

| Curriculum Content Map | | | Subject: Y13 Computer Science | | | | | | | | | | |
|-----------------------------|----------------------------------|---|--|---|---|---|---|---|---------------------|---|------------------------|--|------|
| Units of Work | Month | Term 1 | | | | | Term 2 | | | | Term 3 | | July |
| | | September | October | November | December | January | February | March | April | May | June | | |
| Substantive Knowledge | The What! | 2.2 Problem solving and programming 2.2.1 Programming techniques 2.2.2 Computational methods | 2.3 Algorithms Efficiency of algorithms (Big O). Complexity of algorithms Algorithms for the main data structures. Standard algorithms | 1.1 Characteristics of processors 1.1.1 Structure and function of the processor. 1.1.2 Types of processor 1.1.3 Input, output and storage | 1.2 Software Development 1.2.1 Systems software. 1.2.2 Applications 1.2.3 Software development 1.2.4 Types of programming language | 1.3 Exchanging Data 1.3.1 - Compression, encryption and hashing 1.3.2 Databases 1.3.3 Networks 1.3.4 Web technologies | | | | Revision | | | |
| Disciplinary knowledge | The How! | Students will learn how to use IDEs and how to programme using Object Oriented Programming (OOP) Students will spend 2 lessons per week focused on their programming project: Analysis section. | Students will learn how to apply the key algorithms, including how to assign a Big O notation. Students will spend 2 lessons per week focused on their programming project: Analysis section. | Students will identify suitable hardware to choose for given scenarios. Students will spend 2 lessons per week focused on their programming project: Design section. | Students will learn how to programme using the Little Man Computer assembly language set. Students will spend 2 lessons per week focused on their programming project: Design section. | Students will learn how to search for data using SQL statements. Students will be able to use basic HTML. Students will spend 2 lessons per week focused on their programming project: Implementation section. | Students will spend 2 lessons per week focused on their programming project: Testing and evaluation sections. | Students will be given a series of exam questions to build on their exam technique ahead of their summer exam. | | | | | |
| Sequencing (Flow) | Retrieval & Extension | <u>Builds on</u> Students will build on their knowledge and skills of programming developed in Year 12. <u>Further Developed in</u> These skills will be applied in the implementation stage of their project. | <u>Builds on</u> Students will build on their knowledge and skills of programming developed in Year 12. <u>Further Developed in</u> Students will cover these skills in their revision for their final exams. | <u>Builds on</u> Students will build on their initial studies of this unit in Year 12. <u>Further Developed in</u> Students will cover these skills in their revision for their final exams. | <u>Builds on</u> Students will build on their initial studies of this unit in Year 12. <u>Further Developed in</u> Students will cover these skills in their revision for their final exams. | <u>Builds on</u> Students will build on their initial studies of this unit in Year 12. <u>Further Developed in</u> Students will cover these skills in their revision for their final exams. | <u>Builds on</u> Students will build on their initial studies of this unit in Year 12. <u>Further Developed in</u> Students will cover these skills in their revision for their final exams. | <u>Builds on</u> Students will build on their initial studies of this unit in Year 12. <u>Further Developed in</u> Students will cover these skills in their revision for their final exams. | | All topics covered in the course will be revisited in preparation for summer exams. | | | |
| Summative Assessment | | | | AP1 Mocks | | AP2 Mocks | | AP3 Mocks | | | Exams 13th & 24th June | | |
| Personal Empowerment | Virtue | Friendliness & Civility | Justice & Truthfulness | Courage | Generosity | Gratitude | Good Speech | Good Temper & Humour | Self-Mastery | | Compassion | | |
| | Link to Virtue | <i>The opportunity to reflect, think deeply and critically about an issue.</i> Students will demonstrate friendliness and civility as they support one another to use the programming techniques. | Students will explore the truth about which algorithms are the most efficient. | Students will demonstrate courage as they revise a topic that they found challenging in Year 12. | Students will demonstrate the generosity of IT companies in providing utility programs to maximise user experience. | Students will demonstrate gratitude for the use of computers to store and exchange data. | Students will demonstrate good speech as they provide verbal feedback on databases created by their peers. | TBC | TBC | | TBC | | |
| Preparation for Work | Skill | Listening | Leadership | Problem-Solving | Creativity | Staying Positive | Speaking | Staying Positive | Aiming High | | Speaking | | |
| | Link to Skill | Students will listen to support provided by their peers while attempting new programming techniques. | Students will demonstrate leadership in justifying their choice of algorithms. | Students will problem solve as they design their programming project algorithms. | Students will demonstrate creativity as they develop their prototype programs. | Students will stay positive as they create their code for their projects. | Students will be able to provide clear verbal feedback to their peers as they help to test each other's programs. | TBC | TBC | | TBC | | |
| Preparation for Citizenship | SMSC & British Values | BV - Mutual Respect | SMSC - Cultural | SMSC - Cultural | BV - Individual Liberty | BV - Rule of law | | TBC | TBC | TBC | TBC | | |
| | Link to SMSC & British Values | The tools of IDEs to support programmers will be explored. | Students will explore the cultural impact of algorithms. | Students will develop an increased understanding of processor operations. | The range of tools available for a wide range of purposes will be explored. | Laws relating to the exchange of data will be explored. | | TBC | TBC | TBC | TBC | | |

British Values
Democracy
Rule of Law
Individual Liberty
Mutual Respect
Tolerance

SMSC
Spiritual
Moral
Social
Cultural