

Subject: ICT & Computing		Year Group: 8
<b>Term 1 Key Focus/Topic(s)</b> Networking – E-Safety, Using computers and the Internet <ol style="list-style-type: none"> <li>1. E-Safety</li> <li>2. Internet and Web Browsers</li> <li>3. Network Security</li> </ol>	<b>Term 2 Key Focus/Topic(s)</b> Networking – E-Safety, Using computers and the Internet cont'd. <ol style="list-style-type: none"> <li>4. Domains and IP</li> <li>5. Network Protocols</li> <li>6. Assessment</li> </ol>	<b>Term 3 Key Focus/Topic(s)</b> Data Representation <ol style="list-style-type: none"> <li>1. Recall binary and denary conversion</li> <li>2. Addition of two binary numbers and understand the term overflow error</li> <li>3. Use and purpose of ASCII and Unicode character sets</li> </ol>
<b>Term 1 Assessment Opportunities:</b>  Self, peer, teacher and end of unit assessment.	<b>Term 2 Assessment Opportunities:</b>  Self, peer, teacher and end of unit assessment.	<b>Term 3 Assessment Opportunities:</b>  Self, peer, teacher and end of unit assessment.
<b>Term 4 Key Focus/Topic(s)</b> Data Representation cont'd. <ol style="list-style-type: none"> <li>4. How images are stored on a computer – relationship between resolution, colour, depth and file size</li> <li>5. Recap terms 'Base 2' and 'Base 10' number systems – apply understanding to the use of Hexadecimal (base 16)</li> <li>6. Assessment</li> </ol>	<b>Term 5 Key Focus/Topic(s)</b> Networking Cryptography (Self Led) <ol style="list-style-type: none"> <li>1. Encryption</li> <li>2. Caesar Cipher</li> <li>3. Hashing</li> </ol>	<b>Term 6 Key Focus/Topic(s)</b> Networking Cryptography (Self Led) cont'd. <ol style="list-style-type: none"> <li>4. Decoding Ciphers</li> <li>5. Encryption ethics</li> <li>6. Assessment</li> </ol>
<b>Term 4 Assessment Opportunities:</b>  Self, peer, teacher and end of unit assessment.	<b>Term 5 Assessment Opportunities:</b>  Self, peer, teacher and end of unit assessment.	<b>Term 6 Assessment Opportunities:</b>  Self, peer, teacher and end of unit assessment.

**Rationale:**

This Scheme of Work has been developed to fit in with the current National Curriculum for Computer Science, as well as preparing students for KS4 and beyond. It is designed to be taught in one lesson a fortnight, throughout Year 8, but many topics can be readily adapted. The Scheme of Work will enable students to understand and play an active role in the digital world that surrounds them, not to be passive consumers of an opaque and mysterious technology!

The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work and how to put this knowledge to use through programming. Building on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems and a range of content. Computing also ensures that pupils become digitally literate – able to use, and express themselves and develop their ideas through, information and communication technology – at a level suitable for the future workplace and as active participants in a digital world.

**Evaluation:**

The assessment framework is based on a tiered system, with students trying to 'tick off' the criteria in each box by the end of the Key Stage. The units have been designed to allow students to progress across the Key Stage. It works based on six strands of computing (Computational Thinking, Programming, Data Representation, Computers, Networking and IT), and each strand is covered in one unit of work. Students will be assessed at the end of each unit with gap analysis being carried out and the results used to evaluate students' performance and progress, with the findings being used to inform future planning.

There will be opportunities built in to allow for, self, peer and teacher assessment that will ensure that all pupils:

- can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- are responsible, competent, confident and creative users of information and communication technology