Progression in Computing

Knowledge *Skills*	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
What is a Computer? Key Skills	- *Use different digital devices.* - Recognise that you can access content on a digital device. - *Use a mouse, touchscreen or appropriate access device to target and select options on screen.* - Recognise a selection of digital devices. - Recognise the basic parts of a computer, e.g., mouse, screen, keyboard. - *Select a digital device to fulfil a specific task, e.g., to take a photo.*	- *Recognise a range of digital devices.* - Select a digital device to fulfil a specific task, e.g., to take a photo. - *Name a range of digital devices, e.g. laptop, phone, games console.* - Log on to the school computer / unlock the school tablet with support. - *Identify the basic parts of a computer, e.g., mouse, keyboard, screen.* - Use a suitable access device (mouse, keyboard, touchscreen, switch) to access and control an activity on a computer. - Open key applications independently. - Save and open files with support. - Add an image to a document from a given folder/source with support.	- *Recognise what a computer is (input > process > output).* - Recognise that a range of digital devices contain computers, e.g. phone, games console, smart speaker. - *Explain what the basic parts of a computer are used for.* - Identify and use input devices, e.g. mouse, keyboard; and output devices, e.g., speakers, screen. - Open key applications independently. - Save and open files to/from a given folder. - Add an image to a document from a given folder/source. - Resize an image in a document. - Highlight text and use arrow keys. - Capture media independently (e.g. take photos, record audio).	- *Describe what a computer is (input > process > output).* - *Explain the difference between input and output devices on a computer.* - *Know where to save and open files (e.g., in shared folder).* - Save files with appropriate names. - Use a keyboard effectively to type in text. - Use left-, right- and double-click on the mouse. - Add an image to a document from the internet. - Resize and move an image in a document. - Use a search engine to find simple information. - *Recognise that school computers are connected.*	- *Recognise that you can organise files using folders.* - *Explain what a good file name would look like.* - Delete and move files. - Use key parts of a keyboard effectively, e.g., shift, arrow keys, delete). - *Know how to copy and paste text or images in a document.* - Crop an image and apply simple filters. - Use a search engine to find specific information. - *Recognise that school computers are connected together on a network.*	- Type using fingers on both hands. - *Use common keyboard shortcuts, e.g., ctrl C (copy), ctrl V (paste).* - *Explain what makes a strong password.* - Use folders to organise files. - *Know how to mute and unmute audio on a computer or tablet.* - *Recognise that there is more than one search engine, and they may produce different results.* - Use a search engine effectively to find information and images. - Know how to search for an application on a computer/tablet.	- Type efficiently using both hands. - Use a range of keyboard shortcuts. - *Recognise that different devices may have different operating systems.* - Organise files effectively using folders and files names. - Use the advanced search tools when using a search engine to find specific information and images. - *Explain the basic function of an operating system.* - *Recognise common file types and extensions e.g., jpeg, png, doc, wav* - *Recognise a range of Internet services, e.g., email, VOIP (e.g. Skype, FaceTime), World Wide Web, and what they do.*
Presenting Information & Multimedia	- Use technology to explore and access digital content. - Operate a digital device with support to fulfil a task. - Create simple digital content, e.g. digital art. - *Choose media to convey information, e.g., image for a poster.*	- Create digital content, e.g., digital art. - Choose media from a selection (e.g., images, video, sound) to present information on a topic. - *Recognise that we can find out information from a website.* - *Recognise that you can edit digital content to change its appearance.* - Select basic tools/options to change the appearance of digital content, e.g., filter on an image / font / size of paintbrush. - Combine media with support to present information, e.g., text and images.	- Create simple digital content for a purpose, e.g., digital art. - *Recognise that we can use technology to record and playback audio or take and view photographs.* - Apply edits to digital content to achieve a particular effect, e.g. emphasise part of a text. - Present ideas and information by combining media, e.g., text and images. - *Explain that you can search for information on the internet.* - Plan out digital content, e.g., a simple sketch or storyboard. - *Identify the common features of digital content, e.g., title, images.* - *Recognise that we can use different types of media to convey information, e.g., text, image, audio, video.*	- Present ideas and information by combining media independently, e.g., text and images. - Design and create simple digital content for a purpose/audience, e.g., poster. - Edit digital content to improve it, e.g., resize text. - *Identify the features of a good piece of digital content.* - *Explain why we use technology to create digital content.* - *Recognise why we use different types of media to convey information, e.g., text, image, audio, video.*	- Collect, organise and present information using a range of media. - Design and create digital content for a specific purpose, e.g., poster, animation. - Edit digital content to improve it according to feedback. - *Identify the features of a good piece of digital content and apply these in own design.* - *Explain the benefits of using technology to present information.* - *Know where to find copyright free content, e.g., creative commons images.* - Collaborate with peers using online tools, e.g., blogs, Google Drive, Office 365, if available.	- Identify and use appropriate hardware and software to fulfil a specific task. - Remix and edit a range of existing and their own media to create content. - Consider the audience when designing and creating digital content. - *Recognise the benefits of using technology to collaborate with others* - Identify success criteria for creating digital content for a given purpose and audience. - Evaluate their own content against success criteria and make improvements accordingly.	- Select, combine and remix a range of media to create original content. - Consider all steps of the design process when creating content (e.g., identify problem, plan, create, evaluate, share.) - Identify the most effective tools to present information for a specific purpose. - *Explain the benefits of using technology to collaborate with others.* - Evaluate existing digital content in terms of effectiveness and design.
Data	- Access content in a range of formats, e.g., image, video, audio. - *Answer basic questions about information displayed in images e.g., more or less.*	- Recognise different forms of digital content, i.e., text, image, video and audio. - Collect simple data (e.g. likes/dislikes) on a topic. - Present simple data using images, e.g., number of animals. - *Recognise charts and*	- Recognise charts, pictograms and branching databases, and why we use them. - *Identify an object using a branching database* - Recognise an error in a branching database. - Create a branching database using pre-prepared images and	- Recognise charts, pictograms and databases, and why we use them. - Present information using a suitable chart. - Explore a record card database to find out information. - Use filters in a database to	- Draw conclusions from information stored in a database, chart or table. - Design a questionnaire and collect a range of data on a theme. - *Choose appropriate formats to present data to convey information.*	- *Explain the difference between data and information.* - *Appreciate that different programs work with different types of data, e.g., text, number, video.* - *Explain the difference between the Internet and the*	- Recognise what a spreadsheet is and what it is used for. - *Explain the difference between physical, mobile and wireless networks.* - *Use simple formulae in a spreadsheet to find out information from a set of*

		pictograms and why we use them. *- Explain information shown in a simple chart or pictogram.* - Modify simple charts/pictograms, e.g., add title, item or labels. *- Identify the key features of a chart or pictogram.* - Collect data on a topic (eye colour, pets etc.) and present in a pictogram or chart.	questions *- Identify the features of a good question in a branching database.* - Independently plan out and create a branching database. - Evaluate a given branching database and suggest improvements.	find out specific information. *- Name the key parts of a database, e.g., record, field, search.* - Answer questions about information in a database. *- Name some benefits of using a computer to create charts and databases.* *- Recognise that search engines store information in databases.*	*- Recognise that school computers are connected together on a network.* *- Recognise that the Internet is made up of computers and other digital devices connected together all around the world.* *- Know that you use a web browser to access information stored on the internet.* - Appreciate that you need to use specific software to work with video, images, audio etc.	*World Wide Web.* *- 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.* - Perform complex searches for information using advanced settings in search engines. *- Recognise the benefits and risks of sharing data online.*	*data.* - Collect data for a purpose and plan out a spreadsheet to present it effectively, using relevant formulae. - Produce graphs from data in a spreadsheet to answer a question. - Analyse and evaluate data and information in a spreadsheet, chart or database. *- Recognise that poor quality data leads to unreliable results.*
Programming & Algorithms	- Explore technology. - Repeat an action with technology to trigger a specific outcome. - Recognise the success or failure of an action. - Follow simple instructions to control a digital device. *- Recognise that we control computers.* - Input a short sequence of instructions to control a device.	*- Recognise that computers don't have a brain.* *- Explain that we control computers by giving them instructions.* - Create a simple program e.g., to control a floor robot. - Create a simple algorithm. - Predict the outcome of a simple algorithm or program. *- Explain what an algorithm is – a sequence of instructions to make something happen.* *- Recognise that the order of instructions in an algorithm is important.* - Debug an error in a simple algorithm or program e.g., for a floor robot.	*- Explain that computers have no intelligence, and we have to program them to do things.* - Create a program with multiple steps e.g., to control a floor robot. *- Predict the outcome of an algorithm or program with multiple steps.* *- Recognise that the instructions in an algorithm need to be clear and unambiguous.* - Identify and correct errors in a given algorithm or program and recognise the term debugging. *- Explain what an algorithm is, and that when inputted on a computer it is called a program.* - Plan out a program by creating an algorithm and evaluate its success.	- Predict the outcome of a block or text-based program (Scratch). - Successfully modify an existing program, e.g., change background, number of times things happen. *- Identify repeated steps in a program or algorithm.* - Create examples of algorithms containing count-controlled loops. *- Use a count-controlled loop (e.g. repeat 3 times) to make a program more efficient.* *- Recognise that we can create an algorithm to help plan out a program.* *- Recognise a forever loop in a program or algorithm.* - Use a forever loop in a program to keep something happening. - Identify errors in a block or text-based program and correct them. *- Recognise that different inputs can be used to control a program.*	- Create a program using a range of events/inputs to control what happens. *- Recognise that we can decompose a problem into smaller parts to help solve it.* *- Explain when to use forever loops and count-controlled loops and use them in programs.* *- Recognise selection in a program or algorithm.* - Use selection in algorithms in programs to alter what happens when a condition changes, e.g., if…then… - Design a program for a purpose. Decompose into parts and create an algorithm for each one. - Recognise common mistakes in programs and how to correct them.	*- Name a range of sensors in physical systems.* *- Recognise that different solutions may exist for the same problem.* *- Predict what will happen in a program or algorithm when the input changes (e.g., sensor, data or event).* - Use two-way selection in programs and algorithms, i.e., if…then…else… *- Recognise variables in a program and what they do.* - Create programs including repeat until loops. - Create and use simple variables, e.g., to keep score. - Evaluate a program and make improvements to the code or design accordingly. - Create an algorithm for a physical system containing a sensor.	- Design and program a physical computing system that uses sensors. *- Recognise and use procedures (sub-routines) in programs.* - Plan out a program in detail, including task, algorithm, code and execution level. *- Explain common errors in programs and how to fix them.* - Use nested selection statements in a program or algorithm effectively. - Combine a variable with relational operators (< = >) to determine when a program changes, e.g. if score > 5, say "well done". *- Recognise key concepts (sequence, selection, repetition and variables) in a range of languages and contexts.*
Digital Literacy & E-Safety	*- Are aware that some online content is inappropriate.* *- Are aware that information can be public or private.* - Know to tell an appropriate adult if they see something on the computer that upsets them.	- Use a simple password when logging on, where relevant. *- Explain why we use passwords.* *- Recognise examples of personal information e.g., name, image.* *- Know who to tell if concerned about content or contact online.* *- Recognise that digital content belongs to the person who created it.* - Talk about their use of technology at home.	*- Remember a simple password to log onto the computer or a website.* *- Identify rules for acceptable use of technology in school.* *- Recognise what personal information is and the need to keep it private.* *- Recognise that spending a lot of time in front of a screen can be unhealthy.* *- Recognise that some information found online may not be true.*	*- Explain why we need to keep our password safe.* -Recognise that digital content belongs to the person who first created it, but we can give permission for others to use it. *- Recognise when to share personal information and when not to.* *- Recognise that some people lie about who they are online.* *- Are aware that games and films have age ratings.*	- Remember and use an individual password. *- Recognise what kinds of websites are trustworthy sources of information.* *- Recognise the benefits and risks of different apps and websites.* *- Recognise that the media can portray groups of people differently.* - Can rate a game or film they have made and explain their rating.	*- Know where to find copyright free images and audio, and why this is important.* - Critically evaluate websites for reliability of information and authenticity. - Demonstrate responsible use of online services, and know a range of ways to report concerns.	*- Explain what makes a strong password and why this is important at school and in the wider world.* *- Explain how algorithms are used to track online activities with a view to targeting advertising and information.* *- Know that there are laws around the purchase of games; the production, sending and storage of images; what is written online; and around online gambling.*
Key Vocabulary	*Key vocabulary can be found in the knowledge organisers for each unit.*						