Grazeley Primary School Computing and ICT Knowledge and Skills Progression

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Online safety (this should be included in every topic)	Begin to understand they have to abide by school rules on Internet safety	• Begin to understand they have to abide by school rules on Internet safety e.g. only navigate to given pages. • Use passwords to access school computers and online resources. Keep these private. • to keep them safe when accessing content online. • Know there are rules to keep them safe when accessing content online.	• Use passwords to access resources and know why they need to keep them private • Know the school online safety rules and know how to respond to inappropriate content • Show an awareness that information including images online can be shared at home, school and worldwide • Know private information should never be given out on the internet • Identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies	• Know what to do when inappropriate material appears on the screen. • Explain that passwords are used to log in to resources on the web and why these should be kept private. • Understand there is an accepted behaviour when communicating in the real or virtual world. • Be knowledgeable about the school e-safety rules. Understand that images can be shared and viewed online and consider the privacy of themselves and others. • Know data is collected and used in the world around them, and understand the need for keeping personal data safe.	• Know what to do when inappropriate material appears on the screen and think about the implications at home. • Demonstrate an understanding of the rules and possible implications of e-safety when collaborating on projects. • Consolidate the school's e-safety rules. • Discuss privacy in terms of using and sharing digital images. • Know that personal data is stored on systems; understand the need to be accurate and keep it private	• Use technology safely, respectfully and responsibly • Be knowledgeable about the school's online safety policy and reflect on its relevance to access to home and mobile devices • Understand ways of preventing and responding to cyberbullying • Understand the importance of privacy when online and that certain information should not be publicly available • Know that there are risks when accessing resources on the Internet • Understand that personal data is collected by others for a variety of purposes and it needs to be accurate and secure	• Be confident in all aspects of the school's online safety rules Use technology safely, respectfully and responsibly • Understand the responsibility of publishing on the Internet in terms of personal safety, appropriateness and relevance of content • Follow the school's online safety policy and help younger pupils to do so. • Be aware of the online safety rules when working from home and on mobile devices • Understand the need for a positive online profile in order to be a responsible member of a connected community • Understand the difference between sensitive and non-sensitive personal data. Understand the need for data to be accurate and secure.

Programming Coding and Controlling Devices (Computer Science)	Encourage the building blocks of computational thinking. E.g. with support, pupils can work collaboratively build the highest tower, or to work out the best way to negotiate climbing equipment. In role play, pupils can explore how programmable devices work, such as washing machines, mobile phones, microwaves, etc. Let children might play and tinker with programmable toys such as Bee-Bots. They will begin to find out	● Begin to understand that sets of instructions are needed to solve control problems (algorithms) e.g. to move a device from one place to another. Create a series of instructions to move their peers/devices around a course. Enter sequences in a programmable device such as a BeeBot. ● Understand that programs are executed by following precise and unambiguous instructions, known as code ● Begin to understand that simple programs or code can be created and then the code can be debugged or edited if necessary	● Understand that algorithms are a set of instructions that solves specific problems. Know they can be used to program digital or programmable devices by following instructions or code ● Create and write a program using precise and unambiguous instructions, understand that this is coding ● Create and debug simple code ● Use logical reasoning to predict the behaviour of simple programs or code	● Write simple algorithms to accomplish specific goals using a programmable device or object on screen ● Understand how a program may be broken down into smaller parts and that these are all part of the code ● Understand a program can be changed through the use of variables e.g. changing the number of steps or size of angle ● Use repeat and loop commands in code to achieve specific outcomes ● Understand how a program can control outputs, illustrate using a flowchart to show how everyday devices work	● Design, write and debug code that accomplishes a specific goal ● Understand the purpose of a procedure to shorten code writing ● Write code to create, test and edit a procedure and then combine procedures to produce effects. Understand the effect of changing values within a procedure. ● Understand how inputs can be used in coding to control outputs ● Understand that objects can be controlled by other conditional inputs, "if the object hits a wall then….", "If object touches another object then …."	● Debug some pre-prepared code to accomplish a specific goal, including controlling or simulating physical systems. ● Solve problems by decomposing code into smaller parts by using procedures and sub-procedures. ● Work with conditional commands and use various forms of input and output using onscreen sprites or a control box. ● Explain the function of the algorithm behind each part of the code	● Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems ● Work with variables, random variables, conditionals and various forms of input and output. ● Use logical reasoning to explain how some algorithms work and detect and correct errors.
Digital exploration (Digital Literacy and Computer Science)	about how to control these devices. Think of other activities they could do to sequence instructions and debug In cooking or making things	● Explore and share information from a variety of sources (including digital resources).	● Explore and share information from a variety of sources (including digital resources). ● Use the Internet to find answers to questions, following straightforward lines of enquiry	● Use the Internet safely to search and a find a range of information to answer questions ● Understand there might be a variation in results when different combinations of words are entered	● Pupils search for and use information from a range of sources and make judgements about its usefulness when following straightforward lines of enquiry	● Begin to use search technologies more effectively. ● Appreciate how results are selected. ● Begin to be discerning in evaluating digital content. ● Understand computer networks including the internet (the hardware; cabling, servers etc.)	Use search technologies effectively. Appreciate how results are selected and ranked. Be discerning in evaluating digital content. Understand computer networks, including the internet and mobile networks, and how they can provide multiple services such as the world wide web, SMS, 3G etc.

	– following a recipe . -building or copying a Lego model or bead pattern. In Role play, ask a friend to be a robot who must do exactly as they are 'programmed'. Use Playground markings – or chalk their own instructions and paths to move across the playground.		● Recognise common uses of technology beyond school.	into a search engine ● Begin to adapt questions based on search results ● Begin to understand the parts of a computer network internal to the school.	● Adapt questions based on search results ● Understand how to use search engines effectively by comparing the results when slightly different combinations of words are entered ● Begin to understand the parts of a computer network, both internal and external to the school.	and how it can provide multiple services such as the world wide web and email.	Understand that personal data is collected and may be used for a number of purposes.
Communicating and Collaborating (Digital Literacy)		● Know messages can be sent electronically. ● Show awareness that information online can be seen by others.	● Communicate their ideas with an invited group ●	● Share ideas responsibly with others using a range of tools. ● Compare and use different forms of communication, considering their advantages and disadvantages.	● Consider an intended audience and its implications when communicating. ● Use a greater range of tools to communicate and collaborate.	● Understand how their contributions in a connected community can reflect on their self-image.	Independently use previously learnt skills to choose, initiate and take part in learning activities by using responsibly a range of online communications. When communicating online, refine their use of layout tools, considering the intended audience.
Multimedia (Information Technology)		● Add text to graphics and use sound to communicate ideas.	● Create presentations for a specific audience ● Refine their presentations. ● Children publish and share work online such as Purple Mash, Google Classroom or through the school learning platform.	● Record and present information integrating an appropriate range of media for a given audience, combining text and graphics in a printable form. ● Know they can publish resources online to a given audience.	● Design and create their own multimedia projects showing awareness of appropriate design and layout for their intended audience. ● Know they can publish resources online to a given audience or to the wider world. Understand the need to ensure material is	● Plan a presentation, combined from a range of sources, organised and refined to suit purpose and audience	Communicate information having made choices about the appropriate medium, content and structure demonstrating an understanding of audience and purpose

				appropriate and copyright free. ●		
Digital Imagery (Information Technology)	● Using a variety of tools to create and manipulate an image (picture) ● Know they can use devices to capture still and video images.	● Retrieve digital content, evaluate and make improvements. ● Use tools to share their ideas, experiences and imagination.	● Select, manipulate and combine images using software to accomplish a task ● Take and manipulate digital images using a range of devices beginning to take account of moods or ideas when framing and editing a shot.	● Combine and evaluate digital images taking account of the audience ● Consider the quality of their work and their intended audience when creating animation, images or film.	● Combine and evaluate digital images from a variety of sources. ● Evaluate the difference between object based graphic packages (CAD) and paint packages ● Consider the quality of their work and their intended audience when creating animation, images or film.	Choose appropriate tools and techniques to create imagery for a specific task. Amend and combine digital images and movies from different sources for a specific audience or task.
Music and Sound (Information Technology)	● Know they can record sound using ICT that can be stored and played back ● Locate, listen to, play and begin to record sounds ● Use software to change the musical phrases they create.	● Begin to understand that adding music and or a sound can affect mood and atmosphere of their work ● Save, retrieve and add their own recorded sound to their presentations ●	● Understand that technology allows easy creation, manipulation and change. ● Select and use appropriate sound files to fit a given context. ● Know that sound files can be uploaded to the internet and shared across a wider audience.	● Use music technology individually or as a group to create, develop, amend and present their ideas. ● Understand that evaluation and improvement is a vital part of a creative process. ● Use technology to compose music or sounds including creating melodies ● Upload sound files to the internet to share with a wider audience.	● Select and use suitable software and hardware to produce a multi-track audio presentation. ● Begin to compose, manipulate and refine music and sound for a given audience or project. ● Use audio broadcasting tools to share their work with a wider audience. ● Understand their responsibility towards copyright issues.	Understand that a professional broadcast is made up of many parts and to identify key features of different broadcasts. Create music or soundtracks to accompany a story, multimedia presentation or digital movie considering specific audience and purpose (see Digital Media Unit).
Data Handling - Collecting, Analysing, Evaluating and Presenting	● Begin to understand that you can use software to represent data and	● Understand you can use graphing software to collect, illustrate, organise and classify data	● Understand that collecting and organising information using ICT makes it easier	● Understand the importance of entering data correctly ● Know that ICT can create different	● Model and set problem solving activities that require the children to carry out complex searches of databases	● Set up a database with appropriate fields in order to reach specific conclusions ● Understand the use of appropriate presentation to represent different types of

Data (Information Technology)		information on screen • Understand that tools can be used to sort and illustrate the data in different ways • By selecting appropriate tools they can create a graph or chart to answer questions.	• Use graph plotting tools to answer appropriate questions concerning the plotted data. • Understand the same data may be illustrated in a variety of ways.	to find answers to questions • Understand that ICT can be used to create pictograms, bar charts and tables that illustrate data for different purposes -using different scales with bar charts • Talk about their use of ICT and describe how it supports their learning • Know there is a variety of devices than can collect or capture data.	graph types for different purposes and some are more appropriate and easier to read than others • Understand the difference between a database and a spreadsheet. • Database = organisation of material; spreadsheet -= calculation).	• Develop independence in their use of data loggers and measuring Apps to investigate and interpret changes in a variety of conditions • Use a prepared database with anomalies and inaccuracies, model how to check for accuracy and plausibility • Use a spreadsheet to carry out calculations that require formulae.	data by the use of e.g. pie chart, bar chart or line graph • Become more familiar with database tools such as logical searches, sorts and filtering Understand how variables in a spreadsheet formula can be used to solve a problem • Use formulae within a spreadsheet to plan/model a variety of events • Plan and carry out how data from a data logger could be used to prove various hypotheses.