

IT

2026 – 2027



THE GRANGE SCHOOL



IT and Computer Science – Year 7

Key Learning Objectives	- To develop understanding of the use of IT and the use of different applications to create and evaluate products. - Introduction to IT and the use of MS Teams, Seneca and Bromcom. - An introduction to hardware and software - Computational Thinking - Machine Learning and AI - Introduction to Spreadsheets
Curriculum Content:	
Autumn Term 1st Half	Introduction to IT - Health and Safety - Files Folders and School Resources - Baseline Quiz - Passwords - Email Etiquette and Written Communication. This unit introduces the topics listed above allowing the learner to gain an insight into each topic.
Autumn Term 2nd Half	Understanding Computers - Elements of a Computer - The CPU - Storage Devices - Convergence & new technologies This topic looks at the physical and software components of a computer as well as the emergence of new technology.
Spring Term 1st Half	Computational Thinking 1 - Intro to Flowcharts (with Flowol) - Sequencing with Flowcharts - Application of Computational Thinking (Block programming) Students will be enabled to develop their understanding of how computers solve problems. They will be introduced to some practical elements of problem solving through block programming, introduction to python and turtle.
Spring Term 2nd Half	Computational Thinking 1 continued - Application of Computational Thinking (Python) - Application of Computational Thinking (Turtle)
Summer Term 1st Half	Machine Learning and Artificial Intelligence Students will be engaged in learning which develops their understanding of Artificial Intelligence, Machine Learning and the ethical implications of AI tools.
Summer Term 2nd Half	Introduction to Spreadsheets - Intro to Spreadsheets - Working with Formulae - Creating spreadsheet models - Creating spreadsheet charts
Assessments	There will be an end of topic assessment for each unit. Some units will also have practical assessment elements.
Homework Structure	Homework will be set throughout the units of work. Some will be paper-based, and others will be interactive work. All homework will be recorded on MS Teams, Bromcom or Seneca

School-based enrichment opportunities	Students have access to computers and printers in the afterschool homework club. These operate every day from 3 – 4pm.
Resources available for home-based study	Resources from the lessons can be found on Satchel, Seneca and/or MS Teams https://senecalearning.com Resources and support to help with learning Python. https://www.python.org/

IT and Computer Science – Year 8

Key Learning Objectives	• To solve problems independently using Block Programming • To solve problems independently using Python • To understand computer networks and network terminologies. • To develop an improved understanding of cyber security. • To develop an improved understanding of E-safety, machine learning and AI
Curriculum Content:	
Autumn Term 1st Half	Block Programming • Sequencing • Variables • Selection • Operators
Autumn Term 2nd Half	Textual Programming (Python I) • Intro to Python • Input, Output, Variables • Data types and Maths
Spring Term 1st Half	Textual Programming (Python I) continued • Selection Networks: • The Internet • Connectivity • Topologies
Spring Term 2nd Half	Networks continued • Network Types • Encryption
Summer Term 1st Half	Cyber Security • Computer Misuse • Protecting Personal Data • Passwords and Email Scams • Copyright • Health & Safety
Summer Term 2nd Half	E-safety, Machine Learning & AI • Social Media and Digital Footprint • Data Security and Online Security • Plagiarism • Machine Learning and AI • Revision
Assessments	There will be an end of topic assessment for each unit. Some units will also have practical assessment elements.
Homework Structure	Homework will be set throughout the units of work. Some may be paper-based, and others will be interactive work e. All homework will be recorded on MS Teams, Bromcom and Seneca.
School-based enrichment opportunities	Students have access to computers and printers in their lunchtime and also in the afterschool homework club. These operate every day.
Resources available for home-based study	Resources from the lessons can be found on Seneca, MS Teams or Bromcom. https://senecalearning.com

IT and Computer Science – Year 9

Key Learning Objectives	- To understand how data is represented - To explain computational thinking - To apply computational thinking techniques with Python - To demonstrate advance spreadsheet skills - To describe safe use of computing with use of AI
Curriculum Content:	
Autumn Term 1st Half	Binary – In this unit, students will look at representing numbers in Binary form and the converting between Binary and Denary and back again. Students will also explore binary addition as well as gain an understanding of binary representation for sound and images.
Autumn Term 2nd Half	Computational Thinking 2 In this unit of work, students will look at the four elements of computational thinking this includes abstraction, decomposition, pattern recognition and algorithmic thinking. Students will improve their understanding of practical applications of algorithmic thinking.
Spring Term 1st Half	Python In this unit of work, students will improve their knowledge of Python code which was introduced in Year 8 and will develop more complex programs.
Spring Term 2nd Half	Spreadsheets - In this unit of work, students will look at developing prior knowledge of spreadsheets. The focus will be on conditional formatting and data validation.
Summer Term 1st Half	Safe use of computers and AI – For this unit of work students will reflect on their introduction to AI and Machine Learning. They will progress to neural networks and deep learning; this will be followed up by ethical implications and the future of AI.
Summer Term 2nd Half	Students will be split into classes based on which Key Stage 4 course they are following. They will then follow a computing-based topics such as web development with more specific links to their chosen KS4 options.
Assessments	Each of the practical units of work will have some assessment. Some units will include small individual assessments, while others may involve working towards creating one final piece of assessed work. Most units will be assessed by a test at the end of the unit.
Homework Structure	Homework will be set throughout the units of work. Some may be paper-based and others will be interactive work. All homework will be recorded on MS Teams, Bromcom and Seneca.
School-based enrichment opportunities	Students have access to computers and printers in the lunchtime Homework Club and also in the afterschool Homework Club. These operate every day.
Resources available for home-based study	Resources from the lessons can be found on Satchel, Seneca and/or MS Teams https://senecalearning.com Resources and support to help with learning Python.

Computer Science - GCSE

Course Details	Exam Board: Edexcel Level: GCSE Grades 9-1 Examination Structure: 100% examination – 2 papers One written examination and one practical examination involving solving programming problems that are set by the exam board on the computer. Coursework/Controlled Assessment: There is no coursework
Key Learning Objectives	Paper 1 • Topic 1: Computational thinking – understanding of what algorithms are, what they are used for and how they work; ability to follow, amend and write algorithms; ability to construct truth tables. • Topic 2: Data – understanding of binary, data representation, data storage and compression. • Topic 3: Computers – understanding of hardware and software components of computer systems and characteristics of programming languages. • Topic 4: Networks – understanding of computer networks and network security. • Topic 5: Issues and impact – awareness of emerging trends in computing technologies, and the impact of computing on individuals, society and the environment, including ethical, legal and ownership issues. Paper 2 • understanding what algorithms are, what they are used for and how they work in relation to creating programs • understanding how to decompose and analyse problems • ability to read, write, refine and evaluate programs.
Curriculum Content – Year 10	
Autumn Term (September – December)	• Computational Thinking • Data Representation
Summer term (May - July)	• Computers • Networks • Issues and Impacts
Curriculum Content – Year 11	
Autumn Term (September – December)	• Develop Code • Constructs • Data Types and constructs • Input output
Spring Term (January - May)	• Operators • Sub-programs • Revision
Assessments	Written examination: 1 paper. Programming paper: 1 paper.
Homework / independent study	Use of online Python resources. Revision Guide and workbook available to purchase. It is strongly recommended that all students purchase these, as they are very useful in preparing students for the written examination and providing further examples of typical examination-style questions. Students will be directed to homework activities on eRevision, Bromcom, Seneca Learning and Time2code.

School-based enrichment opportunities	Use of computers after school will be facilitated. Additionally, there may be some exam focussed afterschool lessons. The aim of these sessions will be to support students meeting and exceeding their targets and developing confidence for external exams.
Resources available for home-based study	Resources available on appropriate online platforms. There is a range of videos to support each section of the specification. We will use eRevision, MS Teams and Seneca Learning to support understanding.

Information Technology – BTEC Level 3

Course Details	Exam Board: Pearson BTEC Extended Certificate in Information Technology Examination Structure: 4 units of work equivalent to 1 A level. 2 written examinations and 2 coursework-based units of study (practical & theory) Coursework/Controlled Assessment: 2 units of work.
Key Learning Objectives	• Students will develop the following knowledge and skills: • Knowledge of digital technologies and how organisations plan digital projects and follow a project lifecycle. • Understanding of organisation structures and processes and how to embed digital safety to keep data and assets secure. • Technical skills to: design and build a website to meet user requirements using relevant tools and techniques, including testing for usability, functionality and fitness for purpose. • Follow a design methodology to create and develop a database design to meet user requirements, including testing the solution and • transferable skills such as creativity and innovation, written communications, critical thinking and taking personal responsibility.
Curriculum Content – Year 12	
Autumn Term (September – May)	Unit 1: Information Technology Systems Learning Outcomes: By the end of this unit, students will understand: • Digital devices used in IT systems and how they operate • Peripheral devices and media • Computer software in IT systems • Choosing IT systems • Emerging technologies • Transmitting data: connectivity, networks, security and issues related to data transmission • Operating online • Protecting data and information • Impact of using IT systems • Moral, ethical and legal issues This examination will be sat in January of Year 12.
Spring Term to Summer Term (September-May)	Unit 3: Website Development Learning Outcomes: By the end of this unit, students will understand: • Purpose and principles of websites • Planning a website in response to a client brief • Website design • Asset management techniques • Planning a website in response to a client brief • Common tools and techniques to produce a website • Website development process • Website testing Learning Aims A, B and C of this coursework will be completed by April year 12.

Curriculum Content – Year 13	
Autumn Term (September – December)	Unit 2: Cyber Security and Incident Management Learning Outcomes: By the end of this unit, students will understand: • Cyber security threats • System vulnerabilities • Legal responsibilities • Software and hardware security measures • Network types, components, and infrastructure services and resources • Cyber security documentation and internal policies • Forensics procedures and collection of evidence • Systematic forensic analysis of suspect systems This examination will be sat January year 13.
Spring Term (January - May)	Unit 4: Relational Database Development Learning Outcomes: By the end of this unit, students will understand: • Relational database management systems • Manipulating data structures and data in relational databases • Normalisation • Planning relational database solution in response to a client brief • Relational database design techniques and processes • Design documentation • Reviewing and refining designs • Producing, Testing, Reviewing and Optimising a database solution Learning Aims A, B and C of this coursework will be completed by May Half Term Holiday of Year 13.
Assessments	Candidates will be assessed via practical and written assignments and assessments and exam papers during the course. Units 1 and 2 are assessed by an externally marked written examination. Units 3 and 4 assessed by internally marked coursework.
Homework / independent study	Students will be set research and practical skills tasks to prepare for and complete the set assignments. They will be expected to continue with coursework and to supplement their learning in theory work.
Equipment required	Level: 3 BTEC National Information Technology (ISBN 978-1292754888) Revision guide and workbook, course textbook.
School-based enrichment opportunities	Students should use study time during their timetable to complete assignments and to prepare and research tasks. They should also prepare their skills so that they are confident in using the software.
Resources available for home-based study	Resources available on MS Teams Know it all Ninja website Craig and Dave website