

Computer Science								
Elements		EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Understand what algorithms are; how they are implemented as programs on digital devices and that programs execute by following precise and unambiguous instructions	-Create and debug simple programmes.	When using technology, Offer explanations for why things might happen, making use of recently introduced vocabulary. (Speaking)	Can work out what is wrong with a simple algorithm when the steps are out of order.	Can create a simple programme that achieves a specific purpose. They can identify and correct some errors.				
	-Use logical reasoning to predict the behaviour of simple programmes.	Children can use basic programmable toys/programmes and predict what may happen e.g. will move forward/back.	Children can read code one line at a time and make good attempts to envision the bigger picture and overall effect of the programme.	Can identify the parts of a programme that respond to specific events and initiate specific actions.				
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, selection and repetition in programs; work with variables and various forms of input and output.				Demonstrate the ability to design and code a programme that follows a simple sequence. Experiment with timers to achieve repetition effects. Understand the difference of using a timer command rather than repeat.	Use timers to achieve repetition effects are becoming more logical and are integrated into their programme designs. Understand IF statements and combine with other coding. Understand variables to store information while a programme is executing, use and manipulate the value of variables.	Children can translate algorithms that include sequence, selection and repetition into code with increasing ease and their designs show that they are thinking of how to accomplish their task	Translate algorithms that include sequence, selection and repetition into code and their designs utilise such structures including nesting structures with each other. Coding displays an improved understanding of variables in coding e.g. sound/movement.
	Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.				Children's designs for their programmes show they are thinking of the structure in logical, achievable steps. Attempts to step through more complex code to identify errors in algorithms and correct.	Programme is completed in logical, achievable steps. They can trace code and use step-through methods to identify errors in code and make logical attempts to correct this. They can read programmes with several steps and predict the outcome.	They are beginning to think about their code structure in terms of the ability to debug and interpret the code later e.g. the use of tabs to organise code and the naming of variables.	Children are able to interpret a programme in parts and can make logical attempts to put the separate parts of a complex algorithm together and explain the programme as a whole.
	Understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration.				List a range of the ways that the internet can be used to provide different methods of communication e.g. emails, attaching files and how to communicate.	Children recognise the main component parts of hardware which allow computers to join and form a network. Understand online safety implications associated with ways the internet can be used to provide different methods of communication is improving.	Children understand the value of computer networks but are also aware of the dangers. They recognise what personal information is and can explain how this is kept safe. Children can select from most appropriate online communication.	Children understand and explain in some depth the difference between the internet and the World Wide Web. Children know what a WAN and LAN are and can describe how they access the internet in school.



Information Technology

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Use technology purposefully to create, organise, store, manipulate and retrieve digital content. 	Children begin to show accuracy and care when drawing, including on devices. (Expressive arts)	Children are able to sort, collate, edit and store simple digital content. Children can name, save and retrieve their work and follow simple instructions to access online resources.	Children demonstrate an ability to organise data using for example, a database and can retrieve specific data for conducting simple searches. Children are able to edit more complex digital data such as music compositions. Children are confident creating, naming, saving and retrieving content. Children use a range of media in their digital content including photos, text and sound.	Children can carry out simple searches to retrieve digital content. They understand that to do this, they are connecting to the internet and using a search engine.	Children understand the function, features and layout of a search engine. They can appraise selected webpages for credibility and information at a basic level.	Children search with greater complexity for digital content when using a search engine. They are able to explain in some detail how credible a webpage is and the information it contains.	Children readily apply filters when searching for digital content. They are able to explain in detail how credible a webpage is and the information it contains. They compare a range of digital content sources and are able to rate them in terms of content quality and accuracy. Children use critical thinking skills in everyday use of online communication.
Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programmes, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.				Children can collect, analyse and evaluate and present data and information using a selection of software including a branching database. Children can consider which software is appropriate for a given task. They can create appropriate content to attach to emails.	Children are able to make improvements to digital solutions based on feedback. Children make informed choices when presenting information and data. They create linked content using a range of software. Children share digital content within their community.	Children are able to make appropriate improvements to digital solutions based on feedback received and can confidently comment on the success of the solution e.g. create own pictogram. They objectively review solutions from others. Children are able to collaboratively create content and solutions using digital features within software such as collaborative mode. They are able to use several ways of sharing digital content.	Children make clear connections to the audience when designing and creating digital content. The children design and create their own blogs to become a content creator on the internet. They are able to use criteria to evaluate the quality of digital solutions and are able to identify improvements, making some refinements.

Digital Literacy

Recognise common uses of information technology beyond school. 	Children can talk about some of the technology they have at home and at school using prompts e.g. TV, computer.	Children understand what is meant by technology and can identify a variety of examples both in and out of school. They can make a distinction between objects that use modern technology and those that do not.	Children can effectively retrieve relevant, purposeful digital content using a search engine. They can apply their learning of effective searching beyond the classroom. Children make links between technology they see around them, coding and multimedia work they do in school e.g. animations, interactive code and pictograms.				
Use technology safely and respectfully, keeping personal information private: identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.	Give focused attention to what the teacher says, responding appropriately even when engaged in activity, and show an ability to follow instructions involving several ideas or actions. (Self regulation)	Children understand the importance of keeping information, such as usernames and passwords, private and actively demonstrate this in lessons. Children take ownership of their work and save this in their own private space.	Children know the implications of inappropriate online searches. Children begin to understand how things are shared electronically. They develop an understanding of using email safely and know ways of reporting inappropriate behaviours and content to a trusted adult.	Children demonstrate the importance of having a secure password and not sharing this with anyone else. Furthermore, children can explain the negative implications of failure to keep passwords safe and secure. They understand the importance of staying safe and the importance of their conduct when using familiar communication tools. They know more than one way to report unacceptable content and contact.	Children can explore key concepts relating to online safety using concept mapping. They can help others to understand the importance of online safety. Children know a range of ways of reporting inappropriate content and contact.	Children have a secure knowledge of common online safety rules and can apply this by demonstrating the safe and respectful use of a few different technologies and online services. Children implicitly relate appropriate online behaviour to their right to personal privacy and mental wellbeing of themselves and others.	Children demonstrate the safe and respectful use of a range of different technologies and online services. They identify more discreet inappropriate behaviours through developing critical thinking. They recognise the value in preserving their privacy when online for their own and other people's safety.