

Curriculum Overview – ICT – National Curriculum Computing KS3

Y7	
Topic 1	Intro into school systems. How to save, access internet and search terms In this unit students will learn how to access, save and operate the school system. They will learn the basics of file management. • Identify, Interact with and use ICT systems to meet requirements of a straightforward task in a familiar context. • Manage information storage by working with files and folders. • Follow and demonstrate understanding of the need for safety and security practices. • Use search techniques to locate and select relevant information. • Select information from a variety of ICT sources for a straightforward task. • Enter, develop and refine information using appropriate software to meet requirements of straightforward tasks. • Use appropriate software to meet requirements of straightforward data-handling task. • Use communications software to meet requirements of a straightforward task. • Combine information within a publication for a familiar audience and purpose. • Evaluate own use of ICT tools.
Topic 2	Digital media. What is a brand? How to develop this? This unit is designed to build upon learners' experience in key stage 2. It requires learners to use a range of different skills across several pieces of software. The unit is designed so that learners can concentrate on applying skills that they may have previously learnt as well as those learnt in the unit. Learners are given clear tasks for which they need to first plan and then implement a solution. A rubric is used to help learners focus on specific aspects of their work. Rubrics are used in key stage 2 of The Computing Curriculum, but are designed for teacher's use. In this unit, learners will need to assess others and self-assess against the rubric.
Topic 3	Scratch Part 1 This unit is the first programming unit of KS3. The aim of this unit and the following unit ('programming 2') is to build learners' confidence and knowledge of the key programming constructs. Importantly, this unit does not assume any previous programming experience, but it does offer learners the opportunity to expand on their knowledge throughout the unit.
Topic 4	Data use, Spread sheets. The spreadsheet unit for Year 7 takes learners from having very little knowledge of spreadsheets to being able to confidently model data with a spreadsheet. The unit uses engaging activities to progress learners from using basic formulas to writing their own COUNTIF statements. This unit will give learners a good set of skills that they can use in computing lessons and in other subject areas.

Topic 5	Scratch Part 2 Programming II follows on from the foundations built in 'Programming I'. It is vital that learners complete 'Programming I' before beginning this unit. This unit begins right where 'Programming I' left off. Learners will build on their understanding of the control structures' sequence, selection, and iteration (the big three), and develop their problem-solving skills. Learners will learn how to create their own subroutines, develop their understanding of decomposition, learn how to create and use lists, and build upon their problem-solving skills by working through a larger project at the end of the unit.
Topic 6	Using media to gain support for a cause During this unit, learners develop their understanding of information technology and digital literacy skills. They will use the skills learnt across the unit to create a blog post about a real-world cause that they would like to gain support for. Learners will develop software formatting skills and explore concerns surrounding the use of other people's work, including licensing and legal issues.

Y8	
Topic 1	Theme park Project Theme Park Project – students will look at effective media publications and the requirements needed to produce professional documents to advertise a Theme Park. This will include layout, font, house style and audience and purpose. Create a logo: The Theme Parks need Year 8 to design and create a new logo for the business. Create a poster: A poster will also be needed to let everyone know about the Theme Park
Topic 2	Intro into CAD (tinker CAD) In this unit pupils will develop the basics of how to use tinker CAD. They will learner how to place, layer and develop images that can be used in the real world. Tasks include: Placing Viewing Moving Rotating Grouping. All of these basic actions will allow students to become proficient in CAD design. This skill is transferable to the world of work within the engineering industry.
Topic 3	Media Vectors This unit offers learners the opportunity to design graphics using vector graphic editing software. By the end of the unit learners will have produced an illustration, a logo, or some icons using vector graphics. The lessons are tailored to Inkscape (inkscape.org), which is open source and cross-platform, but the resources should be readily adaptable to any vector graphics editor. Vector graphics can be used to design anything from logos and icons to posters, board games, and complex illustrations. Through this unit, learners will be able to better understand the processes involved in creating such graphics and will be provided with the knowledge and tools to create their own.
Topic 4	Layer of Computer systems

	This unit takes learners on a tour through the different layers of computing systems: from programs and the operating system, to the physical components that store and execute these programs, to the fundamental binary building blocks that these components consist of. The aim is to provide a concise overview of how computing systems operate, conveying the essentials and abstracting away the technical details that might confuse or put off learners.
Topic 5	Spreadsheets In this unit, learners will gain an understanding and knowledge of how to use spreadsheets to store and manipulate data, how to use common functions, and how to extract data to create visual representations using charts. Learners will use spreadsheets to track and calculate income, make predictions, and answer “what if...?” questions. It is assumed that learners have had some experience of spreadsheets at KS3 level and therefore know how to use cell references, fill colours, and borders, and are familiar with the basic functions, e.g. SUM, AVERAGE, MAX, and MIN.
Topic 6	Python programming This unit introduces learners to how data can be represented and processed in sequences, such as lists and strings. The lessons cover a spectrum of operations on sequences of data, that range from accessing an individual element to manipulating the entire sequence. Great care has been taken so that the selection of problems used in the programming tasks are realistic and engaging: learners will process solar system planets, book texts, capital cities, leaked passwords, word dictionaries, ECG data, and more.

Y9	
Topic 1	Cyber security This unit takes the learners on an eye-opening journey of discovery about techniques used by cybercriminals to steal data, disrupt systems, and infiltrate networks. The learners will start by considering the value of their data to organisations and what they might use it for. They will then look at social engineering techniques used by cybercriminals to try to trick users into giving away their personal data. The unit will look at the more common cybercrimes such as hacking, DDoS attacks, and malware, as well as looking at methods to protect ourselves and our networks against these attacks.
Topic 2	IT and the world of work The world of work has been transformed by the use of information technologies. Learners must be able to identify how the modern structure of the workplace will impact their future lives. This unit will facilitate a deeper comprehension of the methods employed by organisations and the impact the use of IT in the working environment has on all stakeholders. These methods include the manner in which collaborative and communication tools facilitate remote and mobile work patterns, the advantages and disadvantages to the workforce and organisations, issues surrounding accessibility and inclusivity, platforms that promote collaboration and communication, and the social, moral, and ethical impact these methods have.

Topic 3	Foundations of AI The AI' unit is a comprehensive set of six lessons that introduces 11- to 14-year-old students to a range of AI and ML concepts. Students are given an introduction to what AI is and then explore, among many other things, how ML models are built, the impact of bias in data, decision trees, and the AI project lifecycle. They will also see how AI and ML technologies may affect them — both now and in the future — as well as learning about the ever-increasing variety of AI-related careers.
Topic 4	Data Science In this unit, learners will be introduced to data science, and by the end of the unit they will be empowered by knowing how to use data to investigate problems and make changes to the world around them. Learners will be exposed to both global and local data sets and gain an understanding of how visualising data can help with the process of identifying patterns and trends. Towards the end of the unit, the learners will go through the steps of the investigative cycle to try to solve a problem in the school using data.
Topic 5	Project Management This unit will cover all aspects of project management and use a project brief scenario called Delicious Desserts to support the teaching and learning of the unit. Project management has numerous transferable skills for learners, from simple time management to structured project management techniques. These skills will be invaluable for learners in their future careers. It will support team building, enable learners to become more organised, and allow them to reflect on any work completed.
Topic 6	Idea iDEA is a blended learning approach that aspires to be a digital and costs, revenues and profits with the aid of Excel. They will display data in various formats; understand absolute and relative cell references; and understand the difference between rules and variables.