Scheme of Learning: GCSE Computing

Topic Sequence:

1	2	3	4	5	6
Computational Thinking	Data	Computers	Networks	Issues and Impacts	Programming

Topic Overview:

This extensive programming unit takes learners from being complete novices to having the confidence to tackle any GCSE-level programming challenge. Essential programming theory is also interleaved into the practical elements of programming to provide tangible links between required knowledge and skills. The latest pedagogical research has been used to ensure that learners are appropriately scaffolded and challenged as they move through the lessons.

Links:
GCSE Computing Topic 6 - Programming

Lesson Sequence:

Lesson 32 Records and dictionaries : This lesson introduces learners to two new data structures. A record and a dictionary. The focus of this lesson is on records and how these can be created and used in Python to form a database.

Lesson 33 Dictionary challenge: This lesson gives learners the opportunity to use a dictionary data structure in a new context. Learners will create a Caesar cipher encryption program using a dictionary as the cipher wheel.

Lesson 34/35 Test Files: Learners will be introduced to text files in this lesson. The focus will be on reading text files, and how the data from a text file can be used within a program. This lesson continues the exploration of text files with the addition of writing and appending to files.

Lesson 36 CSV Files: Learners are already familiar with text files and how to read the data from them. A CSV file is still a text file and you can use the same methods and modes that you can with a standard file.

Lesson 37 Wite to a CSV: Building on from the last three lessons, learners will discover how to write to CSV files. They work with 1D and 2D lists, before converting them to string and writing them to CSV files.

Lesson 38 Being a Programmer: Learners will discuss the good habits of a programmer before being reminded of why some of the key aspects are good habits.

Lesson 39 Turtle Introduction: Learners re-visit how to decompose a problem and learn how to use turtle graphics to draw lines and basic shapes

Lesson 40 Turtle Lesson 2: Learners revisit how to incorporate selection, repetition, and iteration into turtle graphics and revise how to use subprograms

Lesson 41: Turtle Lesson 3: Learners will use turtle pens of different colours and sizes to create more complex patterns. They will also use turtle to fill in closed shapes

Lesson 42 Turtle Lesson 4: Learners will combine subprograms to produce different turtle generated graphic images

Lesson 43: Turtle Lesson 5: Learners will be given a problem that they will decompose into smaller parts and then combine subprograms to create a solution

Sequence of Lessons:

32	6.32 Records and Dictionaries
33	6.33 Dictionary Challenge
34/35	6.34 / 6.35 Text Files
36	6.36 CSV files
37	6.37 Write to CSV
38	6.38 Being a Programmer
39	6.39 Turtle Introduction
40	6.40 Turtle Lesson 2
41	6.41 Turtle Lesson 3
42	6.42 Turtle Lesson 4
43	6.43 Turtle Lesson 5

Topic Resources:

Knowledge Map:	Programming	Any other Resources:	

Assessment:

Knowledge:	Assessment after Lesson 43
Application of Knowledge:	Evidence from classwork, Lesson 37 and Mastery book

Supportive Reading:

Craig n Dave Videos	GCSE (1CP2) EDEXCEL: Topic 6A Developing code – YouTube GCSE (1CP2) EDEXCEL: Topic 6B Programming fundamentals - YouTube
BBC Bite Size	Programming constructs - Edexcel - GCSE Computer Science Revision - Edexcel - BBC Bitesize
Revision Guide	Pearson REVISE Edexcel GCSE Computer Science Revision Guide inc online edition - 2023 and 2024 Weidmann, Ann, Selby, Cynthia: