

# 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 17 Subroutines:** Learners will discover the advantages of using subroutines, and how they are used for decomposition. They will also modify a subroutine that uses parameters.

**Lesson 18 Functions:** During this lesson, learners will be introduced to functions. They have already used built-in functions when programming, but haven't actually written their own yet.

**Lesson 19 Scope:** Learners will be introduced to the concept of scope in this lesson. They will be briefed on the definitions, before being given example programs that show how local and global scope work in Python.

**Lesson 20 Structured programming:** This lesson introduces learners to the structured approach to programming. They will learn to describe structured programming through a series of exercises.

**Lesson 21/22 Create a Program:** This lesson begins with an exploration of the different ways to test programs, followed by a few example tests to complete. Learners will be introduced to their project, which will be used to check their understanding of all the concepts covered up to this point.

**Lesson 23 GUI's:** This lesson provides learners with a tour of the world of GUIs (graphical user interfaces). It uses the third-party module `guizero` to create GUI apps.

**Lessons 24/25/26 String Handling:** This lesson introduces learners to a number of string-handling techniques.

**Lesson 27 Lists:** This lesson introduces learners to the data structures: arrays and lists. It defines them, and explains the differences between the two. It then moves on to focus on lists in Python.

**Lesson 28 List Methods:** This lesson introduces learners to the many other list methods that can be used in programming. These were briefly introduced at the end of the last lesson.

**Lesson 29 2d Lists:** Learners are introduced to two-dimensional arrays and lists during this lesson. They will be defined, and then learners will be shown how to access lists and single items in those lists, before they complete an activity to practise these skills

**Lesson 30/31 2d List Challenge:** This lesson begins with reminding learners about iterative and final testing. Learners are then introduced to their challenge, which is to create a noughts and crosses game

Sequence of Lessons:		Topic Resources:			
17	6.17 Subroutines	Knowledge Map:	Programming	Any other Resources:	
18	6.18 Functions				
16	6.19 Scope	<b>Assessment:</b>			
20	6.20 Structured Programming	<b>Knowledge:</b>	Assessments after Lesson 26 and Lesson 31		
21/22	6.21/6.22 Create a Program	<b>Application of Knowledge:</b>	Lessons 21/22 Create a program Lesson 30/31 2d List Challenge Mastery Book		
23	6.23 GUIs	<b>Supportive Reading:</b>			
24/25/26	6.24 / 6.25 / 6.26 String Handling	<b>Craig n Dave Videos</b>	<a href="#">GCSE (1CP2) EDEXCEL: Topic 6A Developing code – YouTube</a>		
27	6.27 Lists		<a href="#">GCSE (1CP2) EDEXCEL: Topic 6B Programming fundamentals - YouTube</a>		
28	6.28 List Methods	<b>BBC Bite Size</b>	<a href="#">Programming constructs - Edexcel - GCSE Computer Science Revision - Edexcel - BBC Bitesize</a>		
29	6.29 2d Lists	<b>Revision Guide</b>	<a href="#">Pearson REVISE Edexcel GCSE Computer Science Revision Guide inc online edition - 2023 and 2024 Weidmann, Ann, Selby, Cynthia:</a>		
30/31	6.30/6.31 2d List Challenge				