

Year 7 - ICT/Computing

Students spend the first part of the year securing their basic skills in ICT and recall what they have learnt from primary school. They gain an understanding of how to use Cloud based software to help with other lessons including how to use Google Drive and Google Classroom. Once this has been embedded they look at how to stay safe online, spreadsheets and how ICT is used in society which helps to start to embed learning for GCSE. Brain In Gear's and discussion tasks in lessons ensure that students have a chance to recall previous learning.

Year 7 Curriculum	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
Topic(s)	<p>Intro Lessons Logging on, password security and Google Drive/Classroom. Rules in an ICT classroom.</p> <p>1 - Introduction to ICT/Computing What ICT is. Standard ways of working. File management. Emails Hardware & software. Input and output devices.</p>	<p>2 - Staying Safe Online - Searching the WWW using Boolean Operators. Reliability & validity of internet sites. Copyright Law and using data and images.</p>	<p>2 - Staying Safe Online - Online safety including privacy, hacking, phishing, etc. Presentation techniques. How to create a professional presentation. Audience and purpose.</p>	<p>3 - Spreadsheets Spreadsheet keywords. Using spreadsheet software. Creating and formatting a spreadsheet. Writing simple and advanced formulas. Adding graphs/charts. Modelling using data. Some tasks/independent work completed on Google Sheets.</p>	<p>4 - ICT in Society Touch Typing. History of ICT and Computing. ICT and its uses in society. Professional report writing skills in word processing software including headers/footers, page numbers, cover page, captions, etc. Some tasks/independent work completed on Google Classroom.</p>	<p>5 - Edublocks Introduction to programming. Look at the difference between Scratch blocks and Python code using EduBlocks. Python coding using EduBlocks. Keywords based on programming. Creating a basic set of programming instructions. Programming a bot to do a series of tasks.</p>
Assessment	<p>Email Definitions - WCF</p> <p>Assessment Questions</p>	<p>Copyright Law - WCF</p> <p>Peer Feedback</p>	<p>Online Safety Assessment</p>	<p>Spreadsheet Assessment</p> <p>Peer Assessment</p>	<p>Report on ICT in Society Assessment</p>	<p>Programming Keywords - WCF</p> <p>Coding Assessment</p>

Independent Work

Students are given work that compliments and extends the learning done in the classroom and sometimes requires some independent research. Some of the classroom tasks are completed outside of lessons when required and directed by the teacher. When students are preparing for an assessment we encourage students to practise and revise independently, whether this is in school at extra sessions or at home.

Year 8 - ICT/Computing

In Yr 8 students begin to get more of an idea about what Computing is and how different it is to ICT which then leads on into Yr 9 in more depth. Students build upon skills in Yr 7 when looking at spreadsheets and e-safety. Brain In Gear's, discussions and peer feedback are used to ensure that students can retrieve information from previous learning. Google Classroom and Google Drive continue to be used throughout for most work unless subject specific software is required.

Year 8 Curriculum	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
Topic(s)	<p>1 - HTML Introduction to web coding. Understand what HTML is. Use HTML simulator online to learn basic HTML code. Use Notepad++ as a class to create a basic webpage. Look at tags, HEX codes, linking pages, etc. Use of Google Classroom for some tasks. Design rules and audience and purpose.</p>	<p>2 - App Inventor (App Lab by code.org) Identify when a problem needs to be broken down Implement and customise GUI elements to meet the needs of the user Recognise that events can control the flow of a program Use user input in an event-driven programming environment Use variables in an event-driven programming environment Develop a partially complete application to include additional</p>	<p>2 - App Inventor (App Lab by code.org) Use a block-based programming language to create a sequence Use variables, sequence and selection Evaluate the success of the programming project</p>	<p>3 - Excel Spreadsheets Recap spreadsheet skills. How a spreadsheet can be used for Scientific data. Using a spreadsheet as a model. Writing formulas and formatting a spreadsheet. Different uses for spreadsheets. Use of Google Classroom for some tasks.</p>	<p>4 - E-Safety Enhance and further embed learning on e-safety. Look at videos online and understand how to control what is posted - digital footprint E-safety keywords. Creation of e-safety booklet for Yr 7. Use of DTP software.</p>	<p>5 - Introduction to Photoshop Understand pixels, resolution and pixilation. Understand the term Aspect Ratio. Know and understand how to use certain tools within Photoshop. Identify key features of the Photoshop toolbar.</p>

		functionality				
Assessment	Peer Feedback HTML Code Assessment	AppLab Summative assessment Keywords - WCF	AppLab Summative assessment Keywords - WCF	Peer Feedback Spreadsheet Assessment	Peer Feedback Photoshop Assessment	Peer Assessment E-Safety Booklet

Independent Work

Students are given work that compliments and extends the learning done in the classroom and sometimes requires some independent research. This is often assessed as a whole class. When students are preparing for an assessment we encourage students to practise and revise independently, whether this is in school at extra sessions or at home. Some work started in the classroom may have to be completed independently.

Year 9 - ICT/Computing

Students spend the first part of the year by getting a flavour of the difference between ICT and Computing so that they have a better understanding when it comes to GCSE options. Previous learning from Yr 7 and 8 helps to ensure that learning is embedded and secured. Brain In Gear's, peer feedback and discussion tasks in lessons ensure that students have a chance to reflect and recall previous learning. Students continue to use Google Drive and Classroom for most tasks when subject specific software isn't required.

Year 9 Curriculum	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
Topic(s)	<p>1 - Using Photoshop Effects of Photoshop on people. Airbrushing techniques. Learn how to use Photoshop and Illustrator. What DTP is and how it is used. Create a digitised image Using layers, combine two images in one canvas Some tasks on Google Classroom.</p>	<p>2 - Python Programming History of Computing. Recall and further knowledge of Python from Yr 7. Learn code such as print, strings, maths, drawing, etc. Paired work as coders. Create simple programs.</p> <p>3 - Data Collection & Mail Merge Create a data capture form in Google Forms. Understand how data can be collected and stored.</p>	<p>3 - Data Collection & Mail Merge Create a database to store collected data. Create a table, with fields and records. Look at validation techniques. Create a data input form. Understand how to write a formal letter. Write a formal letter in word processing software and mail merge with a database.</p>	<p>4 - How Computers Work Look at how a computer works. Input and output devices. What is inside a PC? What binary is and how to count in it. Different types of networks. Types of software. Done on Google Classroom.</p> <p>5 - Spreadsheets Spreadsheet keywords. Writing formulas. Using a spreadsheet model.</p>	<p>5 - Spreadsheets Writing advanced formulas such as IF, COUNT and VLOOKUP. Spreadsheet theory. Create a spreadsheet model from scratch. Some tasks done on Google Classroom.</p> <p>6 - E-Safety Enhance and further embed learning on e-safety. Look at sexting and sharing photos on social media. Discussions, tasks and questions linked to real life situations.</p>	<p>7 - Current & Emerging Technologies Mobile technologies. ICT problems. Emerging technologies. How ICT has changed society. Done on Google Classroom.</p> <p>8 - Animation Creating a storyboard. Create a stop frame animation. History of animation. The different kinds of animation. Animation keywords. How to animate using Animate CC.</p>

Assessment	Photoshop Theory Test - WCF Photoshop Airbrushing Assessment	Python Assessment Peer Feedback	Database and Mail Merge Assessment Peer Assessment	How Computers Work - Theory Assessment	Spreadsheet Theory - WCF Spreadsheet Assessment E-Safety WCF	Peer Feedback Animation Keywords - WCF Mobile Technologies Assessment Mat
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Independent Work

Students are given work that compliments and extends the learning done in the classroom and sometimes requires some independent research. This is often assessed as a whole class. When students are preparing for an assessment we encourage students to practise and revise independently, whether this is in school at extra sessions or at home.

Year 10 - ICT

Students use the skills and knowledge they have learnt in Yr 7-9 and build upon them to help understand how ICT is used in society. Brain In Gears are used to help students recall previous learning along with tasks which are more practical based. Students learn about the theoretical and practical side of ICT to help prepare them for the two assessments as well as skills for the real world. Most tasks can be completed through Google Classroom when subject specific software isn't required.

Year 10 Curriculum	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
Topic(s)	<p>R050: TA1 - Design tools (1.1 Types of design tools) – Lesson 1</p> <p>R060: TA1 - Planning and designing the spreadsheet solution (1.1 Design tools)</p> <p>R070 TA2 - Designing an AR model prototype (2.1 Planning and design consideration, 2.2 Design tools)</p> <p>(Synoptic teaching of TA for all three units)</p>	<p>R050: TA2 - Human Computer Interface in everyday life (2.1 Purpose, importance and use of HCI in application areas, 2.2 Hardware considerations, 2.3 Software consideration, 2.4 User interaction methods)</p> <p>R050: TA3 - Data & Testing (3.1 Information & data, 3.2 Data use)</p> <p>R060: TA1.2 HCI design conventions and principles (1.2.1 Functionality, 1.2.2 Types of outputs, 1.2.3 HCI navigation)</p>	<p>R060: TA2 Creating the spreadsheet solution (2.1.1 Data handling & manipulation, 2.1.2 Techniques to generate the outputs, 2.1.3 User interface)</p> <p>R060: TA3 - Testing the spreadsheet solution (3.1 Test the user interface and technical aspects of the spreadsheet solution)</p> <p>R060: TA4 - Evaluating the spreadsheet solution (4.1 Methods used to evaluate)</p>	<p>R060: NEA Assessment (working on)</p> <p>R060: NEA Assessment (submit for moderation)</p>	<p>R050: TA3 Data and testing (3.3 Data collection methods, 3.4 Storage of collected data)</p> <p>R050: TA5 - Digital communications (5.1 Types, 5.2 Software, 5.3 Digital devices, 5.4 Distribution channels, 5.5 Audience demographics)</p> <p>R070: TA2 - Designing an AR model prototype (2.1 Planning and design consideration, 2.2 Design tools)</p>	<p>R050: TA6 - Internet of Everything (IoE) (6.1 Use of IoE, 6.2 Application areas in everyday life)</p> <p>R070: TA3 - Creating and AR model prototype (3.1 AR model prototype, 3.2 Triggers, 3.3 Layers/ user interaction, 3.4 Information output)</p>

Assessment	WCF End of topic tests	WCF End of topic tests	WCF End of topic tests	N/A	WCF End of topic tests	WCF End of topic tests
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Independent Work

Preparing for assessment is an essential part of each topic as each assessment allows teachers and students to see their progress. It is crucial that revision is completed so students can show what they know and we encourage students to revise from the start using the revision guide we source. Students also get given some practice exam questions and research which supports and enhances the learning in the classroom.

Year 11 - ICT

Students focus fully on the practical side of ICT and how to use the different pieces of software in depth. They build upon the skills learnt in Yr 10 and Brain In Gears are used to help students recall previous learning. Students do this by doing a practice controlled assessment from a previous year to prepare them for the real one in January which takes approximately 20 hours to complete. Tasks all done in school using subject specific software.

Year 11 Curriculum	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
Topic(s)	<p>R070: TA1 - Augmented Reality (AR) (1.1 Purpose and uses of AR, 1.2 Types of AR and user interaction, 1.3 Devices used with AR)</p> <p>R070: - TA2 - Designing an AR model prototype (2.1 Planning and design consideration, 2.2 Design tools)</p> <p>R070: TA3 - Creating and AR model prototype (3.1 AR model prototype, 3.2 Triggers, 3.3 Layers/ user interaction, 3.4 Information output)</p>	<p>R070: TA4 - Testing and reviewing (4.1 Testing, 4.2 Reviewing the process of creating the AR model prototype)</p> <p>R070: NEA Assessment (working on)</p>	<p>R070: NEA Assessment (submit1 for moderation)</p> <p>R050: TA3 - Data and testing (3.5 Application of testing to a range of contexts)</p>	<p>R050: TA4 - Cyber-security and legislation (4.2 impact of attacks, 4.3 Prevention measures, 4.4 Legislation related to the use of IT systems)</p> <p>R050: TA4 – Cyber security & legislation 4.1. Threats. 4.2. Impact</p>	<p>R070: Completed, marked moderated and submitted.</p> <p>R050: Exam Revision</p>	<p>R050: Exam Revision</p>

Assessment	WCF End of topic tests	WCF End of topic tests	WCF End of topic tests	WCF End of topic tests		
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Independent Work

Students are expected to practise the skills learnt in class independently so they become confident in using them for the real assessment. This can be done at home or at extra sessions in school depending on the software students have. No aspect of the set assignment can be done outside of the classroom as it must be completed in controlled conditions.

Year 10 - Computing

Computer Science will encourage students to: • understand and apply the fundamental principles and concepts of Computer Science, including abstraction, decomposition, logic, algorithms, and data representation • analyse problems in computational terms through practical experience of solving such problems, including designing, writing and debugging programs • think creatively, innovatively, analytically, logically and critically • understand the components that make up digital systems, and how they communicate with one another and with other systems • understand the impacts of digital technology to the individual and to wider society • apply mathematical skills relevant to Computer Science.

Year 10 Curriculum	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
Topic(s)	<p>1.1 Systems architecture The purpose of the CPU: The fetch-execute cycle Common CPU components and their function: ALU (Arithmetic Logic Unit) CU (Control Unit) Cache Registers Von Neumann architecture: MAR (Memory Address Register) MDR (Memory Data Register) Program Counter Accumulator How common characteristics of</p>	<p>1.2 Memory and storage The need for primary storage The difference between RAM and ROM The purpose of ROM in a computer system The purpose of RAM in a computer system Virtual memory The need for secondary storage Common types of storage: o Optical o Magnetic o Solid state Suitable storage devices and storage media for a</p>	<p>1.3 Computer networks, connections and protocols Types of network Factors that affect the performance of networks The different roles of computers in a client-server and a peer-to-peer network The hardware needed to connect stand-alone computers into a Local Area Network The Internet as a worldwide collection of computer networks Star and Mesh network topologies</p>	<p>1.4 Network security Forms of attack Threats posed to devices/systems Knowledge/principles of each form of attack including: How the attack is used The purpose of the attack Common prevention methods Understanding of how to limit the threats Understanding of methods to remove vulnerabilities Knowledge/principles of each prevention method</p>	<p>1.5 Systems software The purpose and functionality of operating systems: o User interface o Memory management and multitasking o Peripheral management and drivers o User management o File management The purpose and functionality of utility software Utility system software: o Encryption software o Defragmentation o Data compression</p>	<p>1.6 Ethical, legal, cultural and environmental impacts of digital technology Impacts of digital technology on wider society including: Ethical issues Legal issues Cultural issues Environmental issues Privacy issues Legislation relevant to Computer Science: The Data Protection Act 2018 Computer Misuse Act 1990 Copyright Designs and Patents Act 1988 Software licences</p>

	<p>CPUs affect their performance:</p> <ul style="list-style-type: none"> o Clock speed o Cache size o Number of cores <p>The purpose and characteristics of embedded systems Examples of embedded systems</p> <p>Python programming skills</p>	<p>given application</p> <p>The advantages and disadvantages of different storage devices and storage media relating to these characteristics. The units of data storage. How data needs to be converted into a binary format to be processed by a computer Data capacity and calculation of data capacity requirements Numbers Characters Images Sound Compression</p>	<p>Modes of connection Encryption IP addressing and MAC addressing Standards Common protocols The concept of layers</p>			<p>(i.e. open source and proprietary)</p> <p>Python programming NEA assessment</p>
Assessment	<p>End of topic test WCF Past paper questions</p>	<p>End of topic test WCF Past paper questions</p>	<p>End of topic test WCF Past paper questions</p>	<p>End of topic test WCF Past paper questions</p>	<p>End of topic test WCF Past paper questions</p>	<p>End of topic test WCF Past paper questions Mock exam</p>

Independent Work

Each unit has a number of tasks that are to be completed/watched at home before the next theory lesson. This is so students have the background understanding and can contribute to the lesson.
Seneca learning is set for each unit of work to consolidate what has been learnt.

Year 11 - Computing

Programming and the theory of programming. The practical part of the course can be taught throughout year 10 also. Students' ability to write or refine algorithms using the high-level programming language they are familiar with.

Year 11 Curriculum	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
Topic(s)	<p>2.1 Algorithms Principles of computational thinking:</p> <ul style="list-style-type: none"> o Abstraction o Decomposition o Algorithmic thinking <p>Identify the inputs, processes, and outputs for a problem Structure diagrams Create, interpret, correct, complete, and refine algorithms using:</p> <ul style="list-style-type: none"> o Pseudocode o Flowcharts o Reference language/high-level programming language <p>Identify common errors Trace tables</p>	<p>2.2 Programming fundamentals The use of variables, constants, operators, inputs, outputs and assignments The use of the three basic programming constructs used to control the flow of a program:</p> <ul style="list-style-type: none"> o Sequence o Selection o Iteration (count- and condition-controlled loops) <p>The common arithmetic operators The common Boolean operators AND, OR and NOT The use of data types, basic string manipulation, basic file handling</p>	<p>2.3 Producing robust programs Defensive design considerations. Input validation Maintainability The purpose of testing "</p> <p>Types of testing: Iterative Final/terminal "</p> <p>Identify syntax and logic errors "</p> <p>Selecting and using suitable test data: Normal Boundary Invalid/Erroneous Refining algorithms</p>	<p>2.4 Boolean logic Simple logic diagrams using the operators AND, OR and NOT Truth tables Combining Boolean operators using AND, OR and NOT Applying logical operators in truth tables to solve problems</p>	<p>2.5 Programming languages and Integrated Development Environments Characteristics and purpose of different levels of programming language: High-level languages Low-level languages"</p> <p>The purpose of translators The characteristics of a compiler and an interpreter Common tools and facilities available in an Integrated Development Environment (IDE): Editors o Error diagnostics Run-time environment Translators</p>	<p>2.5 Programming languages and Integrated Development Environments Characteristics and purpose of different levels of programming language: High-level languages Low-level languages"</p> <p>The purpose of translators The characteristics of a compiler and an interpreter Common tools and facilities available in an Integrated Development Environment (IDE): Editors o Error diagnostics Run-time</p>

		operations, records to store data, SQL to search for data, array. How to use subprograms				
<p>Assessment</p> <p>OCR's GCSE (9–1) in Computer Science consists of two compulsory components that are externally assessed.</p> <p>Students also have to complete a NEA programming task.</p>	<p>End of topic test WCF</p> <p>Past paper questions</p>	<p>End of topic test WCF</p> <p>Past paper questions</p>	<p>End of topic test WCF</p> <p>Past paper questions</p>	<p>End of topic test WCF</p> <p>Past paper questions</p> <p>Mock exam</p>	<p>End of topic test WCF</p> <p>Past paper questions</p>	<p>End of topic test WCF</p> <p>Past paper questions</p> <p>Exam prep</p>

Independent Work

Each unit has a number of tasks that are to be completed/watched at home before the next theory lesson. This is so students have the background understanding and can contribute to the lesson.
Seneca learning is set for each unit of work to consolidate what has been learnt.
Programming tasks.