KS3 Computing Units Overview

Here is a possible structure for delivering the KS 3 Computing Curriculum, the units will ensure a comprehensive coverage of the DfE's National Curriculum in England: Computing Programmes of Study as well as introduce students to some of the more engaging, and current computing concepts such as Data Science, Artificial Intelligence and Cyber Security.

Order of Delivery

The teaching order can be reorganised to suit your situation, however it is advisable that the units that are labelled with numbers at the end are done in a chronological order, for example teach Programming in Python 1 before Programming in Python 2.

Year	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
7	7.1 Creative Programming in Python	7.2 Computer Systems	7.3 Vector Graphics	7.4 Web Technologies 1 (HTML)	7.5 Modelling with Spreadsheets	7.6 Programming the Crumble
8	8.1 Programming in Python 1	8.2 Programming in Python 2	8.3 Artificial Intelligence 1	8.4 Cyber Security	8.5 Web Technologies 2 (CSS)	8.6 Programming the MicroBit
9	9.1 Programming in Python 3	9.2 Communications and Networks	9.3 Artificial Intelligence 2	9.4 Data Science	9.5 Technology and Society	9.6 Web Technologies 3 (JavaScript)

In addition to covering the DfE's National Curriculum in England: Computing Programmes of study, the units explore ideas of
- Artificial Intelligence
- Physical Computing
- Data Science and
- Cyber Security

The table below gives a summary of what is covered in the unit as well the assessments done during as well as at the end of the unit.

Summary of the units and Assessment

Year	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
7	**7.1 Creative Programming in Python** Using the turtle graphics in Python to create interesting patterns. **Assessment:** On going assessment during the units - create a pattern. On-screen Google form quiz	**7.2 Computer Systems** Theory of computing, to include data representation. **Assessment:** Ongoing assessment during the unit On-screen Google form quiz	**7.3 Vector Graphics** Learn about vector graphics, how to create and use them **Assessment:** Practical task to create a vector image based on a scenario	**7.4 Web Technologies 1 (HTML)** Introduction to HTML. lesson taught and delivered through trinket. **Assessment:** Students are required to apply tags to a starting point website and modify.	**7.5 Modelling with Spreadsheets** Use spreadsheets to analyse data to make decisions. Both Google Sheet and MS. Excel covered. **Assessment** A modelling task, that uses the functions covered in the lessons.	**7.6 Programming the Crumble** Learn how to connect a physical microprocessor and program it to respond to events. **Assessment:** On-screen assessment to test information about the crumble as well as the coding used.
8	**8.1 Programming in Python 1** Building on Creative programming in Python, console programming is covered. **Assessment** Write a program based on a given specification. On screen assessment.	**8.2 Programming in Python 2** Subroutines, data structures, handling files and nested structures covered in this unit. **Assessment** Write a program for a given task. Onscreen assessment	**8.3 Artificial Intelligence 1** Learn about supervised, unsupervised and reinforcement learning. Use AI models to make predictions, **Assessment** Investigate and make decisions / conclusions on a given model.	**8.4 Cyber Security** Learn about cybersecurity threats, and how to identify and correct them. **Assessment** Written on screen assessment.	**8.5 Web Technologies 2 (CSS)** This builds on the web technologies unit (HTML), and use CSS to style pages. **Assessment** Students apply styling techniques to a given site	**8.6 Programming the MicroBit** This is the second physical computing unit. It will use Python to develop smart systems. **Assessment** Build and program a system that solves a everyday problem.
9	**9.1 Programming in Python 3** Structured programming and robust programming are covered in this unit. **Assessment** An assessed programming project	**9.2 Communications and Networks** Communication basics, types of networks and an introduction to protocols covered. **Assessment** Onscreen assessment	**9.3 Artificial Intelligence 2** This unit builds on AI 1, students learn about neural networks and write a nought and cross game using neural networks. **Assessment** Completed game, onscreen assessment	**9.4 Data Science** Student develop their data science skills and use this to purge data and answer questions about the data. **Assessment** Python program to purge and analyse some given data.	**9.5 Technology and Society** Learn about ethical, legal and environmental impacts of digital systems on society. **Assessment** Written paper	**9.6 Web Technologies 3 (JavaScript)** Combine HTML, CSS and JavaScript to create an interactive website. **Assessment** An interactive website based on a given scenario