Scheme of Learning: Year 8 Computing

Topic Sequence:

1	2	3	4	5	6
Computer Systems	**Representation**	**Developing for the Web**	**Intro to Python**	**Heroes of Computing**	**Mobile App**

Topic Overview:

In a world where there's an app for every possible need, this unit aims to take the learners from designer to project manager to developer in order to create their own mobile app. Using App Lab from code.org, learners will familiarise themselves with the coding environment and have an opportunity to build on the programming concepts they used in previous units before undertaking their project. Learners will work in pairs to consider the needs of the user; decompose the project into smaller, more manageable parts; use the pair programming approach to develop their app together; and finish off by evaluating the success of the project against the needs of the user.

Links
Year 7 Scratch Programming 1 and 2, Year 8 Python Programming, GCSE Computing Unit 1 – Computational Thinking and Unit 6 Programming

Lesson Sequence:

Lesson 1: App for That! - In a world where there's an app for every possible need, this unit aims to take the learners from designer to project manager to developer to create their own mobile app. Using App Lab from code.org, learners will familiarise themselves with the coding environment and have an opportunity to build on the programming concepts they used in previous units before undertaking their project.
Lesson 2: Tappy Tap App - Learners will be introduced to the concept of event-driven programming and applying the paradigm to the app they started to develop last week. They will be shown the coding environment and the first steps will be taken using live coding, in which the learners will write their code alongside the teacher.
Lesson 3: School Lab Studios - Learners will be presented with an app that has three errors. They will have to open the app to attempt to spot and fix the errors. Next, the learners will work on the score screen of the Tappy Tap App, to make it display the user's score at the end of the game.
Lesson 4: User input - learners will start by thinking about how user input is captured and processed, before being given the challenge of adding code to a prebuilt app to deal with user input. Learners will then decompose the app project that they started last lesson into more manageable steps.
Lesson 5: App development - The main focus of this lesson is to spend most of the time developing the learners' app projects further. The learners will start by recapping their work and what they planned in the previous lesson. They will then spend time building their apps using pair programming. Towards the end of the lesson, the learners will ask classmates to review their apps in order to get feedback that they can respond to in the next lesson.
Lesson 6: Project completion - This is the final lesson of the unit and the focus will be on completing and evaluating the learners' app projects. The lesson starts with an activity to remind the learners about problem-solving and debugging, followed by a short activity to help them plan the time that they have left in the lesson to complete their app.

National curriculum links

- Design, use, and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems
- Use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures [for example, lists, tables, or arrays]; design and develop modular programs that use procedures or functions
- Understand several key algorithms that reflect computational thinking; use logical reasoning to compare the utility of alternative algorithms for the same problem
- Create, reuse, revise, and repurpose digital artefacts for a given audience, with attention to trustworthiness, design, and usability

Sequence of Lessons:

1	Lesson 1: App for That!
2	Lesson 2: Tappy Tap App
3	Lesson 3: School Lab Studios
4	Lesson 4: User input
5	Lesson 5: App development
6	Lesson 6: Project completion

Topic Resources:

Knowledge Map:	8.6 Mobile App Development	**Any other Resources:**	App Lab

Assessment:

Knowledge:	10 Multiple Choice questions
Application of Knowledge:	Learners design and develop a mobile app

Supportive Reading:

App Lab @ Code.org	App Lab | Code.org
App Lab Tutorial	Code.org Tic Tac Toe - Build Your First Game in App Lab Even If You Have Never Coded Before - YouTube
KS3 Computing Complete Revision & Practice - CGP	Chapter 6 & 7 Available from: KS3 Computing Complete Revision & Practice | CGP