mv 16

Learning Cycle Year 1	Knowledge and Skills	Vocabulary	Checking of understanding	Rationale
Autumn Term	Unit 1- Structure and function of the processor. Unit 2 -Types of processor Unit 3- Input, Output and storage devices Unit4- Operating Systems systems software Unit 5- Application generation(a)(b)(c)(d) Unit 6- Software development Unit 13(a)- Data Types Unit 15- Boolean Algebra **How to code with Python** Introductory lesson – basic skills Data types – simple conversions between types Strings – basic string manipulation with user input and output Programming Constructs -Sequence -Selection -Iteration -do while challenges are also available on each topic, each week	**Vocab and reading** Student to complete Key Reading task 1 -9 (refer to subject handbook reading tracker) **Do Now Activity** Each Lesson to end with a five questions knowledge check/become the DO NOW activity at the beginning of the next lesson. **Weekly:** Programming practical testing Programming theory **Fortnightly:** Knowledge Check Class tests Glossary of terms presented in e-format. **PLC** Students will also keep a selftracking sheet in their folders recording their understanding of individual subject criteria.	Weekly Homework's Key reading Test 1 Test 2 Folder checks Feedback Paired work	Many of the ideas and concepts covered in this part of the course will be familiar to those students who have studied Computer Science at GCSE, it combines in-depth theoretical knowledge with a large body of more practical programming requirements. It builds the foundation of theoretical and practical skills. Programming is considered as a priority and it starts from week two with basic skills in Python programming and which enables to move on to the more powerful object-oriented methodologies. We aim to equip students to use computational thinking and creativity to understand and change the world. In computer science students are taught the principles of Data, information and computation, how digital systems work, and how to put this knowledge to use through programming. Armed with this knowledge and understanding, students are equipped to use IT to create programs, systems, games and a range of content. Computing also ensures that students 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.
Spring Term	Unit 6- Software development Unit 7/8- Types of Programming languages	**Vocab and reading** Student to complete Key	Weekly Homework's Key reading	Theory of programming and move on to a lengthy section on web technologies including programming skills with the

	Unit 9 – Compression, encryption and hashing Unit 10- Databases Unit 11- Networks Unit 12- Web technologies Unit 17 – Moral and Ethical Issues **Further Development of Python skills** • Arrays –1D and 2D •Random numbers (including use of external libraries) • Reading from a file Writing to a file • Functions and Procedures Data structures: tuples, lists, stacks, queues, records	Reading task (refer to subject handbook reading tracker) • **Do Now Activity** Each Lesson to end with a five questions knowledge check/become the DO NOW activity at the beginning of the next lesson. **Weekly:** Programming practical testing Programming theory. **Fortnightly:** Knowledge Check Class tests Glossary of terms presented in e-format. **PLC** Students will also keep a self-tracking sheet in their folders recording their understanding of individual subject criteria.	Test 1 Test 2 Folder checks Feedback More independent programming learning Paired programming is also encouraged at this stage to increase knowledge throughout the classroom. Exam techniques in the essay style exam questions	introduction of JavaScript. The HTML and CSS elements like to link with the need to build accessible websites by many businesses and organisations. Students will learn the moral implications behind doing so and then we move on to Moral and ethical issues and networks. Students will have had some exposure to the basic concepts of computer networks at KS4, through the use of the school's local area network and their experience of using the Internet and connecting phones and tablets to WiFi at home and out and about.
Summer Term	Unit 13- Data Types Unit 14- Data Structures Unit 16-Computer related legislation Programming Challenges Object Oriented programming Planning for NEA assessment.	**Vocab and reading** Student to complete Key Reading task (refer to subject handbook reading tracker) **Do Now Activity** Each Lesson to end with a five	Weekly Homework's Key reading Test 1 Test 2 Folder checks Feedback Assessment using variety of online tools	During summer term data types and structures is the final, non-programming unit covered in the year. The final parts overlap well with the move to object-oriented techniques in our programming sessions. The topic of OOP is looked at in great detail both theoretically and practically as it makes up such an important part of both exams. This then leads us into the NEA preparation weeks where again, OOP is prominent.

	Completion of first section of project	questions knowledge check/become the DO NOW activity at the beginning of the next lesson. **Weekly:** Programming practical testing Programming theory **Fortnightly:** Knowledge Check Class tests Glossary of terms presented in e-format. **PLC** Students will also keep a self-tracking sheet in their folders recording their understanding of individual subject criteria		During this term students introduced to NEA as a whole and digs deeper into the practical aspects of what we will be doing, It all builds towards summer work that students can carry out ready for the NEA project in September.

Learning Cycle	Knowledge and Skills	Vocabulary	Checking of understanding	Rationale
Autumn Term	Unit 18- Thinking abstractly Unit 19- Thinking ahead Unit 20- Thinking procedurally Unit 21- Thinking logically Unit 22- Thinking concurrently Unit 23- Programming Techniques Unit 24-Computational methods NEA assessment.	• **Vocab and reading** Student to complete Key Reading task (refer to subject handbook reading tracker) • **Do Now Activity** Each Lesson to end with a five questions knowledge check/become the DO NOW activity at the beginning of the next lesson. • **Weekly:** Programming practical testing Programming theory • **Fortnightly:** Knowledge Check Class tests Glossary of terms presented in e-format. • **PLC** Students will also keep a selftracking sheet in their folders recording their understanding	• Weekly tasks • Key reading • Test 1 • Test 2 • NEA Folder checks • Feedback Exam technique becomes more apparent using past exam papers and other revision resources. k initial questions. Support is also on offer in Achieve sessions. Mock Exams-both papers	Students will have had some knowledge to the basic concepts of computational thinking at KS4 Some of these concepts will have been introduced during programming and completing the programming project at KS4. Approaching these topics from a theoretical perspective will be enhanced by having this practical experience in NEA. Students choose their own NEA industry standard project. It involves the programming and computational thinking that required to work well as a software developer in the computing industry. In order to complete their

		of individual subject criteria		project students use a specialist software in the Computer Science classroom or in a private study area.
Spring Term	Unit 25/26-Algorithms (a)(b)(c) NEA – Assessment Unit 25/26-Algorithms(d)(e)(f) NEA Final week and Hand in	**Vocab and reading** Student to complete Key Reading task (refer to subject handbook reading tracker) • **Do Now Activity** Each Lesson to end with a five questions knowledge check/become the DO NOW activity at the beginning of the next lesson. • **Weekly:** Programming practical testing Programming theory • **Fortnightly:** Knowledge Check Class tests Glossary of terms presented in	• Weekly tasks • Key reading •Exams for both papers • NEA Folder checks • Feedback Exam technique becomes more apparent using past exam papers and other revision resources. Exam technique becomes more involved, building especially towards the trial exams. k initial questions. Support is also on offer in Achieve sessions.	NEA work continues and comes to its conclusion. During this term algorithms section is taught and spread over a number of weeks

		e-format. • **PLC** Students will also keep a self-tracking sheet in their folders recording their understanding of individual subject criteria		
Summer Term		• **Vocab and reading** Student to complete Key Reading task (refer to subject handbook reading tracker) • **Do Now Activity** Each Lesson to end with a five questions knowledge check/become the DO NOW activity at the beginning of the next lesson. • **Weekly:** Programming practical testing Programming theory • **Fortnightly:** Knowledge Check Class tests Glossary of terms presented in e-format. • **PLC** Students will also keep a self-tracking sheet in their folders recording their understanding	• Weekly Homework's • Key reading • Test 1 • Test 2 • Folder checks • Feedback • CS Key Terms Exam technique becomes more apparent using past exam papers and other revision resources. k initial questions. Support is also on offer in Achieve sessions.	Revision plan is given with some flexibility depending on student needs. Building revision resources for each topic discussing key terminology, focus on in terms of understanding and how that should translate into answering exam questions.

		of individual subject criteria		