



Topic Name	Term	Skills Developed	Next link in curriculum	Other Notes
NEA Programming Project (continued)	Autumn 1	<ul style="list-style-type: none">• Independent NEA project.• Analyse, design, implement, test and evaluate a system developed for a real end user to fulfil a specific need.		Links to Prior Learning: Y10 Algorithms Y12 Programming Techniques Y11 Creating Robust Programs Y12 Computational Thinking Y12 Data Structures and Algorithms
Exchanging Data	Autumn 2 / Spring 1	<ul style="list-style-type: none">• Compression – Lossy/lossless/ comparison of lossless algorithms.• Encryption – Caesar (substitution) ciphers, transposition ciphers, Vernam cipher.• Symmetric vs Asymmetric Encryption.• Hashing		Links to Prior Learning: Y10 – Storage / Representing Data Y10 Programming Fundamentals (SQL elements) Y11 – Network Security
Data Types and Boolean Logic	Autumn 2 / Spring 1	<ul style="list-style-type: none">• Binary number representation – positive and negative – Sign and magnitude / twos complement.• Floating point / normalisation• Bitwise manipulation.• Character Sets• Boolean algebra• Simplification of expressions.		Links to Prior Learning: Year 11 – Boolean Logic (Spring 2) Year 10 – Data Representation (Spring 1)



		<ul style="list-style-type: none">• <i>Boolean algebra laws.</i>		
<i>Social / Legal / Ethical / Cultural Aspects</i>	<i>Spring 2</i>	<ul style="list-style-type: none">• Computer related legislation.• Moral, social, ethical and cultural issues in computing with areas such as AI, Automation, privacy, censorship.		Links to Prior Learning: Y11 – Social Ethical Legal Factors (Autumn 1)