KNOWLEDGE SEQUENCING DOCUMENT – COMPUTING

	NATIONAL CURRICULUM / EARLY LEARNING GOALS			WHAT IS LEARNED – NATIONAL CURRICULUM BREAKDOWN		HOW WILL THEY LEARN THIS?	HOW DO WE KNOW IT HAS STUCK?
FS	There are no ELGs that relate directly to computing objectives. However, it is still expected that children will be introduced to appropriate technology and use it within their provision.						
KS1	Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.	POS The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work, and how…… *this knowledge enables programmers to create.*	1	Understand what algorithms are. Understand how algorithms are implemented as programs on digital devices.		Teacher Inputs Words of the Week Computing Lessons Portfolio Work Regular questioning Report writing	Children will be able to retain and recall most terminology. Evidence in children's work inc. portfolio.
			2	Understand what algorithms are. Understand how algorithms are implemented as programs on digital devices. Understand that programs execute by following precise and unambiguous instructions.			
KS2	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.		3	Understand the internet and the services and the opportunities they offer for communication and collaboration.		Use appropriate vocabulary from a Scaffolded Concept Sequencer in portfolio work	Children will be able to recall further taught information evidenced in work and learning walks inc. portfolio..
			4	Understand the internet and the services and the opportunities they offer for communication and collaboration. Understand other computer networks and the services and the opportunities they offer for communication and collaboration.			
			5	Understand the core of computing is computer science, the principles of which are: information and computation. Understand how digital systems work (including networks and the WWW), and how this knowledge enables programmers to create.			Children will be able to recall taught information evidenced in work and learning walks. They will write a detailed report showcasing breadth and depth of knowledge inc. portfolio..
			6	Understand the core of computing is computer science, the principles of which are: information and computation. Understand how digital systems work (including networks and the WWW), and how this knowledge enables programmers to create. Understand how this impacted the work of Turing and Jobs (linked with Art and Design).			

Scaffolded Concept Sequencer of words and phrases – what the children and staff need to know NOT LIMITED TO BUT ESSENTIAL IN ORDER TO COVER NC. Knowledge and understanding of these terms will enable children to articulate and answer questions based on 'What Is Learned above'.

	EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
Algorithms		First Introduced	Continually revisited and revised				
Program	First Introduced	Continually revisited and revised					
Digital Device	First Introduced	Continually revisited and revised					
Execute			First Introduced	Continually revisited and revised			
Precise			First Introduced	Continually revisited and revised			
Internet	First Introduced	Continually revisited and revised					
(Digital) Services				First Introduced	Continually revisited and revised		
(Digital) Communication				First Introduced	Continually revisited and revised		
(Digital) Collaboration				First Introduced	Continually revisited and revised		
Network (other than www)					First Introduced	Continually revisited and revised	
Computing						First Introduced	Continually revisited and revised
Computer Science						First Introduced	Continually revisited and revised
Information (Computer Science)						First Introduced	Continually revisited and revised
Computation (Computer Science)						First Introduced	Continually revisited and revised
Digital Systems (inc. Networks and the www)						First Introduced	Continually rivisited Synd revised.
Programmer						First Introduced	Continually revisited and revised
Content (posts, accounts, blog entries)						First Introduced	Continually revisited and revised
Turing				First Introduced	Continually revisited and revised		
Jobs				First Introduced	Continually revisited and revised		

Key

First Introduced
Concept yet to be introduced
Continually revisited and revised

APPENDIX II

Guidance for teachers to ensure appropriate knowledge of key terms and concepts.

Algorithm	**Year 1** An algorithm is an instruction for a digital device to follow. **Year 2** An algorithm is an instruction for a digital device to follow. A set of algorithms are used to create a program.
Program	**EYFS** A set of algorithms are used to create a program. **Year 1** A set of algorithms are used to create a program. Programs enable digital devices to carry out tasks, solve problems and answer questions. **Year 2** A set of algorithms are used to create a program. Programs enable digital devices to carry out tasks, solve problems, answer questions and operate robotics. Programs include: interactive websites and forms, apps, streaming and digital games.
Digital Device	**EYFS** An electronic device such as: laptop, computer, iPad, or tablet. **Year 1** An electronic device that can be used to create, generate, send, share, communicate, receive, store, display, or process information. **Year 2** An electronic device that can be used to create, generate, send, share, communicate, receive, store, display, or process information. Electronic devices include, but not limited to, desktops, laptops, tablets, mobile phones and televisions.
Execute	**Year 1** The process by which a digital device reads and acts on the instructions of a computer program. **Year 2** The process by which a digital device reads and acts on the instructions of a computer program. Each instruction of a program is a description of a particular action which must be carried out, in order for a specific problem to be solved.
Precise (Command)	**Year 1** Exactly as it is written. **Year 2** Exactly as it is written.
Internet	**EYFS** The Internet is a network that we can use for play and to enable us to search for facts. **Year 1** The Internet is a network, or system, that connects millions of computers worldwide.

	Year 2 The Internet is a network, or system, that connects millions of computers worldwide. People often use the Web as a part of their schoolwork or job. **Year 3** The Internet is a network, or system, that connects millions of computers worldwide. People often use the Web as a part of their schoolwork or job. They use search engines such as Google. **Year 4** The Internet is a network, or system, that connects millions of computers worldwide. People often use the Web as a part of their schoolwork or job. They use search engines such as Google to look for information on the Web. People also use the Web for entertainment such as films and games. **Year 5** The Internet is a network, or system, that connects millions of computers worldwide. People often use the Web as a part of their schoolwork or job. They use search engines such as Google to look for information on the Web. People also use the Web for entertainment such as films and games. The Internet is a vast network that connects computers all over the world. **Year 6** The Internet is a network, or system, that connects millions of computers worldwide. People often use the Web as a part of their schoolwork or job. They use search engines such as Google to look for information on the Web. People also use the Web for entertainment such as films and games. The Internet is a vast network that connects computers all over the world. Through the Internet, people can share information and communicate from anywhere in the world.
(Digital) Services	**Year 3** Digital Services are services which are delivered over the internet or an electronic network. Such as: games, websites, and streaming music. **Year 4** Digital Services are services which are delivered over the internet or an electronic network. Such as: games, e-books, cloud-based software, websites, and streaming music. **Year 5** Digital Services are services which are delivered over the internet or an electronic network and the nature of which renders their supply essentially automated. Digital services include: games, e-books, cloud-based software, websites, and streaming music. **Year 6** Digital Services are services which are delivered over the internet or an electronic network. They are essentially automated and involve minimal human intervention digital services include: games, e-books, cloud-based software, websites, and streaming music.
(Digital) Communication	**Year 3** Digital Communication is the electronic exchange of information which includes texts, email, social media, and video chat. **Year 4** Digital Communication is the electronic exchange of information which includes texts, email, social media, and video chat. Blogs, podcasts, and videos are also considered forms of digital communication.
(Digital) Collaboration	**Year 3** Digital collaboration occurs when people use digital technologies to work together. **Year 4**

	Digital collaboration occurs when people use digital technologies to work together. This is very different from traditional collaboration, it connects a broader network of participants who can accomplish much more than they would on their own
Network (other than www)	**Year 4** A digital network is created when two or more digital devices share data (information, resources, files, etc.). **Year 5** A digital network is created when two or more digital devices share data (information, resources, files, etc.). These networked digital devices use a system of rules, called communications protocols, to share information over physical or wireless technologies. **Year 6** A digital network is created when two or more digital devices share data (information, resources, files, etc.). These networked digital devices use a system of rules, called communications protocols, to share information over physical or wireless technologies. There are four main types of network: PAN: Personal Area Network – Airdrop, Casting. LAN: Local Area Network – home router WiFi WAN: Wide Area Network – Our School network with multiple routers MAN: Metropolitan Area Network – large areas and companies Apple Headquarters, California
Computing	**Year 5 and Year 6** The use of computers and digital devices to create, process, store, manipulate, secure and exchange all forms of electronic data.
Computer Science	**Year 5** Computer science is the study of computers and algorithmic processes. **Year 6** Computer science is the study of computers and algorithmic processes, including: hardware and software designs, their applications, and their impact on society.
Information (Computer Science)	**Year 5** When information is entered into and stored in a computer, it is generally referred to as data. **Year 6** When information is entered into and stored in a computer, it is generally referred to as data. After processing -- such as formatting and printing -- output data can again be perceived as information.
Computation (Computer Science)	**Year 5** Computation is any type of calculation that includes both arithmetical and non-arithmetical steps and which follows a well-defined model. **Year 6** Computation is any type of calculation that includes both arithmetical and non-arithmetical steps and which follows a well-defined model. Mechanical or electronic devices that perform computations are known as computers. An especially well-known discipline of the study of computation is computer science.
Digital Systems (inc. Networks and the www)	**Year 5** Digital system refers to elements such as hardware, software and networks and their use, such as: a mobile phone or television. **Year 6** Digital system refers to elements such as hardware, software and networks and their use, such as: a mobile phone or television. When digital systems are connected, they form a network. For example: a smartphone is a digital system

Programmer	**Year 5 and Year 6** A programmer is an individual that writes/creates computer software or applications by giving the computer specific programming instructions. These individuals are instrumental to the development of computer technology and the field of computing.
Content (posts, accounts, blog entries)	**Year 5 and Year 6** Content creators populate the sites/apps and other software created by programmers.
Turing	See Graduate Awards for computing, and Graduate Awards for Science.
Jobs	See Graduate Awards for computing, and Graduate Awards for Science.