

Year 8 Computing					
	Embarking	Emerging	Developing	Securing	Mastering
Algorithms	<ul style="list-style-type: none"> I know that algorithm design can be put into different programming languages. 	<ul style="list-style-type: none"> I know that programming bridges the gap between algorithmic solutions and computers. 	<ul style="list-style-type: none"> I can explain and show how algorithms can use selection (if), repetition (loops), procedures (sub- programs within an algorithm). 	<ul style="list-style-type: none"> I know how to design criteria to critically evaluate the quality of solutions and I can use the criteria to identify improvements and can make appropriate refinements to the solution. 	<ul style="list-style-type: none"> I can distinguish between an algorithm and programs that implement that algorithm. I can explain how the choice of an algorithm should be influenced by the data.
Programming	<ul style="list-style-type: none"> I know the effect of the scope of a variable e.g. a local variable cannot be accessed from outside its function. I know the difference between, and I can use if and if, then and else statements. I am able to code, test and debug computer programs. 	<ul style="list-style-type: none"> I can design, write and debug modular programs using procedures. I know how to distinguish between data used in a simple program (a variable) and the storage structure for that data. 	<ul style="list-style-type: none"> I know that programming bridges the gap between algorithmic solutions and computers. I can select the appropriate data types. I know and I can use negation, operators and I can find and correct syntax errors. 	<ul style="list-style-type: none"> I am able to develop flowcharts and algorithms which I can use to develop programs. I know the difference between, and can use appropriately if and if, then and else statements. I can use mathematical operators: *, x, +, - in a program. 	<ul style="list-style-type: none"> I can explain and show how programs can be planned, tested and corrected and documented. I can explain and use programming concepts such as selection, repetition, procedures, constants, variables, relational operators, logical operators and functions.
Computing Resources, Data and Information	<ul style="list-style-type: none"> I can describe the different types of devices needed for connecting computers to networks. I can explain the effects of the development of technology to communities and job opportunities. I can explain how data is represented as ones and zeros in the computer. 	<ul style="list-style-type: none"> I know the hardware associated with networking computer systems, including WANs and LANs. I know their purpose and how they work, including MAC addresses. I am able to explain why some applications may require that the computers be upgraded. I can convert numbers from decimal to binary. 	<ul style="list-style-type: none"> I am aware of the different types of operating systems and can explain where each one is used. I am aware of different types of storage devices and I am able to explain where each one can be used. I know that poor quality data leads to unreliable results, and inaccurate conclusions. 	<ul style="list-style-type: none"> I know how to justify the choice of and independently combine and I use multiple digital devices, internet services and application software to achieve given goals. Explain how computers represent all data in binary, with a variety of examples: unsigned integers, text representation (e.g. ASCII), different sound file data/types, and different graphics data/file types. 	<ul style="list-style-type: none"> I know the hardware associated with networking computer systems, including WANs and LANs. I know their purpose and how they work, including MAC addresses. I can tell how data is represented using the hexadecimal method and know why the hexadecimal system is used. I know the reason why characters are coded using the ASCII and other coding systems. I know how to perform simple operations using bit patterns e.g. binary addition.
Communication, Social Networks and the Internet	<ul style="list-style-type: none"> I can describe the dangers and benefits brought about by online banking and online shopping and know why it is important to keep personal information safe and secure. I can describe the dangers of viruses, malware and cookies and I am aware of the dangers they pose to internet users. 	<ul style="list-style-type: none"> I am able to use Internet facilities of various social networks to report suspected abusers. I am able to setup my social networking applications so that they are secure from external access. 	<ul style="list-style-type: none"> I am able to explain the benefits of data encryption. I can explain why there is need for software licensing and know that I should never use copyrighted material without permission. I am able to set my internet browser to privacy and can block and delete cookies. I am also aware that cookies are used to track internet activities 	<ul style="list-style-type: none"> I know how to explain and justify how the use of technology impacts on society, from the perspective of social, economic, political, legal, ethical and moral issues. I know the ethical issues surrounding the application of information technology, and know of legal frameworks governing its use e.g. DPA, CMA, Copyright. 	<ul style="list-style-type: none"> I can perform more complex searches for information e.g. using Boolean and relational operators. I can discuss social and ethical issues raised by the role of computers in the world. I know that persistence of data on the internet requires careful protection of online identity and privacy.