Curriculum Map

Subject: **Computer Science** Year: 7

|  | **(Rotation 1)** | **(Rotation 1)** | **(Rotation 1)** |
| --- | --- | --- | --- |
| Content | e-Safety & Google Interland (2)  Programming essentials in Scratch: part I Year 7 (6) | Spreadsheets Year 7 (6) | Impact of Technology - Collaborating Online Respectfully Year 7 (6) |
| Skills | **Aim:**  This unit and the following unit (‘programming 2’) is to build learners’ confidence and knowledge of the key programming constructs.  This unit focuses on the development of the following key techniques:  ● Sequencing  ● Variables  ● Selection  ● Operators  ● Count-controlled iteration  [National curriculum links](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/239067/SECONDARY_national_curriculum_-_Computing.pdf) | **Aims:**  The unit uses engaging activities to progress learners from using basic formulas to writing their own COUNTIF statements.  This unit focuses on spreadsheet skills.  They will need to know how to:  ● 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  [National curriculum links](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/239067/SECONDARY_national_curriculum_-_Computing.pdf) | **Aims:**  This unit has been designed to ensure that learners are given sufficient time to familiarise themselves with the school network.  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.  [National curriculum links](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/239067/SECONDARY_national_curriculum_-_Computing.pdf) |
| Assessment | This unit contains two homework activities that ask a set of multiple choice questions as well as an end of topic assessment via Google Form. | The summative assessment for this unit will be in the form of a set of multiple choice questions via Google Form. | The summative assessment for this unit will be in the form of a set of multiple choice questions via Google Form. |

 Curriculum Map

Subject:  **Computer Science** Year:  8                                                                                         (7) = number of lessons

|  | **Autumn 1** | **Autumn 2** | **Spring 1** | **Spring 2** | **Summer 1** | **Summer 2** |
| --- | --- | --- | --- | --- | --- | --- |
| **Content** | Computer Systems (7) | Networks 2 (4) | Intro to Python programming (7) | Representations: from clay to silicon (7) | Mobile app development (7) | Design Vector Graphics (7) |
| **Skills** | **Aims**  ● can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation.  **Subject content**  ●   understand simple Boolean logic [for example, AND, OR and NOT].  ● understand the hardware and software components.  ●   understand how instructions are stored and executed within a computer system. | **Aims**  This unit focusses on networks  the internet,  and associated technology (network, hub, server, router, ISP, protocol, mainframe, personal computer, stand-alone, HTTP, wired, wireless, 3G, 4G, 5G, WiFi, bandwidth, bit, megabit, gigabit, broadband, buffering, packet, IP address, packet header, packet payload, Transmission Control Protocol, Internet Protocol, World Wide Web, WWW, internet services, email, Voice over Internet Protocol (VoIP), Internet of Things (IoT), spam, privacy, security, web browser, web server, web page, search engine, HTTP, HTTPS, URL, domain name, domain name system) . | **Aims**  ●   Use two or more programming languages, at least one of which is textual, to solve a variety of computational problems  ● Understand several key algorithms that reflect computational thinking; use logical reasoning to compare the utility of alternative algorithms for the same problem  ● Understand how instructions are stored and executed within a computer system  ●        Design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems | **Aims**  ●    Understand how data of various types (including text, sounds and pictures) can be represented and manipulated digitally, in the form of binary digits  understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming; understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers [for example, binary addition, and conversion between binary and decimal] | **Aims**  This unit focuses on the development of the following key techniques:  ●        Event handling  ●        Sequencing  ●        Variables  ●        Selection  ●        Operators  App Lab by code.org is used throughout the unit, so it is important that you are comfortable with the language and environment. In order to get a feel for the level of skill required, why not try the activities in the unit yourself before using them with your learners? | **Aims**  ●        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  This unit focuses on planning and creating vector graphics. Key ideas of layering, grouping, and combining objects are introduced. |
| **Assessment** | Worksheets during lesson 2 & 4 with homework.  Summative Assessment is done in the form of an end of unit google quiz. | Worksheets during lesson 2 & 4 with homework.  Summative Assessment is done in the form of an end of unit google quiz. | Worksheets during lesson 2 & 4 with homework.  Summative Assessment is done in the form of an end of unit google quiz. | Worksheets during lesson 2 & 4 with homework.  Summative Assessment is done in the form of an end of unit google quiz. | Worksheets during lesson 2 & 4 with homework.  Summative Assessment is done in the form of an end of unit google quiz. | Worksheets during lesson 2 & 4 with homework.  Summative Assessment is done in the form of an end of unit google quiz. |

    Curriculum Map

Subject:  **Computer Science** Year:  9                                                                    (6) = number of lessons

|  | **Autumn 1** | **Autumn 2** | **Spring 1** | **Spring 2** | **Summer 1** | **Summer 2** |
| --- | --- | --- | --- | --- | --- | --- |
| **Content** | Cybersecurity (6) | Representations: going audiovisual (6) | Python programming with sequences of data | Physical Computing (6) | Game Lab (6) | Development for the Web (6) |
| **Skills** | **Aims:**  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.  Learners will:  Consider the value of their data to organisations and what they might use it for.  Look at social engineering techniques used by cybercriminals to try to trick users into giving away their personal data.  Consider the more common cybercrimes as well as looking at methods to protect ourselves and our networks against these attacks. | **Aims:**  In this unit, learners will:  Focus on making digital media such as images and sounds and discover how media is stored as binary code.  Draw on familiar examples of composing images out of individual elements, mix elementary colours to produce new ones, take samples of analogue signals to illustrate these ideas, and then bring all these things together.  This will help you to understand how the underlying principles of digital representations are applied in real settings. | **Aims:**  This unit introduces learners to how data can be represented and processed in sequences, such as lists and strings.  Tasks based ion sequences of data, that range from accessing an individual element to manipulating the entire sequence. A range of pedagogical tools are employed throughout the unit, with the most prominent being pair programming, live coding, and worked examples. | **Aims:**  This unit applies and enhances the learners’ programming skills in a new engaging context: physical computing, using the BBC micro:bit.  Learners will get acquainted with the host of components built into the micro:bit.  Write simple programs that use these components to interact with the physical world.  Learners will then work in pairs to build a physical computing project.  They are also expected to be able to combine sequence, selection, iteration, and function/method calls to control the flow of program execution. | **Aims:**  In this unit students will follow on from the Year 8  unit on App Development using Code.org’s AppLab.  In this unit students will learn the basics of developing and creating a simple game using graphics and block code based on Java.  The learner will follow a series of online lessons both in class and at home with a series of tasks that will need to be completed by the end of the topic.  <https://studio.code.org/s/csd3-2022> | **Aims:**  In this unit,we will look behind the curtain to help learners start to understand how web pages are constructed using HTML tags, and how they can be modified to display content as they wish.  We will learn how to carefully control what we search for, so that we are more likely to find what we want, instead of navigating too many results.  We will build a simple website using a combination of html and web design applications. |
| **Assessment** | Formative Assessment through classwork and homework worksheets.  Summative Assessment is done in the form of an end of unit google quiz. | Formative Assessment through classwork and homework worksheets.  Summative Assessment is done in the form of an end of unit google quiz. | Assessment through classwork and homework worksheets.  Summative Assessment is done in the form of an end of unit google quiz. | Assessment through classwork and homework worksheets.  Summative Assessment is done in the form of an end of unit google quiz. | Assessment through classwork and homework worksheets.  Summative Assessment is done in the form of an end of unit google quiz. | Assessment through classwork and homework worksheets.  Summative Assessment is done in the form of an end of unit google quiz. |