Sequence & Inputs

Computing Science Glossary

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.

Algorithm Part of planning stage before programming written for another human to read.

Code Written for a digital device

USE MODIFY MAKE A strategy that promotes using and modifying code before creation

Input Putting in information into a program or algorithm from an external source such as a human

Completion Code or algorithm that is partially incomplete that needs to be finished. Often combined with other strategies.

Ladybug Munch Game
Questions & Answers

How does this fit in with other game programming? See overview document **What age is this for?** KS2 (7-11 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 NC?** Yes see next page. **Why is there a choice?** All of the methods chosen have good research behind them but we don't know which are best or even if there is a best for all pupils. We do know that it helps pupils to encounter a variety of different types of method so they are continually challenged. If you work your way through all 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.

Role-play & write everyday inputs
**Download input PDF** from http://code-it.co.uk/goldgame/ The first slides introduce a definition of an input. The next slides introduce everyday inputs we find in our homes. Then slides ask pupils to pair up with one pupil roleplaying the digital device and one being the input.

Input – Can you spot the everyday inputs?

Digital Radio

Buttons change radio stations

Dial changes volume

Input – Putting in information

When I **tap shoulder gently** do this smile
Input

Role-play & Write Inputs

USE MODIFY MAKE → **Completion Modify Make** → **PRIMM (code)**
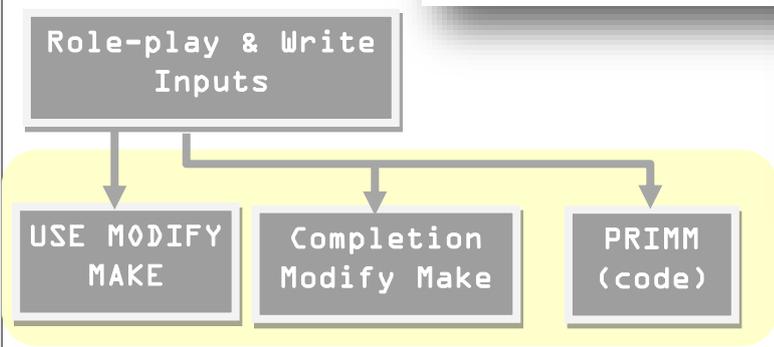
Choose One

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. Print out the answer sheets 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. Pupils each have their own booklet even when working in pairs.

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 inout. 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 seperate 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

If pupils are struggling to work together in a meaningful way then encouraging and rewarding positive attitudes to working collaboratively using the communicates stickers shown at the end helps.

Lots of misconceptions can be solved by reading the code or algorithm slowly and out loud to their partner.

Making concepts more concrete by acting them out can help.

Classroom Organisation

In some sections pupils are asked to work with a partner of similar programming ability. If you are not sure what programming ability they are go with Maths skills as a starting place. Move partners around between modules so that pupils benefit from different interactions.

Research Help

Get pupils to mark their booklets, collect in all the marks by sections. Collect the marks from the modify section and calculate a mean average for the whole class. Email or Tweet this to phil.bagge@code-it.me or @baggiepr stating clearly what age, module and version your class did. For example

Y4 8-9 Years old Helicopter PRIMM Code Mean average 5.2/9 for 32 pupils.

Resources

Role-play & Write Input

(15 mins)

Completion
Pupil booklets
Scratch 2 & 3 Code to download
Scratch 3 code on Scratch website

PRIMM Code
Pupil booklets
Scratch 2 & 3 Code to download
Scratch 3 code on Scratch website

USE MODIFY CREATE
Pupil booklets
Scratch 2 & 3 Code to download
Scratch 3 code on Scratch website

All Resources at
http://code-it.co.uk/goldgame/

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/

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

I don't just accept the first solution

I look for a range of solution to the same problem

I can evaluate my solutions against a set criteria

Handles Ambiguity

I look for how a project can be extended

Open Ended Problem Solver

I can break complex problems into parts

I can design criteria to evaluate my creations

Evaluates

Insert picture of your students here

Copes with Complexity

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

I can contribute useful ideas to a partner or group

I can identify patterns in problems & solutions

I can encourage others to share their ideas

Communicates

Adapts

I can adapt existing ideas to solve new problems

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

I lead using all the people talent in my group

Investigates

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

I make predictions about what will happen

Perseveres

I can persevere even if the solution is not obvious

I repeatedly experiment through predicting, making, testing & debugging

@baggiepr