

Programme of Study

Pupils should be taught to:

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 ,

Pupils should have experience of two different languages. In most cases this will be Scratch and a text based language like Python, Small Basic or Java. The text based language cannot be HTML—that is coding.

Within these languages, pupils should meet problems that involve the use of a set of data. An example of this could be a program to select at random the name of a pupil from a class list.

They should also use the idea of a program being created in sections which include the idea of procedures or functions.

Pupils can be taught programming by looking at existing programs — they do not necessarily have to create them from new. Many Java programs are constructed in sections taken from an open source library.

Avoid using difficult maths as this is a barrier to learning.

Text taken from: *'The Computing PoS at KS3 and what it means'* available here

<http://bit.ly/1aV8gHP>



Using Scratch in KS3

When using Scratch at KS3 it is not enough to be repeating activities that learners might have completed in previous schools. Many Primary Schools are already teaching children how to make games using Scratch—an activity that is still common in the early stages of KS3, risking making Scratch the new 'Death by PowerPoint'.

Learners also pick up Scratch very easily and do not need a lot skills based work to take advantage of the facilities presented by Scratch.

KS3 learners could be using Scratch to learn programming techniques that will present them with transferable skills to other languages.

The series of booklets indicated here cover these areas of programming:

- Loops
- Operators
- Variables and Lists
- Nesting Loops
- Functions and Procedures
- Recursion

All the resources utilise the browser based version of Scratch and can be printed to form a double sided A5 booklets.

The booklets can be found here:

[https://slp.somerset.org.uk/sites/edtech/Secondary Computing/Scratch](https://slp.somerset.org.uk/sites/edtech/Secondary%20Computing/Scratch)



0—Shark Attack Game

If you are convinced that the group needs some skill training before tackling the booklets then you can use the PowerPoint and the worksheet

The work involved includes:

- registering with the site
- Adding Code
- Creating a variable
- Controlling sprites
- Some work with loops

1- Repeating things with Loops

Learners should meet the idea of forever, is, if...then and if...then...else loops as means of repetition and iteration.

This booklet introduces them to the idea of three different types of loops: forever, repeat and repeat until, using the idea of a ballerina dancing across a stage.

One of the challenges introduces the if....else loop. It is fairly important that they meet this loop.

2- Variables and Lists

Learners should meet variable, be able to name them sensibly. Another concept that they should meet is the idea of a list.

Using the idea of a making a quiz this booklet introduces both ideas and shows how the can be used.

3 – Bob, Passwords and Operators

Learners should meet Boolean operators and be able to apply them when programming. This booklet uses the idea of passwords to ask children to use operators.

4 — Functions and Procedures

The idea of procedures and functions are explore din this booklet.

There are two program ideas here: one for drawing shapes and the other a program that displays information about an object when a sprite is clicked.

5—Fizz Buzz, nested loops and Recursion

The concept of nesting loops can be difficult. This booklet which explores the game Fizz Buzz gives children the experience of nested lops and mentions the idea of recursion

