**Year 7 Computer Science 2019/20**

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| Autumn term 1  4 lessons | Autumn term 2  3 lessons | Spring term 1  3 lessons | Spring term 2  3 lesson | Summer term 1  2 lessons | Summer term 2  3 lessons |
| **Network Rules, systems, Teams and emails. Trouble shooting** | **Algorithms**   * Understands what an algorithm is and is able to express simple linear (non-branching) algorithms symbolically. * Understands that computers need precise instructions. * Demonstrates care and precision to avoid errors.   **(Algorithms)** | **Digital content**   * Recognises that digital content can be represented in many forms. * Distinguishes between some of these forms and can explain the different ways that they communicate information. * Recognises different types of data: text, number. * Appreciates that programs can work with different types of data.   **(Data and data representation)** | **Python 1 (Minecraft)**   * Creates programs that implement algorithms to achieve given goals. * Declares and assigns variables. * Uses post-tested loop e.g. ‘until’, and a sequence of selection statements in programs, including an if, then and else statement. * Has practical experience of a high-level textual language, including using standard libraries when programming. * Uses a range of operators and expressions   **(Programming and development)** | **Office skills (1)**   * Uses technology with increasing independence to purposefully organise digital content. * Shows an awareness for the quality of digital content collected. * Uses a variety of software to manipulate and present digital content: data and information. * Shares their experiences of technology in school and beyond the classroom. * Talks about their work and makes improvements to solutions based on feedback received.   **(Information Technology)** | **Operating systems and networks**   * Understands why and when computers are used. * Understands the main functions of the operating system. * Knows the difference between physical, wireless and mobile networks. * Recognises and understands the function of the main internal parts of basic computer architecture. Understands the concepts behind the fetch-execute cycle. * Knows that there is a range of operating systems and application software for the same hardware.   **(Hardware and processing)** |
| **The online world**   * Understands the importance of communicating safely and respectfully online, and the need for keeping personal information private. * Knows what to do when concerned about content or being contacted. * Understands the difference between the internet and internet service e.g. world wide web. * Shows an awareness of, and can use a range of internet services e.g. VOIP. * Recognises what is acceptable and unacceptable behaviour when using technologies and online services.   **(Communication and networks)** | **Kodu (1)**   * Understands that algorithms are implemented on digital devices as programs. * Designs simple algorithms using loops, and selection i.e. if statements * Uses logical reasoning to predict outcomes. * Detects and corrects errors i.e. debugging, in algorithms. * Designs solutions (algorithms) that use repetition and two-way selection i.e. if, then and else. * Uses diagrams to express solutions. * Uses logical reasoning to predict outputs, showing an awareness of inputs.   **(Algorithms)** | **Binary**   * Knows that digital computers use binary to represent all data. * Understands how bit patterns represent numbers and images. * Knows that computers transfer data in binary.   **(Data and data representation)** | **Python 2 (Minecraft)**   * Creates programs that implement algorithms to achieve given goals. * Declares and assigns variables. * Uses post-tested loop e.g. ‘until’, and a sequence of selection statements in programs, including an if, then and else statement. * Has practical experience of a high-level textual language, including using standard libraries when programming. * Uses a range of operators and expressions   **(Programming and development)** | **Presenting to an audience**   * Uses technology with increasing independence to purposefully organise digital content. * Shows an awareness for the quality of digital content collected. * Uses a variety of software to manipulate and present digital content: data and information. * Shares their experiences of technology in school and beyond the classroom. * Talks about their work and makes improvements to solutions based on feedback received. * Makes judgements about digital content when evaluating and repurposing it for a given audience. * Recognises the audience when designing and creating digital content. | **Computer networks**   * Knows the names of hardware e.g. hubs, routers, switches, and the names of protocols e.g. SMTP, iMAP, POP, FTP, TCP/ IP, associated with networking computer systems. * Uses technologies and online services securely, and knows how to identify and report inappropriate conduct. |
| **Computers**   * Understands that computers have no intelligence and that computers can do nothing unless a program is executed. * Recognises that all software executed on digital devices is programmed. * Knows that computers collect data from various input devices, including sensors and application software. * Understands the difference between hardware and application software, and their roles within a computer system.   **(Hardware and processing)** | **Kodu (2)**   * Knows that users can develop their own programs, and can demonstrate this by creating a simple program in an environment that does not rely on text * Executes, checks and changes programs. * Understands that programs execute by following precise instructions. * Uses arithmetic operators, if statements, and loops, within programs. * Uses logical reasoning to predict the behaviour of programs. * Detects and corrects simple semantic errors i.e. debugging, in programs. * Creates programs that implement algorithms to achieve given goals. * Declares and assigns variables. * Uses post-tested loop e.g. ‘until’, and   **(Programming and development)** | **Searching the Internet well**   * Understands how to effectively use search engines, and knows how search results are selected, including that search engines use ‘web crawler programs’. * Selects, combines and uses internet services. * Demonstrates responsible use of technologies and online services, and knows a range of ways to report concerns.   **(Communication and networks)** | **Physical computing**   * Creates programs that implement algorithms to achieve given goals. * Declares and assigns variables. * Uses post-tested loop e.g. ‘until’, and a sequence of selection statements in programs, including an if, then and else statement. * Has practical experience of a high-level textual language, including using standard libraries when programming. * Uses a range of operators and expressions * Understands the difference between, and appropriately uses if and if, then and else statements. * Uses a variable and relational operators within a loop to govern termination. * Designs, writes and debugs modular programs using procedures. * Knows that a procedure can be used to hide the detail with sub-solution.   **(Programming and development)** |  | End of year assessment |
| **Assessment: Digital content**   * Uses technology with increasing independence to purposefully organise digital content. * Shows an awareness for the quality of digital content collected. * Uses a variety of software to manipulate and present digital content: data and information. * Shares their experiences of technology in school and beyond the classroom. * Talks about their work and makes improvements to solutions based on feedback received.   **(Information technology)** |  |  |  |  |  |