Mellers Computing Curriculum

	Computer Science	Information Technology	Digital Literacy
Nursery	Knows how to operate simple equipment, e.g. turns on CD player and uses remote control. Shows an interest in technological toys with knobs or pulleys, or real objects such as cameras or mobile phones. Shows skill in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or new images. Knows that information can be retrieved from computers		
Founda	Completes a simple program on a computer. Uses ICT hardware to interact with age-appropriate computer software. **ELG: Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes.**		
Year 1	Children understand that an algorithm is a asset of instructions used to solve a problem or achieve an objective. They know that an algorithm written for a computer is called a program. Children can work out what is wrong with a simple algorithm when the steps are out of order and can write their own simple algorithm. Children know that an unexpected outcome is due to the code they have created and can make logical attempts to fix the code. When looking at a program, children can read code one line at a time and make good attempts to envision the bigger picture of the overall effect of the program.	Children are able to sort, collate, edit, retrieve and store dimple digital content	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 that use modern technology and those that do not. Children understand the importance of keeping information private and actively demonstrate this in lessons. Children take ownership of their work and save this in their own private space.
Year 2	Children can explain that an algorithm is a set of instructions to complete a task. When designing simple programs, they show an awareness of being precise with their algorithms so that they can be successfully converted into code. Children can create a simple program that achieves a specific purpose. They can identify and correct some errors. Children's program designs display a growing awareness of the need for logical programmable steps. Children can identify the parts of a program that respond to specific events and initiate specific actions.	Children demonstrate an ability to organise data and can retrieve specific data for constructing simple searches. Children are able to edit more complex digital data. Children are confident when creating, naming saving and retrieving content. Children use a range of media in their digital content.	Children know the implication 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 in appropriate behaviours and content to a trusted adult.
Year 3	Children can turn a simple real-life situation into an algorithm for a program by deconstructing it into manageable parts. Their design shows that they are thinking of the desired task and how this translates into code. Children can identify an error within their program that prevents it following the desired algorithm and then fix it. Children demonstrate the ability to design and code a program that follows a simple sequence. They experiment with timers to achieve repetition effects in their programs. Children are beginning to understand the difference in the effect of understanding a timer command rather than a repeat command. Children understand how variables can be used to store information while a program is executing. Children's designs for their programs show that they are thinking of the structure of a program in logical, achievable steps and absorbing some new knowledge of coding structures. They make good attempt to step through more complex code to identify errors and can correct this. They can 'read' programs with several steps and predict the outcome accurately	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 can collect, analyse, evaluate and present data and information using a selection of software. Children can consider what software is most appropriate for a given task. They can create purposeful content to attach to emails.	Children demonstrate the importance of having a secure password and not sharing this with anyone else. Children can explain the negative implications of failing 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.

Year 4	When turning a real-life situation into an algorithm, the children's design shows that they are thinking of the required task and how to accomplish this in code using coding structures for selection and repetition. Children make more intuitive attempts to debug their own programs. Children's use of timers to achieve repetition effects are becoming more logical and integrated into their program. They understand 'if' statements for selection and attempt to combine these with other coding structures including variables to achieve the effects that they design in their programs. As well as understanding how variables can be used to store information while a program is executing, they are able to manipulate the value of variables. Children can make use of use inputs and outputs. Children's designs for their programs show that they are thinking of the structure of a program in logical, achievable steps and absorbing some new knowledge of coding structures such as 'if' statements, repetition and variables. They can trace code and use step-through methods to identify errors in code and make logical attempts to correct. They can 'read' programs with several steps and predict the outcome accurately	Children understand the functions, features and layout of a search engine. They can appraise selected webpages for credibility and information at a basic level. Children are able to make improvements to digital solutions based on feedback. Children make informed software choices when presenting information and data. They create linked content using a range of software. Children share digital content within their community.	Children can explore the key concepts relating to online safety using concept mapping. The can help others to understand the importance of online safety. Children know a range of ways of reporting inappropriate content and conduct.
Year 5	Children can turn a simple real-life situation into an algorithm for a program by deconstructing it into manageable parts. Children are able to test and debug their programs as they go and can use logical methods to identify the approximate cause of any bug but may need support in identifying the specific line of code. Children can translate algorithms that include sequence, selection and repetition into code with increasing ease and their own designs show that they are thinking of how to accomplish the set task in code utilising such structures. They are combining sequence, selection, and repetition with other coding structures to achieve their algorithm design They are beginning to think about their code structure in terms of the ability to debug and interpret code later. Children understand the value of computer networks but are also aware of the main dangers. They recognise what personal information is and can explain how this is to be kept safe. Children can select the most appropriate form of online communications contingent on audience and digital content	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 that it contains. Children are able to make appropriate improvements to digital solutions based on feedback received and can confidently comment on the success of the solution. They objectively review solutions from others. Children are able to collaboratively create content and solutions using digital features within software. They are able to use several ways of sharing content.	Children have a secure knowledge of 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 well being of themselves and others.
Year 6	Children are able to turn a more complex programming task into an algorithm by identifying the important aspects of the task (abstraction) and then decomposing them in a logical way using their knowledge of possible coding structures and applying skills. Children test and debug their program as they go and use logical methods to identify the cause of the bugs, demonstrating a systematic approach to identify the particular line of code causing a problem. Children translate algorithms that include sequence, selection and repetition into code and their own designs show that they are thinking of how to accomplish a set task in code utilising such structures and nesting structures within each other. Coding displays and improving understanding of variables in coding, outputs such as sound and movement, inputs from the user of the program such as button clicks and the value of functions. Children are able to interpret a program in parts and can make logical attempts to put the separate parts of a complex algorithm together to explain the program as a whole. Children understand and can explain in depth the difference between the internet and the WWW. Children know what LAN and WAN are and can describe how they access the internet in school.	Children readily apply filters when searching digital content. They are able to explain in detail how credible in a webpage is and the information it contains. They compare a range of digital content sources and are able to create them in terms of content quality and accuracy. Children use critical thinking skills in everyday use of online communication. 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 to quality of digital situations and are able to identify improvements, making some refinements.	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.