfully. Demonstrate an understanding of the need to seek consent before capturing and/or using an image of another person.	Access the pupil areas on the school network; know that there are many computer networks in the world. Save and organise work in folders on the network; using appropriate file names. Review, check and evaluate work, modifying it in light of feedback from others. Explain how choices or decisions help solve problems in work. Understand the school's eSafety rules; respect copyright ensuring they do not share personal data online. Use technology safely and responsibly. Know who to talk to if I have an eSafety problem. Demonstrate an understanding of copyright and ownership by appropriate use of images in work. Understand how to recognise and report cyberbullying. Have an awareness that many online games include chat facilities; use with care, protect identity; only talk to those they know.	Know the school network connects through the internet to other computer networks. Know that the internet links the global computer network and how it relates to the school network. Save and organise their work using appropriate file names and folder structure. Show growing understanding of how the internet is used in the wider world Use peer- and self-review to check, evaluate and improve work. Consistently use technology safely and responsibly and sometimes encourage others to do the same Apply the school's eSafety rules in work; respect copyright, credit sources and keep personal data safe. Recognise unacceptable behaviour and know what to do if they have an eSafety problem Understand copyright laws and understand the need to seek consent and credit owners.	Understand we can save work in online spaces but that are different from the school network Save and organise work on and offline using appropriate names and structures Recognise acceptable and unacceptable behaviour on- and off-line Identify a range of ways to report concerns about content and contact on the internet Critically evaluate work using peer and self-review to modify and improve it Keep and review drafts; revisit previous drafts considering effectiveness of changes. Demonstrate clear understanding of the school's eSafety rules including copyright and personal data and data protection; apply these in work.	Save and organise work appropriately in the school network and online spaces Apply the school's rules on data protection; be proactive in promoting good eSafe practice in others and through the school community. Apply the school eSafety rules consistently including those for appropriate use, personal data and data protection. Demonstrate good behaviour when using technology. Critically evaluate the effectiveness of work; identify and implement improvements/refinements. Describe how keeping and reviewing drafts is key in building critical awareness in understanding how online spaces are used and how these differ from offline networks. Understand the role of computing in British History and know some of the historical figures that contributed to technological advances in computing. Know how technology has developed over time and the impact of significant developments.

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Information Technology (Imagery, Sound and Animation)	Use digital tools to create picture and a storybook linked to a curriculum theme. Use digital tools to create text which communicates meaning, related to their picture. Create a digital recording related to a picture. Make choices to produce different outcomes. Share their work with others thinking about how they might change or improve it and talking about the tools in the software which they chose to use.	Create and debug simple algorithms; use to sequence images or create animation. Select appropriate tools from a limited range to create and amend their work. Create a simple animation selecting and sequencing images. Share work with others; begin to use feedback and self-review to improve work. Talk about how to use technology for still image and animation work at home and school.	Use various digital tools to create and edit images for a purpose. Use repetition to improve efficiency in correctly sequenced algorithms and programs within animations. Design, test and debug algorithms to create animations. Use algorithms to support the design of graphic, sound and animation programs Create and adapt digital images in and beyond school. Demonstrate an awareness of digital images in the wider world. Understand how sound-editing software can be used to capture, import and manipulate sounds. Explain how choices or decisions help to solve problems in work	Select and use specific tools within software to improve design and to aid accuracy and efficiency. Use a range of approaches in multimedia texts designed to support specific audiences and purposes. Understand digital objects need to be formatted and organised for specific purposes. Create spreadsheets to collect and analyse findings Develop simple formulae using arithmetic operators to carry out calculations for a purpose. Review the approaches used to engage the audience and consider how these could be improved. Plan work understanding how this helps to improve and solve problems.	Create 3D models using varied techniques to develop detail/texture; review in 3D and adapt Highlight features of specific animations and films considering the impact on audiences. Create a detailed plan for a film and/or animation for specific purposes and audiences. Create a film/animation from a plan, detailing adaptations. Justify choice of tools and techniques used to edit and enhance work. Revisit and modify work in the light of audience reaction. Compare use of technology to work with digital images in and beyond school.	Use a range of digital tools and techniques to plan, structure, refine and present sound recordings for specific audiences. Evaluate the effectiveness of sound work. Develop detailed plans for work, explaining why selected tools and techniques are suitable for specific pieces of work. Discuss my knowledge and experience of using technology to work with digital sound in and beyond school. Use green screen technology to record a video and use editing software to edit a video exploring the use of sound.

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Information Technology Communicating- Websites and blogging.	Know that information comes from different sources. Know that information can be found on the World Wide Web. Understand that websites have unique names and addresses. Understand that there are tools which can help locate information in a digital resource and know how to use keywords to find specific information. Explore information from a range of sources. Have an awareness that anyone can put information on the internet and that it may not be true.	Identify different ways we can send messages and communicate considering accuracy and speed. Investigate how methods for sending messages have developed over time and the reasons behind changes. Use technology, such as email, to send and receive messages. Discuss how blogs differ from emails. Suggest content for a comment on a blog.	Use technology for digital communication. Know what a network is and identify how wired and wireless networks are connected. Use email and blogging tools appropriately, including maintaining their own blog and commenting on others' blogs. Understand how to add attachments to emails and how to recognise fake emails. Explain differences between email and blogging; begin to compare with other tools. Capture digital sound and use sound editing tools to produce sound clips for a purpose. Use a range of approaches to engage the audience.	Understand how the internet is structured and the journey of data within the internet. Understand different uses of the internet including the use of social media. Explain how selected services on the internet help us communicate and share information. Describe how a search engine finds information from different websites. Understand that research results may be unreliable and should be checked against different sources. Turn questions into search criteria. Understand data is held about individuals on the internet and the need to keep data secure. Understand the structure of a website and create a webpage. Understand how HTML and CSS is used to program websites. Edit existing HTML and CSS to alter the appearance of an object on the web. Understand and explore more complex components of a web page including web hacking.	Consider how data is searched on the worldwide web and analyse results from search engines discussing influencing factors. Use search operators and linked searches effectively to locate required information. Demonstrate a knowledge of how a digital footprint is created.	Critically evaluate the impact on audiences and participants of different digital communication technologies. Ensure the information they contribute to online spaces is high quality, accurate, unbiased, relevant and truthful. Organise and adjust language/ and style of communications, for the context, audience needs and the technology used. Discuss advantages/disadvantages of using technology to communicate and collaborate in and out of school. Understand different types of online communication focussing on the role of social media, wikis and vlogs. Explore how personal data is shared online and recognise steps to preventing unwanted sharing including GDPR. Create, edit and maintain a year group wiki channel linked to a cross curricular area. Understand how vlogging is used in online communication considering advantages and disadvantages. Create, edit and maintain a year group vlog.

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Information Technology (Databases)	Use simple software to explore ideas and organise information. Understand that charts, graphs and mind maps help organise information. Understand that objects have specific properties or characteristics and we use these to organise them.	Understand technology can capture environmental data; record data using sensors and/or data loggers. Use pictograms, bar charts and branching databases to organise and classify information for a purpose. Know how tools with graphing software can be used to present information clearly. Understand that there are different types of questions. Use and refine yes/no questions to identify objects. Use tools from a limited range to organise information. Understand how objects can be sorted according to a property. Understand computers use repeated processes to sort objects.	Understand the difference between data and information. Use data-loggers and sensing tools to collect and record a range of data including environmental data. Construct high level questioning based on characteristics of records within databases. Use various tools within the software to organise and present information. Understand how databases are structured into files, records and fields. Contribute to the design of a database to answer questions and to use such a database to store, organise, search and retrieve data. Create appropriate graphs and charts. Check data for accuracy and understanding. Understand the need to keep electronic and other data secure.	Create a spreadsheet to collect and analyse findings. Develop simple formulae using arithmetic operators to carry out calculations for a purpose. Create different graphs; explore options and formats. Check data for accuracy and reliability.	Investigate how "big data" is used in our world identifying positive and negative aspects. Understand that data and information are digitised by computer systems including the use of binary. Understand how data is transmitted using barcodes, QR codes, infrared, Bluetooth and RFID. Understand that databases provide a way to store, organise, retrieve and analyse sets of data. Understand that the structure of a database determines the queries it can be used to answer. Understand graphing tools can present different views of data and can support hypothesis testing of as well as show data errors. Understand the stages in database development. Design, test and review a database to answer specific queries.	Correctly select and use different formulae and functions in spreadsheets/spreadsheet models. Know how and when to use conditional formatting including IF, OR and comparison operators. Design a spreadsheet to record and support analysis of findings from various sources. Design/develop efficient spreadsheets and spreadsheet models to investigate problems and test hypotheses; using graphs appropriately. Accurately identify variables in a model; explain impact of changing. Routinely check data accuracy and reliability. Explain how they check for accuracy/reliability Critically evaluate my models; identify improvements/refinements. Describe how spreadsheets are used in the wider world.

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Computing Science (Programming and Logic)	Demonstrate knowledge that many everyday devices respond to signals and instructions. Understand that computers use programs written in special programming languages. Understand an algorithm is a precise set of instructions. Understand the need for precision and to follow the correct sequence when programming. Create and debug simple algorithms for short tasks. Use algorithms to create simple programs for human robots, onscreen and physical characters or devices. Use logical reasoning to help investigate what will happen in simple programs. Make choices to produce different outcomes. Understand that repetition/looping is important in writing efficient programs.	Investigate patterns and rules in simple simulations. Understand that algorithms could support the programming of simulations and games. Create, test and debug algorithms related to animation; consider sequence and simple repetition. Use logical reasoning to predict what will happen in simple simulations.		Analyse simulations beginning to demonstrate understanding of the rules and structures. Use logical reasoning to predict outcomes in programs and detect errors. Design, test, debug and refine algorithms and programs to solve problems and control human robots and onscreen/ physical devices. Decompose a task before planning an algorithm or program. Build precision and clarity in algorithms, knowing this supports program design. Include sequence, repetition and selection in my algorithms and programs. Demonstrate an understanding of selection in relation to using sensor inputs in an algorithm or program.

Check algorithms and programs for precision and unambiguity. Consider how automated systems at home and school; might be programmed. | Design, debug and refine algorithms to solve problems and review effectiveness. Know well-designed algorithms support improved design and efficiency in programs. Use decomposition knowing it is key to precise design. Use logical reasoning to predict outcomes in programs and detect errors. Use sequence, repetition and selection appropriately in algorithms and programs. Explore the use of variables in programs. Design, test, debug and refine programs for physical and onscreen devices and systems in several programming environments. Demonstrate an understanding of selection in various contexts, including sensor inputs to simple automated devices they have built. Demonstrate an understanding of how automated systems might be programmed. Understand and explain a variety of coding terminology and symbols. | |

Digital Literacy- Children need to be able to use technology safely. They need to keep their personal information private and treat other people with respect. If something goes wrong or they see something they don't like they should know what to do and where to go for help. As children get older they need to know about how to use technology responsibly. As well as thinking about how their online behaviour affects others they need to be aware of legal and ethical responsibilities, including respecting copyright and intellectual property rights, keeping passwords and personal data secure and observing terms and conditions for online services. They need to understand the main risks relating to:

Content – being exposed to illegal, inappropriate or harmful material
Contact – being subjected to harmful online interaction with other users
Conduct – online behaviour that increases the likelihood of, or causes, harm

Children should understand an age appropriate version of the school's
Acceptable Use Policy. E-Safeguarding should link with the school's general child protection policy and should not be seen as a separate issue
Networking and Searching in this section too – Pupils also need to know how to store and organise their files so that it can easily be found again. They need an understanding of the devices they can use including: hard drive, USB sticks, school network server, and the cloud storage on the internet.

Information Technology- Appropriate activities include word processing, creating images, taking and using photographs and video, creating music and animations, using and creating databases, producing websites and contributing to blogs. As well as creation of digital materials pupils should have experience of manipulating and editing their own work and resources from elsewhere. They need to know how to use the tools available but also to have an element of digital literacy – awareness of audience and good design principles. Pupils should experience a range of different applications and software, initially the teacher will select the programs they use but over time pupils should be encouraged to make decisions themselves.

Computer Science – Algorithms, programming, logic.
Most of it can be covered by using technology to support other subject areas though it may be necessary to teach some discrete skills. Students should understand that technology is everywhere, be able to identify the technology they encounter and have a basic understanding of how it works. This will link to work on programming and algorithms.