Year 7 Big Picture – Computer Science

Autumn 01 Weeks 1 – 7	*Autumn 02 Weeks 8 – 15*	*Spring 01 Weeks* **15-23**
Unit 7.1: Collaborating Safely	**Unit 7.2: Connecting Computers**	**Unit 7.3: Computational Thinking and Algorithms**

Content This unit has been devised as a transitional unit to allow learners to confidently move from Year 6 to Year 7. By the end of the unit, they should be able to use the school network safely and respectfully. **Coverage** • Create a memorable and secure password for an account on the school network • Find personal documents and common applications • Recognise a respectful email • Construct an effective email and send it to the correct recipients • Describe how to communicate with peers online • Plan effective presentations for a given audience • Describe cyberbullying • Explain the effects of cyberbullying • Check who you are talking to online	**Content** This unit progresses students' knowledge and understanding of technology by focussing on digital and non-digital devices and introducing the concept of computers connected together as a network. Following this unit, learners will explore the internet as a network of networks. **Coverage** • What is a computer system? • What makes up a computer system? • Computer Devices • Input / Output devices • What is hardware? • Identify different types of hardware and there uses • What are the differences between hardware and software? • What is Software? • Identify different types of software and there uses	**Content** • The aim of this topic is to introduce students to the concept of Computational Thinking. • Students will learn how to abstract and decompose a computing problem. **Coverage** • Introduction to computational thinking: Decomposition Pattern Recognition Abstraction Debugging • Understanding how to read an algorithm in flowchart form and in basic pseudo code • Creating basic flowcharts and algorithms • Design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems.
Mini Test: Week 6	**Mini Test – Yr. 7 = Wk. 15**	**Big Test 1– Yr. 7**

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Spring 02 Weeks 24-29	*Summer 01 Weeks*	*Summer 02 Weeks 33 – 39*
Unit 7.4: Scratch Programming	**Unit 7.5: Gaining support for a cause**	**Unit 7.6: Modelling**
Content This unit focuses on the development of the following key techniques: • Sequencing • Variables • Selection • Operators • Count-controlled iteration **Coverage** • Use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures (e.g. lists, tables, or arrays); design and develop modular programs that use procedures or functions • Understand several key algorithms that reflect computational thinking; use logical reasoning to compare the utility of alternative algorithms for the same problem • Understand simple Boolean logic (e.g. and, or, and not)	**Content** • 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. **Coverage** • Undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users • Create, reuse, revise, and repurpose digital artefacts for a given audience, with attention to trustworthiness, design, and usability	**Content** • Design, use, and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems • Undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users **Coverage** • Use cell references • Use the autofill tool • Format data • Create formulas for add, subtract, divide, and multiply • Create functions for SUM, COUNTA, AVERAGE, ○ MIN, MAX, and COUNTIF • Sort and filter data • Create graphs • Use conditional formatting
Mini Test – Yr. 7 = Week 26/27	**Mini Test – Yr. 7 = Week**	**Big Test 2– Yr. 7 = Week 32/33**