Step → Step → Sequence

Computing Science Glossary

Simple Sequence One thing following another in which the order may or may not be important.

PRIMM A strategy that promotes Predicting, Running, Investigating and Modifying code before Making something.

USE MODIFY CREATE A strategy that promotes using and modifying code before creation *(just remove the first PRIMM page)*

IMPORTANT NOTE

This module is a great second module but I recommend something like animal challenges if pupils have not programmed with Scratch before.

Step by Step

Questions & Answers

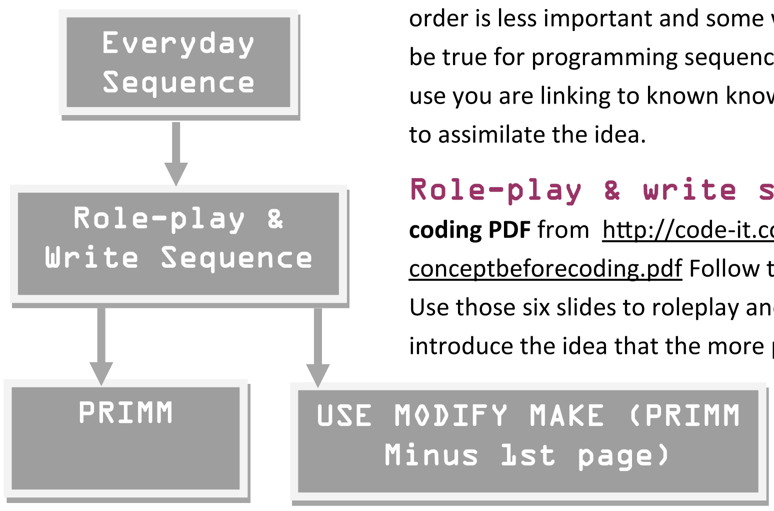
How does this fit in with other programming? See overview document
What age is this for? Lower KS2 but designed specifically for Year 3 7-8 year olds.
How hard is this to teach? Very easy as all the code instructions are in the booklets.
How do we Assess learning? Pupils use answers provided to mark their own work.
Is it in line with UK NC? Yes see next page but could easily be adapted for other countries.
Why is there a choice? There are lots of ways of teaching programming and no one really knows which are best or better or even if there is a best or better for all. We do know that it helps pupils to encounter a variety of different types of method so they are continually challenged. If you use other modules I recommend you switch strategies each time to keep the challenge high.
How creative is this? This combines the best knowledge we have about how to learn something new with the opportunity at the end for pupils to create something that they want to create that uses their new knowledge.

Everyday Sequence

Download **Everyday computing concepts PDF** from http://code-it.co.uk/wp-content/uploads/2019/04/everydaycomputingconcepts.pdf Use the first eight slides to introduce the idea of sequence in our everyday lives. There are some sequences where the order is less important and some where the order is paramount. The same will be true for programming sequences. By linking the concept to its everyday use you are linking to known knowledge which means pupils are more likely to assimilate the idea.

Role-play & write sequence

Download Concepts before coding PDF from http://code-it.co.uk/wp-content/uploads/2019/04/conceptbeforecoding.pdf Follow the links in the menu to simple sequence. Use those six slides to roleplay and write simple fun sequences. These slides introduce the idea that the more precise a sequence is the more useful it is. Stop when you get to the dance slide.


Everyday Sequence
Role-play & Write Sequence
PRIMM
USE MODIFY MAKE (PRIMM Minus 1st page)

Booklet Choices

You choose from one of the options above. Each option has its own booklet which guides pupils through the stages, making them think deeply about either the code or the algorithm before modifying it and having a choice of things to make. Pupils are instructed when to work in pairs and when to work alone. Cut up the answer sheet (last page of the booklet) into sections as pupils will need to mark their work as part of their learning process. If you are not sure which to choose download the booklets and look at the differences.

UK National Curriculum Programs of Study

(bold text is covered in this module)

Pupils should be taught to:

design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts

use sequence, selection, and repetition **in programs;** work with variables **and various forms of input and output**

use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs

Before the module

Read the planning and download the PDFs for **everyday sequences** and **role-play and write** sequences. Decide which booklet variation you are going to use and download and print it out one per pupil. Remove the answer sheets for pupils and cut them into sections for pupils to access when they need to. Download the code for your version of Scratch 2 or 3 and place it on your network where pupils can access it, or note where it is on the Scratch website if using Scratch online

Formative assessment support

Is coming soon in a new book format of these resources. Find out more by subscribing to code-it on the website.

Classroom Organisation

I recommend that pupils work in same ability pairs for the predict, Run & investigate and Modify but with their own booklet so they can put answers that are not the same in case they disagree. If you have high achieving pupils who don't work well with others then working individually is fine.

I recommend that pupils work individually for the final make section but continue to sit near their partner from the earlier section. This gives pupils personal responsibility and creative licence but still keeps some of the support they enjoyed earlier.

Assessment

You can get pupils to mark their booklets giving one mark for each correct answer. A guide to assessing the make section will be included in a new book format coming soon. Find out more by subscribing to code-it on the website.

Resources

Everyday Sequence

PDF Download Slides 3-8 (10 mins)

Role-play & Write Sequence

PDF Download Slides 4-9 (10 mins)

PRIMM

Pupil booklets for Scratch 2 or 3

Scratch 2 & 3 Code to download

Scratch 3 code on Scratch website

USE MODIFY MAKE

Pupil booklets PRIMM minus 1st page

Scratch 2 & 3 Code to download

Scratch 3 code on Scratch website

All Resources at

http://code-it.co.uk/goldapps/

Further Research Reading

Use Modify Create

Irene Lee et al Computational thinking for Youth in practice (2011)

PRIMM Sentence

https://blogs.kcl.ac.uk/cser/2017/09/01/primm-a-structured-approach-to-teaching-programming/

Four levels of abstraction

This article includes an example of the four levels of abstraction and sign posts the work of Waite and Armoni

http://code-it.co.uk/algprogdiff/

I recognise there is more than one way to solve/describe a problem

I can evaluate my solutions against a set criteria

I can design criteria to evaluate my creations

I can contribute useful ideas to a partner or group

I can encourage others to share their ideas

I lead using all the people talent in my group

I learn from setbacks and don't let them put me off

I can persevere even if the solution is not obvious

I don't just accept the first solution

Handles Ambiguity

Open Ended Problem Solver

Evaluates

Insert picture of your students here

Copes with Complexity

Adapts

Communicates

Investigates

Perseveres

I look for a range of solution to the same problem

I look for how a project can be extended

I can break complex problems into parts

I can discover / concentrate on the most important part of a problem

I can identify patterns in problems & solutions

I can adapt existing ideas to solve new problems

I can develop, test and debug until a product is refined

I make predictions about what will happen

I repeatedly experiment through predicting, making, testing & debugging

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