

# Year 9

# Subject: Computer Science

| Year 9 | Unit of work & brief outline of what will be covered.   | Key Objectives – what will students learn   | Assessment   |
|--------|---|---|--|
| 1 & 2  | Unit 9.1 Back to the future<br>Introduction to computational concepts<br>This unit, introduces pupils to the underpinning concepts relevant to the building blocks of computer systems.   | By completing this unit, students will learn about the Computer Science pioneers below and explore their work. George and his Boolean Logic. Sir Tim Berners-Lee and his concepts of HTML and WWW. Charles Babbage, the Difference Engine, problem Solving with bubble sort algorithm and Alan Turing and Code breaking, encryption, algorithms, and the blueprint for AI.        | Students will complete activities every lesson. They will also complete an interim assessment, self and final unit assessment based on Boolean logic, bubble sort, code breaking and encryption techniques using Pigpen and Caesar cypher.<br>Students will submit a unit Dedicated Improvement and Reflection Time (D.I.R.T) sheet, completed for their final unit assessment.<br><b>Homework:</b> Students complete three pieces of homework on SAMlearning based on the concepts covered in this unit.  |
| 2 & 3  | Unit 9.2: Python Intermediate<br>This is an extension to Python from year 8. Students will transfer their year 7 & 8 computational knowledge of sequencing, selection and iteration from a visual programming language to a text based one by using Python. This unit will help prepare students for GCSE Computer Science, if they decide to choose it and help them with problem solving. | By completing this unit, students will learn the process of planning programs with Pseudocode, formulating algorithms, using sequencing, selection, iteration and different data types used in creating programs.   | Students will complete activities every lesson. They will also complete an interim assessment, self, and final unit assessment in which they will create a plan of a of a program using Pseudocode and create a program using selection, iteration and different data types.<br>Students will submit a unit Dedicated Improvement and Reflection Time (D.I.R.T) sheet, completed for their final unit assessment.<br><b>Homework:</b> Students complete three pieces of homework on SAMlearning and GC programming tasks based on the concepts covered in this unit.     |
| 3 & 4  | Unit 9.3: Spreadsheets (Intermediate)<br>This unit teaches students how to model data using real life scenarios. It is a practical, skills-based unit covering the principles of creating and formatting spreadsheets to model data on a computer.  | The unit focuses on different types of models and then use basic spreadsheet techniques to create and format a simple financial model to calculate the expected income. It will extend to include “what if” scenarios and features like SUM, MAX, IF and COUNTIF functions, cell naming for absolute referencing, conditional formatting, validation, charting and simple macros. | Students will complete activities every lesson. They will also complete an interim assessment, self, and final unit assessment in which they will create a spreadsheet to solve a problem. It will include the use of functions like MAX, IF, SUM, COUNTIF cell formatting etc.<br>Students will submit a unit Dedicated Improvement and Reflection Time (D.I.R.T) sheet, completed for their final unit assessment.<br><b>Homework:</b> Students complete three pieces of homework on SAMlearning, and GC programming tasks based on the concepts covered in this unit. |
| 5 & 6  | Unit 9.4: Database<br>This unit covers essential theory of databases. It has a practical focus, covering the creation and use of a single-table database and/or a simple relational database involving two tables in a one- to-many relationship using MS Access.   | By completing this unit, students will learn and create a flat-file or two-table relational database of their own, using suitable field types and validations. An input form with help text, combo boxes and list boxes. Queries and a report using data from one or both tables. A front-end menu for their application linking to the database input form and report.           | Students will complete activities every lesson. They will also complete an interim assessment, self, and final unit assessment in which they will create database so solve a problem. It will include tables, queries, reports all well formatted.<br>Students will submit a unit Dedicated Improvement and Reflection Time (D.I.R.T) sheet, completed for their final unit assessment.<br><b>Homework:</b> Students complete three pieces of homework on SAMlearning, and GC programming tasks based on the concepts covered in this unit.                              |