UTTOXETER LEARNING TRUST
INSPIRED TEACHING
INSPIRING CHILDREN

Computing Progression

Computer Science							
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Computer Science	• To know how to repeat an action with technology to trigger a specific outcome. • To be able to recognise the success or failure of an action. • To be able to follow simple instructions to control a digital device. • To know that we control computers. • To be able to input a short sequence of instructions to control a device.	• To be able to explain that we control computers by giving them instructions. • To be able to create a simple program e.g. to control a floor robot. • To be able to create a simple algorithm. • To be able to predict the outcome of a simple algorithm or program. • To be able to explain what an algorithm is – a sequence of instructions to make something happen. • To be able to recognise that the order of instructions in an algorithm is important. • To be able to debug an error in a simple algorithm or program e.g. for a floor robot.	• To be able to explain that computers have no intelligence and we have to program them to do things. • To be able to create a program with multiple steps e.g. to control a floor robot. • To be able to predict the outcome of an algorithm or program with multiple steps. • To be able to use loops and know they repeat sections of code. • To be able to identify and correct errors in a given algorithm or program, and recognise the term debugging. • To be able to plan out a program by creating an algorithm and evaluate its success.	• To be able to predict the outcome of a block or text-based program (Scratch/Logo). • To be able to modify an existing program successfully, e.g. change background, number of times things happen. • To be able to trigger code with different events (when flag is click, when sprite is clicked) • To be able to identify repeated steps in a program or algorithm. • To be able to plan and write an algorithm to run a program. • To be able to identify errors in a block or text-based program and correct them. • To be able to use different inputs to control a program.	• To be able to create a program using a range of events/inputs to control what happens. • To be able to decompose a problem into smaller parts to help solve it. • To be able use a count-controlled loop (e.g. repeat 3 times) to make a program more efficient. • To be able to use a forever loops in programs. • To be able to design a program for a purpose. • To be able to debug common mistakes in programs.	• To recognise that different solutions may exist for the same problem. • To be able to predict what will happen in a program or algorithm when the input changes (e.g. sensor, data or event). • To be able to use selection in algorithms in programs to alter what happens when a condition changes, e.g. if…then. • To be able to create programs including repeat until loops. • To be able to evaluate a program and make improvements to the code or design accordingly.	• To be able to design and program a physical computing system that uses sensors. • To be able to plan out a program in detail, including task, algorithm, code and execution level. • To be able to debug common errors in programs and explain how to fix them. • To be able to create and use simple variables, e.g. to keep score. • To know key concepts (sequence, selection, repetition and variables) in a range of languages and contexts. • To be able to name a range of sensors in physical systems. • To understand that artificial intelligence systems make decisions by following algorithms rather than thinking independently. • To recognise that AI systems use **rules or learned patterns** to make decisions based on input data. • To understand that changing input data can change the output or decision made by a system. • To recognise that AI systems apply **selection and conditions** when making decisions. • To understand that some systems are **rule-based**, while others rely on patterns learned from examples.
Computer components and networks	• To know the basic parts of a computer, e.g. mouse, screen, keyboard.	• To be able to recognise and name a range of digital devices, e.g. laptop, phone, games console.	• To know that a range of digital devices contain computers, e.g. phone, games console, smart speaker. • To be able to identify and use input devices, e.g. mouse, keyboard; and output devices, e.g. speakers, screen.	• To be able to describe what a computer is (input > process > output). • To be able to explain the difference between input and output devices on a computer.	• To be able to recognise that school computers are connected together on a network. • To be able to explain that the internet is made up of computers and other digital devices connected together all around the world. • To recognise that you use a web browser to access information stored on the internet.	• To know the difference between a search engine and a web browser. Explain the basics of how search engines work, and that different search engines may give different results. • To be able to perform complex searches for information using advanced settings in search engines.	• To explain the basic function of an operating system. • To know common file types and extensions e.g. jpeg, png, doc, wav • To name a range of Internet services, e.g. email, VOIP (e.g. Skype, FaceTime), World Wide Web, and what they do. • To explain the difference between physical, mobile and wireless networks. • To recognise that AI systems can make errors when faced with unfamiliar or ambiguous data.

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Computing Progression

Information Technology							
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Information Technology:	• To be able to use technology to explore and access digital content. • To be able to operate a digital device with support to fulfil a task e.g. take a photo. • To be able to create simple digital content, e.g. digital art. • To be able to use different digital devices. • To know that you can access content on a digital device. • To be able to use a mouse, touchscreen or appropriate access device to target and select options on screen.	• To be able to recognise different forms of digital content, i.e. text, image, video and audio. • To be able to select a digital device to fulfil a specific task, e.g. to take a photo. • To be able to log on to the school computer / unlock the school tablet with support. • To be able to identify the basic parts of a computer, e.g. mouse, keyboard, screen. • To be able to use a suitable access device (mouse, keyboard, touchscreen, switch) to access and control an activity on a computer. • To be able to open key applications independently. • To be able to save and open files with support. • To be able to create digital content by adding shapes and text. • To choose media from a selection (e.g. images, video, sound) to present information on a topic. • To recognise that you can edit digital content to change its appearance • To explain that you can find out information from a website. • To be able to select basic tools/options to change the appearance of digital content, e.g. filter on an image / font / size of paintbrush. • To be able to combine media with support to present information, e.g. text and images. • To be able to take a screenshot.	• To be able to open key applications independently. • To be able to save and open files to/from a given folder. • To be able to add an image to a document from a given folder/source. • To be able to resize an image in a document. • To be able to capture media independently (e.g. take photos, record audio). • To be able to create simple digital content for a purpose by adding text, images and shapes. • To recognise that we can use technology to record and playback audio or take and view photographs. • To be able to apply edits to digital content to achieve a particular effect, e.g. emphasise part of a text. • To be able to present ideas and information by combining media, e.g. text and images. • To be able to identify the common features of digital content, e.g. title, images.	• To be able to save and open files (e.g. in shared folder). • To be able to save files with appropriate names. • To be able to use a keyboard effectively to type text. • To be able to use left-, right- and double-click on the mouse or navigate a tablet using touch. • To be able to add an image to a document. • To be able to resize and move an image in a document. • To be able to use a search engine to find simple information. • To be able to present ideas and information by combining media independently, e.g. text and images. • To be able to design and create simple digital content for a purpose/audience, e.g. poster. • To be able to edit digital content to improve it, e.g. resize text, rotate shapes and change colour. • To be able to explain why we use different types of media to convey information, e.g. text, image, audio, video.	• To know that you can organise files using folders. • To be able to delete and move files. • To be able to use key parts of a keyboard effectively, e.g. shift, arrow keys, delete). • To be able to edit an image by: ▪ Cropping the composition ▪ Removing the background ▪ Adjust colours by applying a filter ▪ Adding effects • To be able to combine digital content by adding text, multiple images, drawings, annotations, and borders to images. • To be able to copy and paste text or images in a document. • To be able to use a search engine to find specific information. • To be able to design and create digital content for a specific purpose using the most appropriate piece of software, e.g. poster, animation. • To be able to edit digital content to improve it according to feedback. • To be able to identify the features of a good piece of digital content and apply these in own design. • To explain the benefits of using technology to present information.	• To be able to type using fingers on both hands. • To be able to use common keyboard shortcuts, e.g. ctrl C (copy), ctrl V (paste). • To be able to use folders to organise files. • To be able to search for an application on a computer/tablet. • To be able to identify and use appropriate hardware and software to fulfil a specific task. • To be able to remix and edit a range of existing and their own media to create content. • To be able to consider the audience when designing and creating digital content. • To be able to evaluate their own content against success criteria and make improvements accordingly. • To be able to record and playback a recording. • To be able to select an audio clip to trim and apply effects. • To be able to layer audio samples. • To be able to delete a section of audio. • To be able to save/export an audio file. • To be able to create and edit a video clip by editing, trimming, splitting, layering and adding special effects such as green screen.	• To be able to type efficiently using both hands. • To be able to use a range of keyboard shortcuts. • To recognise that different devices may have different operating systems. • To be able to organise files effectively using folders and files names. • To be able to use the advanced search tools when using a search engine to find specific information and images. • To be able to select, combine and remix a range of media to create original content. • To be able to consider all steps of the design process when creating content (e.g. identify problem, plan, create, evaluate, share.) • To be able to identify the most effective tools to present information for a specific purpose. • To be able to evaluate existing digital content in terms of effectiveness and design. • To be able to modify a 3D object in a computer programme by: o Repositioning o rotating in three dimensions o resizing o recolouring o duplicating o deleting

Computing Progression

Data		• To be able to present simple data using pictograms. • To be able to collect simple data (eg. Likes/dislikes).	• To be able to recognise charts, pictograms and branching databases, and know why we use them.	• To be able to recognise charts, pictograms and branching databases, and know why we use them. • To be able to create a branching database. • To explain some benefits of using a computer to create charts and branching databases.	• To be able to draw conclusions from information stored in a database, chart or table.	• To explain the difference between data and information. • To explain that different computer programs work with different types of data, e.g. text, number, video.	• To know what a spreadsheet is and what it is used for. • To be able to use simple formulae in a spreadsheet to find out information from a set of data. • To be able to collect data for a purpose and plan out a spreadsheet to present it effectively, using relevant formulae. • To be able to produce graphs from data in a spreadsheet to answer a question. • To be able to analyse and evaluate data and information in a spreadsheet, chart or database. • To understand that data is used to train and influence the decisions made by artificial intelligence systems. • To recognise that the **quality, balance, and completeness** of data affects the accuracy of outcomes. • To understand that biased or incomplete data can lead to unfair or misleading decisions. • To analyse how data patterns are used to classify, predict, or group information.
Digital Literacy							
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6

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Computing Progression

Digital Literacy	• To know that some online content is inappropriate. To be aware that information can be public or private. • To know to tell an appropriate adult if they see something on the computer that upsets them.	• To be able to use a simple password when logging on, where relevant. Explain why we use passwords. • To explain what personal information is and give examples e.g. name, image. • To be able to recognise that digital content belongs to the person who created it. • To be able to talk about their use of technology at home.	• To be able to remember a simple password to log onto the computer or a website. Identify rules for acceptable use of technology in school. • To be able to explain what personal information is and the need to keep it private. • To understand that spending a lot of time in front of a screen can be unhealthy. • To be able to explain the rules for acceptable use of technology.	• To explain why we need to keep our password safe. • To be able to explain that digital content belongs to the person who first created it, but we can give permission for others to use it. • To explain that games and films have age ratings. • To be able to list different types of personal information and when to share it and when not to. • To understand that some people lie about who they are online.	• To be able to remember and use an individual password. • To recognise what kinds of websites are trustworthy sources of information. • To explain the benefits and risks of different apps and websites. • To explain that the media can portray groups of people differently.. • To explain why we should use copyright- free content in our work. • To be able to explain why my personal information needs to be kept private [addresses, passwords]. • To be able to explain that digital content belongs to the person who has created it and that not all information found online is true. • To be able to recognise suspicious behaviour in phishing emails, text messages and social media.	• To know where to find copyright free images and audio, and why this is important. • To be able to critically evaluate websites for reliability of information and authenticity. • To be able to demonstrate responsible use of online services, and know a range of ways to report concerns. • To explain what makes a strong password. • To be able to use a search engine effectively to find information and images. • To explain the benefits and risks of sharing data online. • To be able to identify and explain why their personal information needs to be kept private and the potential impact on their digital footprint. • To know who they would go to if they had concerns over online contact. • To be able to be discerning about what information they gather, checking the validity of data and showing due respect to privacy and copyright. • To identify how technology has impacted the world we live in.	• To know what makes a strong password and why this is important at school and in the wider world. • To be able to explain that algorithms are used to track online activities with a view to targeting advertising and information. • To understand that there are laws around the purchase of games; the production, sending and storage of images; what is written online; and around online gambling. • To be able to explain why their personal information needs to be kept private and the potential impact on their digital footprint. • To be able to identify acceptable and unacceptable behaviour online. • To be able to report concerns over online content or contact. • To know how to report concerns over online contact or content. • To be able to be discerning about what information they gather, checking the validity of data and showing due respect to privacy and copyright. • To be able to engage in online communities safely, respectfully and responsibly. • To understand that AI-generated content is not always accurate, reliable, or trustworthy. • To recognise that algorithms influence what information people see online. • To understand that humans are responsible for the design, use, and impact of AI systems. • To recognise ethical issues linked to fairness, bias, misinformation, and responsibility when using AI.