St Joseph's Wesham Primary Computing Curriculum-Progression

		Phase 1 Year 1/2	Phase 2 Year 3/4	Phase 3 Year 5/6
Programming	Understanding algorithms	• Give precise instructions to, and respond to instructions from, other children involving movement around the room. • Describe what actions are needed for a particular task (not necessarily an IT one) and begin to use the word algorithm. • Understand that a number of different algorithms will often all solve the same problem. • Begin to understand that sequence (order) is important when devising algorithms and programming devices • Be able to predict what will happen in an algorithm or program which they may not have written themselves. • Understand why algorithms are useful for solving a wide range of problems and that we use algorithms every day	• Design, write and debug programs that accomplish specific goals, □including controlling or simulating physical systems; • Solve problems by decomposing them into smaller parts • Use sequence in programs (LKS2) • Use repetition in programs; • Work with variables • Work with various forms of input and output • Use logical reasoning to explain how some simple algorithms work and to detect and correct • errors in algorithms and • programs	Same as phase 2 but with increasing complexity: See Herefordshire computing syllabus for more details and suggested content. • Use selection in programs (UKS2)

	Programmable Robots	• Describe clearly what they expect to happen while programming a robot. • Begin to understand that sequence (order) is important when devising algorithms and programming devices • Be able to predict what will happen in an algorithm or program which they may not have written themselves. • Be able to execute a program, observe the results carefully spot errors and be able to debug them. Understand that programs respond to inputs to carry out actions.	•	
		• Understand that a number of • different algorithms will often all solve the same problem. • Describe clearly what they expect to happen while programming a robot. Begin to understand that sequence	•	

	screen programming	(order) is important when devising algorithms and programming devices • Be able to predict what will happen in an algorithm or program which they may not have written themselves. • Write programs successfully to create movement on-screen. Be able to execute a program, observe the results carefully spot errors and be able to debug them. • Understand that programs respond to inputs to carry out actions.		

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Computer Science	Information technology beyond school	• Be aware of obvious uses of IT in and beyond school (i.e. things that clearly look like computer devices) Understand some of the things that people do with computers at work and at home. • Have a growing awareness of things in and beyond the home that have some kind of computer in them (microwave, washing machine…) • Understand that most computers, tablets and phones are connected to the internet. • Recognises that any one of a range of digital devices can be considered a computer.	• Understand that the Internet is a collection on computers (servers) joined together across the world Understand the differences between the internet and the world wide web • Understand the basic structure of your school network, how it is connected (physical wiring, wireless …) and the services that are a part of it (printing, scanning, internet via server …) • Be able to save (and successfully retrieve!) their work to a variety of locations on the school network, online and locally to a device.	• Know that the internet provides different services and be able to describe some (email, www file • transfer protocol, video conferencing …) • Know how information is passed around the internet. • Understand how search results are selected and ranked by search engines • Understand the functions of and terminology around web browsers and search engines • Identify key components within a • PC and explain their function Understand the function of an

	File management and the school network	• Be able to logon to a computer network, understand the reasons for this. • Be able to save (and successfully retrieve) their own work on a variety of devices • Understand how to save and open work to and from a shared drive or web space (e.g. OneDrive or Drop Box).Understand the reasons for this.	• Understand the reasons for saving in different places. • Understand the function of different externally visible parts of a computer (and peripherals) and classify as input or output devices.	• Operating system and be able to name some. • Know the difference between physical, wireless and mobile networks. • Understand the basics of how data is stored (binary code,)
Multimedia	Text & Design	• Develop familiarity and correct use of the keyboard – spacebar, backspace, shift (for capital letters – not caps lock), return etc. Select or create appropriate images / sound to add to work Add captions to photographs, graphics and sound	• Use different font effects, layout, • format, graphics and illustrations to • Communicate for a given audience. • Insert and edit simple tables etc. Use page setup to select different page sizes and orientations Use Cut, copy and	• Format and edit work to improve clarity and mood, use a range of tools e.g. cut and paste, justify, tabs, insert and replace. • Make use of reviewing tools in word processors to collaborate in evaluating each other's work. Independently create, send and respond to email, blogs

		• Use templates to create simple presentations for a purpose • Word process text (use word lists to select text if necessary) • Navigate around text in a variety of ways (mouse, arrow keys • Edit work in the light of their own discussions and observations Know that multimedia includes sound, text and graphics. Know that ICT can be used to communicate ideas in different ways (e.g. text, images, tables, sound). • Recognise that changes can be made to documents to improve appearance and add new ideas. • Talk about their use of text, graphics and sound including how the mood of a piece is changed. Author their own pages in an e-portfolio adding	paste to refine and reorder content • Use appropriate editing tools to ensure their work is clear and error free (using tools such as spell checker, thesaurus, find and replace). Recognise the importance of good design. Log on to an email account or forum, open emails, create and send appropriate replies, use attachments. • Create and send an email to a prearranged partner, selecting the recipient from a class address book. Contribute to and create own discussion forums, blogs, wikis… Select and import graphics from cameras, graphics packages and other sources and prepare for use (cropping, resizing, editing)	and forums. (With appropriate supervision and due regard for safety) Produce formal or informal emessages appropriate to a task or to solve problems (requesting information, sharing data, etc.) Talk about different forms of electronic communication, their appropriateness to tasks, advantages and disadvantages. Develop and use criteria to evaluate the design and layout when evaluating a range of web sites, online resources etc. • Understand how pages are linked together and recognise the need for clarity. Produce a diagram to show page links. • Develop their use of hyperlinks to produce more effective interactive, nonlinear presentations.

		text and images With support, write and send a short email from a class account Understand the different ways that messages can be sent, email, text letter, phone … and begin to • consider the advantages of each •	• Create a range of hyperlinks and produce a non-linear, interactive presentations • Recognise key features of different layouts and consider how to meet the needs of the audience (e.g. • poster, newspaper, menu)	• Make effective use of transitions and animations. Consider the effect on the audience and appropriateness. Select and import sounds from their own recording, create their own effects and music and import from other sources.
		• Use a painting app to create a picture to communicate ideas Use brush and pen tools, create lines and textures and use the flood fill spray and stamp tools. Use ICT to source, generate and amend ideas for their art work Use a camera or camcorder to take a picture or record their work Demonstrate good control when using still and video cameras understanding the need to	• Acquire, store and retrieve images from cameras, scanners and the internet and begin to use paint packages or photo-manipulation software to change an image (e.g. • apply different effects) • Select areas of a painting, copy and paste to make repeating patterns. Resize elements. Investigate reflection tools etc Develop greater control over the digital stills video camera	• Create images using a range of techniques in art programs / apps / websites in a particular artistic style Independently make decisions to capture, store, retrieve and edit digital images (their own and other people's) for a particular purpose. Understand the difference between object based graphic • packages and paint packages • and which is right for their task

	Digital Image, Film & animation	frame an image or scene and keep the camera still • Begin to edit digital photographs Create a sequence of images which together form a short animation to illustrate a story Understand the differences between a graphics apps and • traditional art activities • Understand that some apps will enable images to be animated. Understand that animation is a sequence of still images • Talk about their use of a painting app and their choice of tools Begin to discuss the quality of their image and make decisions (e.g • delete a blurred image)	and use the enhanced tools (Macro, • Landscape, Zoom) • Discuss and evaluate the quality of their own and others' captured images and make decisions (e.g. keep, delete, change) • Create a short animated sequence from captured images in simple storyboarding software, to communicate a specific idea. Capture "footage" from different devices into simple movie editing software. Arrange, trim and cut clips to create a short film that conveys meaning to a given audience. • Import music and stills into video editing software and add to film projects. • Add simple titles and credits, music and narration.	• Independently plan and create a short animated sequence to communicate a specific idea, using a storyboard and timeline. Combine stills, video and sound using a video editing package Make use of transitions and special effects when editing films and understand the effect they will have on the audience. Export images and movies in a variety of formats, understanding some of the differences, and share on the internet (with due regard for safety).

	Music	• Use sound recorders / players to listen to pre-recorded sound Use sound recorders / tablets to record and playback sounds (eg voices, instruments, sounds around them …) • Experiment with a range of devices that create and record sound Explore a range of electronic music and sound devices including keyboards, software, tablets and different peripherals • Use software to explore sound and musical phrases for a purpose Compose music using icons to represent musical phrases Understand that devices have record and playback functions Begin to understand that music and sound can affect mood and atmosphere	• Use IT to select and record voice and sounds – (e.g. tablet, phone, Dictaphone, digital voice recorder) Use recorded sound files in other applications • Locate, transfer and use sound files from a range of devices and the internet, • Select, import and edit existing sound files in sound editing software / app. • Use music software or app to experiment with capturing, repeating and reordering sound patterns. • Use music software / app to create a simple multipart percussion composition • Use ICT to create and perform sounds or music that would otherwise not be possible live – e.g. playing a multi-part piece or a very fast piece	• Independently select, edit and combine sound files from internet sources to create a podcast file. Develop skills in manipulating sounds (such as reversing sounds, adding echo, altering speed …) and use them appropriately considering audience and purpose • Independently select and use a variety of appropriate devices to record musical and non-musical sounds. • Upload and download projects to the VLE / MP3 players / mobile phones / computers etc. Create their own sounds and compositions to add to their presentations / films / images / photos. • Use IT to perform sounds or music that would otherwise not

		• Recognise that an electronic keyboard can be used to select and control sounds	• Talk about software which allows easy manipulation and creation of sound and music • Understand that copyright exists on most recorded music • Understand that all types of sounds can be combined in editing software.	be possible live (e.g. playing a multi-track or a very fast piece) • Use IT to produce music for a specific purpose, considering the impact on the audience (e.g. length, style, genre etc.) • Understand copyright when selecting music samples
Data Handling	Internet	• Use appropriate buttons, menus and hyperlinks to navigate web sites for stored information • Access different information using a range of equipment (apps, website, TV, DVD etc) • Enter text into a search engine to find specific given web sites Locate specific sites by typing a website address (URL) into the address bar in a web browser. Understand that IT (the internet) gives rapid access to a wide variety of information and resources	• Develop key questions and key words to search for specific information to answer a problem Save and retrieve accessed information through the use of Favourites, History, and Save As… Use found information purposefully to complete specific tasks e.g. copy, paste and edit relevant information • Understand the dynamics of search engines and know that there are different search engines - some within sites, and some for the whole of the	• Develop strategies for finding information (different keywords, cross checking with other sites, referring to other sources such as books, people, etc). • Consider the effectiveness of search results and refine where necessary. Skim and select information checking for bias and different viewpoints • Copy, paste, save and use pictures, text and sound and be able to import into a document for a specific audience or task • Talk about validity and plausibility and appropriateness

		• Talk about their use of IT and compare with other ways of finding information • Understand that different forms of information (text, images, sound, multimodal) exist and that some are more useful than others for specific purposes • Understand and talk about how their information can be used to answer specific questions • Begin to develop key questions to help find information • Be aware of responsible internet use and the school's acceptable use policy (see digital literacy strand)	Internet (e.g. Google). Use them appropriately • Use search engines for different media (e.g. Google Image Search, video, www.findsounds.com) • Skim read and sift information to check its relevance and modify search strategies if necessary Understand a website has a unique address and the need for precision when typing it. • Evaluate different search engines and explain their choices in using these for different purposes • Understand that some information found through searching is more relevant than others • Talk about and describe the process of finding specific information noting frustrations and how they overcame them	of information, especially on the internet. Recognise the impact of using incorrect information in their work. Understand the possible impact of using incorrect data.

	Surveys, databases & spreadsheets	• Develop simple classification skills by carrying out simple sorting activities (probably away from the computer) • Use simple graphing programs to produce pictograms and other simple graphs • Use graphing software to change the way a graph type (eg pictogram to bar chart) Interpret graphs, discuss information contained and answer simple questions • Sort and classify a group of items by asking simple yes / no questions Talk about the different ways technology can be used to collect information, (e.g. camera, microscope or sound recorder). Understand that IT can be used to sort items and information	• Collect appropriate information, enter it into a database or spreadsheet and use this to answer • simple questions • Raise questions of data and translate them into search criteria Generate and compare different charts and graphs (using graphing software / app, spreadsheet etc) and understand that different graphs are used for different purposes • Organise, present, analyse and interpret the data in tables, tally • charts, charts / graphs, using IT where appropriate • Begin to develop skills to identify what data needs to be collected and design a questionnaire or survey to aid its collection	• Use complex searches (and/or, is greater/less than) to search data when looking for relationships and patterns in data. • Modify a search pattern in order to find specific information. • Check for accuracy by checking data, using different views, search tools, and graphing. Identify and correct inaccuracies. • Solve complex enquiries involving selecting, processing, and presenting data; drawing conclusions from the process (e.g. is there a relationship between minibeast habitat and diet?) Construct, refine and interpret frequency tables; bar charts with grouped discrete data; line graphs; interpret pie charts.

		• Understand that IT can be used to create, display and change graphs quite easily • Begin to understand that if data has not been entered accurately it cannot be used to provide correct answers to questions	• Change the contents of cells in a spreadsheet to explore "What if …" questions • Use a spreadsheet to record data and produce graphs • Use a spreadsheet to explore simple patterns (e.g. in a number square) Understand the need to structure information properly in a database or spreadsheet • Know, understand and use the vocabulary: file, record, field, data and information.	• Recognise the consequences of data not being accurate, relate to the wider world (e.g. police, doctors, bank, school databases). Discuss how ICT enables the user to search and filter large amounts of data to find information. Describe the advantages. • Enter formulae into a spreadsheet and modify the data, (simple • calculations + - × ÷) • Make predictions and changes and check results
E-safety	Content	• Know what to do if they view content they think is inappropriate or upsetting e.g. know how to minimise a screen if they see something inappropriate then tell a trusted adult.	• Know what to do if content is inappropriate or upsetting (school policy) e.g. know who to report to and talk to. • Understand the Internet contains fact, fiction and opinion and begin to distinguish between these. Be aware of online marketing and	• Use a range of sources to check the validity of websites and evaluate information found online, consider plausibility and develop strategies to make judgements on the sources used e.g. cross-referencing websites, checking up on author etc

		• Begin to evaluate online content by giving opinions about preferred sites. • Know that you can be diverted from a website through a link, advertisement or pop-up. • Understand some online materials are unsuitable and many sites are aimed at selling or phishing for personal details. • Know that anyone can create a web site and it is sometimes difficult to know if information is true.	• begin to develop strategies to deal with it • Know that the aim of many sites is to sell something or gain personal information.	• Understand that some internet material is age related (especially games) and the implications for ignoring such guidance. Know that many commercial providers have sophisticated ways of trying to sell on the internet (e.g. Hoax 'You have a virus' message to sell antivirus software). • Understand that online content often reflects stereotypical views and develop strategies to deal with it.
	Contact	• Know that some information is personal and should not be shared when communicating online (This could be discussed when sending a class email). • Understand that people online may not be who they say they are and may not be true friends Identify some risks presented by new technologies inside and	• Know to keep personal information and passwords private when communicating online. Understand that online communication is not always confidential and that it can be monitored. • Know that anyone can create a user showing any age or gender and people you meet	• Demonstrate safe practice when selecting images or content for uploading to a personal profile or online space. • Understand the need to adjust privacy settings on social networking sites and appreciate that "friends" (who can download and share their

		outside school (e.g. online games, texting and cyber bullying).	online may not be who they say they are. Know what to include a personal profile and that it is better to use an • alias and avatar rather than real name and photograph • Know when an email should not be opened or messages ignored. Know how to deal with unpleasant communications via mobile, text, chat rooms ... (Save the message and show to a trusted adult). Understand why you should only befriend people you know and trust never to meet up with "friends" you know only online. Know how to report unwanted approaches to CEOP.	content) may not have done the same. • Understand some malicious adults use the internet to make contact and groom young children. Know how to report any suspicions (CEOP report abuse page). Be clear about the differences between public social networking sites and closed learning environments, understanding the risks with the former. • Understand the purpose of passwords, that passwords should never be shared, what makes a secure password.
		• Learn to be respectful to other people online and their online work.	• Know there are writing conventions for electronic communication (language, tone, accuracy). Start to be aware of copyright issues and	• Understand the importance of appropriate online behaviour and that online bullying is • Unacceptable. Know to whom to report any incident.

	Conduct	• Begin to understand that their work says something about them • self and to take proper ownership of it. • Learn the importance of turning off power to save energy.	plagiarism; that taking text or images from some sites may be stealing other people's work. Know it is important to respect others' feelings and electronic work	• Understand the importance of creating a positive "digital footprint" and the need to help others to preserve theirs (by uploading only content that creates a positive image of yourself and others). • Have an awareness of the need to check for copyright when downloading content from the internet, whether it can be legally re-used and how to credit other people's work