**Computing Long Term Planning Overview 2023-24**

**Key Stage 3**

**Term 1**  **Term 2**  **Term 3**

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| **Year** |  |  | **Year** |  |  | **Year** |  |
| **7** | **7.1 Impact of Technology: Collaborating online respectfully**This unit has been designed to ensure that learners are given sufficient time to familiarise themselves with the school network. It also allows the teacher to discuss appropriate use of the school network, and to update and remind learners of important online safety issues. Whilst completing this unit, learners will also learn how to use presentation software effectively. In terms of online safety, this unit focuses on respecting others online, spotting strangers, and the effects of cyberbullying. **7.2 Modelling data – Spreadsheets**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. |  | **7** | **7.2 Modelling data – Spreadsheets**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.**7.3 Networks from semaphores to the Internet**This unit begins by defining a network and addressing the benefits of networking, before covering how data is transmitted across networks using protocols. The types of hardware required are explained, as is wired and wireless data transmission. Learners will develop an understanding of the term's ‘internet’ and ‘World Wide Web’, and of the key services and protocols used. Practical exercises are included throughout to help strengthen understanding. |  | **7** | **7.3 Networks from semaphores to the Internet**This unit begins by defining a network and addressing the benefits of networking, before covering how data is transmitted across networks using protocols. The types of hardware required are explained, as is wired and wireless data transmission. Learners will develop an understanding of the terms ‘internet’ and ‘World Wide Web’, and of the key services and protocols used. Practical exercises are included throughout to help strengthen understanding.**7.4** **Programming essentials in Scratch – part I and II**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.The main programming concepts covered in this unit are sequencing, variables, selection, and count-controlled iteration. All of the examples and activities for this unit use Scratch 3. |
| **8** | **8.1 Computing 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.The last lessons cover two interesting contemporary topics: artificial intelligence and open source software. |  | **8** | **8.2 Developing for the web**In this unit, learners will explore the technologies that make up the internet and World Wide Web. Starting with an exploration of the building blocks of the World Wide Web, HTML, and CSS, learners will investigate how websites are catalogued and organised for effective retrieval using search engines. By the end of the unit, learners will have a functioning website.**8.3 Media – Vector graphics**Vector graphics can be used to design anything from logos and icons to posters, board games, and complex illustrations. Through this unit, students 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. |  | **8** | **8.3 Media – Vector graphics**Vector graphics can be used to design anything from logos and icons to posters, board games, and complex illustrations. Through this unit, students 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.**8.4 Representations – from clay to silicon**Humans use symbols to record, process and transmit information. Introduce binary digits to your learners as the symbols computers use to perform these tasks and focus on the representation of text and numbers. |
| **9** | **9.1 Cybersecurity**This unit takes learners on a journey of discovery of techniques that cybercriminals use to steal data, disrupt systems, and infiltrate networks. The learners will start by considering the value their data holds and what organisations might use it for. They will then learn about social engineering and other common cybercrimes, and finally look at methods to protect against these attacks.**9.2 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. |  | **9** | **9.2 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.**9.3 Media – Animation**Films, television, computer games, advertising, and architecture have been revolutionised by computer-based 3D modelling and animation. In this unit learners will discover how professionals create 3D animations using the industry-standard software package, Blender. By completing this unit learners will gain a greater understanding of how this important creative field is used to make the media products that we consume. Sessions will take learners through the basics of modelling, texturing, and animating; outputs will include 3D models and short videos. |  | **9** | **9.4 Introduction to Python programming**This unit introduces learners to text-based programming with Python. The lessons form a journey that starts with simple programs involving input and output, and gradually moves on through arithmetic operations, randomness, selection, and iteration. |