

Department:	Computing
Scheme of Learning Number:	1
Scheme of Learning Title:	Hardware, software, Binary, Logic Gates and Truth Tables
Key Learning:	<p>Students are to be able to explain the differences between hardware and software. Students must reflect on their time when they took apart the computers and revise the area to enable them to identify the different components and their functions.</p> <p>Students identify peripheral devices as input and output devices and how they work with the processor. Students identify how different devices have been developed to aid students with disabilities.</p> <p>Students will learn the sizes of data in bits. They will learn to convert between binary, decimal and hexadecimal number systems. Students will learn to use binary code and how to read an ASCII table to create coded messages to decipher.</p> <p>Students will then begin problem solving through the use of logic gates, and relating them to circuits and how to transfer them to truth tables. They will learn how to use Boolean logic and how to use all operators.</p>
Assessment:	Assessment will be an online assessment which will include multiple choice questions, scenarios and comparisons at the end of the scheme of learning. Students will be assessed throughout the project, through marking, peer assessment and self-assessment.
Key Words:	<p>Input – data being sent to the computer</p> <p>Output – data being transferred out of the computer</p> <p>Hardware – physical components of a computer or electronic system</p> <p>Software – the programs and other operating information used by a computer</p> <p>Binary code - system of representing numbers, letters, commands, images and sounds on a computer. It uses only two types of information to do this – 1 and 0</p> <p>Bit - A bit (short for binary digit) is the smallest unit of data in a computer. A bit has a single binary value, either 0 or 1.</p> <p>Byte - is a unit of digital information that most commonly consists of eight bits</p> <p>Logic gate - is an elementary building block of a digital circuit. Most logic gates have two inputs and one output</p> <p>Truth table - is a mathematical table used in logic, and helps us to understand the behaviour of logic gates. The table will show all the different possible input combinations and their outputs.</p>
Useful Websites:	<p>http://www.bbc.co.uk/schools/gcsebitesize/ict/datacomm/</p> <p>http://games.penjee.com/binary-bonanza/</p> <p>http://forums.cisco.com/CertCom/game/binary_game_page.htm</p> <p>http://www.bbc.co.uk/schools/gcsebitesize/design/electronics/logicrev2.shtml</p> <p>http://www.bbc.co.uk/education/guides/zc4bb9q/revision/2</p>
Ways to Support Your Child at Home:	<p>If you have a broken old computer, ask your child to take it apart and show you what they have learnt. Relate the importance of computing in the real world.</p> <p>Do you use computers in your job? What for?</p> <p>Ask them to show you what binary code is, if they can explain and show you some examples you can play a couple of the games above.</p>