CURRICULUM SUMMARY - Computing

YEAR 7 - Computing

TERM 1	TERM 2	TERM 3
CONTENT • E-Safety • Binary	CONTENT • Spreadsheets • Storage devices and computers	CONTENT • Control Systems • Algorithmic thinking
ASSESSMENTS • Presentation • Online testing	ASSESSMENTS • Online testing	ASSESSMENTS • Online testing
HOW PARENTS CAN SUPPORT LEARNING • Discussion around E-safety issues • Check homework is completed • Support pupils with written work • Rehearse presentations	HOW PARENTS CAN SUPPORT LEARNING • Check homework is completed • Support pupils with written work	HOW PARENTS CAN SUPPORT LEARNING • Check homework is completed • Support pupils with written work

YEAR 8 - Computing

TERM 1	TERM 2	TERM 3
CONTENT • Block based programming	CONTENT • Programming with micro:bit – text based programming	CONTENT • Programming in Python
ASSESSMENTS • Evaluation of programme • Evidence • Online testing	ASSESSMENTS • Evaluation of programme • Evidence • Online testing	ASSESSMENTS • Evaluation of programme • Evidence • Online testing
HOW PARENTS CAN SUPPORT LEARNING • Check homework is completed • Support pupils with written work	HOW PARENTS CAN SUPPORT LEARNING • Check homework is completed • Support pupils with written work	HOW PARENTS CAN SUPPORT LEARNING • Check homework is completed • Support pupils with written work

YEAR 9

TERM 1	TERM 2	TERM 3
CONTENT • **Computational thinking** • **Programming literacy** • **Data types** • **Variables and Constants** • **Selection**	**CONTENT** • Sequencing • Iteration • Subroutines • Error trapping	**CONTENT** • **Algorithms** • **Flowcharts** • **Pseudocode**
ASSESSMENTS • **Online tests** • **Functionality checks of programmes (does it work and do what it was supposed to do).** • **Peer assessment**	**ASSESSMENTS** • **Online tests** • **Functionality checks of programmes (does it work and do what it was supposed to do).** • **Peer assessment**	**ASSESSMENTS** • **Online tests** • **Functionality checks of programmes (does it work and do what it was supposed to do).** • **Peer assessment**
HOW PARENTS CAN SUPPORT LEARNING • **Check homework is completed** • **Support pupils with written work** • **Ensure pupils have access to a computer with Python installed and web access, so online resources can be used.** • **Give pupils encouragement to get past the inevitable struggles and failures inherent in programming.**	**HOW PARENTS CAN SUPPORT LEARNING** • **Check homework is completed** • **Support pupils with written work** • **Ensure pupils have access to a computer with Python installed and web access, so online resources can be used.** • **Give pupils encouragement to get past the inevitable struggles and failures inherent in programming.**	**HOW PARENTS CAN SUPPORT LEARNING** • **Check homework is completed** • **Support pupils with written work** • **Ensure pupils have access to a computer with Python installed and web access, so online resources can be used.** • **Give pupils encouragement to get past the inevitable struggles and failures inherent in programming.**

YEAR 10 – Computer Science GCSE AQA 8525

TERM 1	TERM 2	TERM 3
CONTENT • Computational thinking • Algorithms • Flowcharts • Pseudocode • Programming literacy • Logic circuits • ROM and RAM • Different programming languages • Binary • Hexadecimal	**CONTENT** • Data structures • Trees and Huffman coding • Understanding search and sort algorithms • Algorithm efficiency • Testing code • Computer system's architecture • Von Neumann • Networks • Embedded systems • Memory ROM & RAM • Secondary storage • Flowcharts • Pseudocode • Programming literacy	**CONTENT** • Fetch-execute cycle • Encryption • System security • Social engineering and cyber security • Ethics, the law and environment • Software and its development • Algorithms • Flowcharts • Pseudocode • Programming literacy • Databases
ASSESSMENTS • Online tests • Functionality checks of programmes (does it work and do what it was supposed to do). • Peer assessment	**ASSESSMENTS** • Online tests • Functionality checks of programmes (does it work and do what it was supposed to do). • Peer assessment	**ASSESSMENTS** • Online tests • Functionality checks of programmes (does it work and do what it was supposed to do). • Peer assessment
HOW PARENTS CAN SUPPORT LEARNING • Check homework is completed • Support pupils with written work • Ensure pupils have access to a computer with Python installed and web access, so online resources can be used. • Give pupils encouragement to get past the inevitable struggles and failures inherent in programming.	**HOW PARENTS CAN SUPPORT LEARNING** • Check homework is completed • Support pupils with written work • Ensure pupils have access to a computer with Python installed and web access, so online resources can be used. • Give pupils encouragement to get past the inevitable struggles and failures inherent in programming.	**HOW PARENTS CAN SUPPORT LEARNING** • Check homework is completed • Support pupils with written work • Ensure pupils have access to a computer with Python installed and web access, so online resources can be used. • Give pupils encouragement to get past the inevitable struggles and failures inherent in programming.

YEAR 11 – Computer Science GCSE AQA 8525

TERM 1	TERM 2	TERM 3
CONTENT • **Algorithms** • **Flowcharts** • **Pseudocode** • **Programming literacy** • **Data structures** • **Trees and Huffman coding** • **Understanding search and sort algorithms** • **Algorithm efficiency** • **Testing code** • **Computer system's architecture** • **Von Neumann** • **Networks** • **Embedded systems** • **Memory ROM & RAM** • **Secondary storage**	**CONTENT** • **Revision and preparation for final exam.** • **Consolidation of programming knowledge.** • Fetch-execute cycle • Encryption • System security • Social engineering and cyber security • Ethics, the law and environment • Software and its development • Algorithms • Flowcharts • Pseudocode • Programming literacy • Databases	**CONTENT** • **Preparation for final exam**
ASSESSMENTS • **Online tests** • **Functionality checks of programmes (does it work and do what it was supposed to do).** • **Peer assessment**	**ASSESSMENTS** • **Online tests** • **Functionality checks of programmes (does it work and do what it was supposed to do).** • **Peer assessment**	**ASSESSMENTS** • **Online tests** • **Functionality checks of programmes (does it work and do what it was supposed to do).** • **Peer assessment**
HOW PARENTS CAN SUPPORT LEARNING • **Check homework is completed** • **Support pupils with written work** • **Ensure pupils have access to a computer with Python installed and web access, so online resources can be used.** • **Give pupils encouragement to get past the inevitable struggles and failures inherent in programming.**	**HOW PARENTS CAN SUPPORT LEARNING** • **Check homework is completed** • **Support pupils with written work** • **Ensure pupils have access to a computer with Python installed and web access, so online resources can be used.** • **Give pupils encouragement to get past the inevitable struggles and failures inherent in programming.**	**HOW PARENTS CAN SUPPORT LEARNING** • **Check homework is completed** • **Support pupils with written work** • **Ensure pupils have access to a computer with Python installed and web access, so online resources can be used.** • **Give pupils encouragement to get past the inevitable struggles and failures inherent in programming.**

YEAR 12 – Computer Science A-Level AQA 7517

TERM 1	TERM 2	TERM 3
CONTENT • Programming literacy • Algorithms • Flowcharts • Pseudocode • Theory of computation • Testing • Finite state machines • Data representation • Data compression and encryption • Hardware and Software • Language classification • Boolean logic • Boolean algebra	**CONTENT** • Programming literacy • Computer organisation and architecture • The processor instruction set • Assembly language • Input and output devices • Storage devices • Communication technology and consequences • Network topology • Wireless networking • Communication and privacy • Social, legal and cultural issues • Data structures • Queues • Lists • Stacks • Hash tables	**CONTENT** • Programming literacy • Graphs • Trees • Vectors • Recursive algorithms • Big-O notation • Searching and sorting • Graph traversal algorithms • Optimisation algorithms • Limits of computation • Preparation for year 13 project
ASSESSMENTS • Online tests • Functionality checks of programmes (does it work and do what it was supposed to do). • Peer assessment	**ASSESSMENTS** • Online tests • Functionality checks of programmes (does it work and do what it was supposed to do). • Peer assessment	**ASSESSMENTS** • Online tests • Functionality checks of programmes (does it work and do what it was supposed to do). • Peer assessment • Practice papers
HOW PARENTS CAN SUPPORT LEARNING • Check homework is completed • Ensure pupils have access to a computer with Python installed and web access, so online resources can be used. • Give pupils encouragement to get past the inevitable struggles and failures inherent in programming.	**HOW PARENTS CAN SUPPORT LEARNING** • Check homework is completed • Ensure pupils have access to a computer with Python installed and web access, so online resources can be used. • Give pupils encouragement to get past the inevitable struggles and failures inherent in programming.	**HOW PARENTS CAN SUPPORT LEARNING** • Check homework is completed • Ensure pupils have access to a computer with Python installed and web access, so online resources can be used. • Give pupils encouragement to get past the inevitable struggles and failures inherent in programming.

YEAR 13 – Computer Science A-Level AQA 7517

TERM 1	TERM 2	TERM 3
CONTENT • Programming literacy • Programming project and submission of NEA • Regular languages • Mealy machines • Sets • Regular expressions • Turing machine • Backus-Naur form • Reverse Polish notation • Structure of the Internet • Packet switching and routers • Internet security • TCP IP Standard application layer protocols • IP addresses • Client server model	**CONTENT** • Programming literacy • Databases and software development • Entity relationship modelling • Relational databases and normalisation • Introduction to SQL • Defining and updating tables using SQL • Systematic approach to problem solving • Object oriented and functional programming • OOP Design principles • Big data	**CONTENT** • Programming literacy • Preparation for exams
ASSESSMENTS • Online tests • Functionality checks of programmes (does it work and do what it was supposed to do). • Peer assessment • Practice papers	**ASSESSMENTS** • Online tests • Functionality checks of programmes (does it work and do what it was supposed to do). • Peer assessment • Practice papers	**ASSESSMENTS** • Online tests • Functionality checks of programmes (does it work and do what it was supposed to do). • Peer assessment • Practice papers
HOW PARENTS CAN SUPPORT LEARNING • Check homework is completed • Ensure pupils have access to a computer with Python installed and web access, so online resources can be used. • Give pupils encouragement to get past the inevitable struggles and failures inherent in programming.	**HOW PARENTS CAN SUPPORT LEARNING** • Check homework is completed • Ensure pupils have access to a computer with Python installed and web access, so online resources can be used. • Give pupils encouragement to get past the inevitable struggles and failures inherent in programming.	**HOW PARENTS CAN SUPPORT LEARNING** • Check homework is completed • Ensure pupils have access to a computer with Python installed and web access, so online resources can be used. • Give pupils encouragement to get past the inevitable struggles and failures inherent in programming.