

Condition starts action

Computing Science Glossary

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

Parsons Code is provided but not connected for pupils to connect

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.

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

Selection An event or multiple events is triggered by a condition

Investigate Change Add Is a modification of use 'modify' make where pupils have a repeated cycle rather than one cycle. Good for SEN differentiation,.

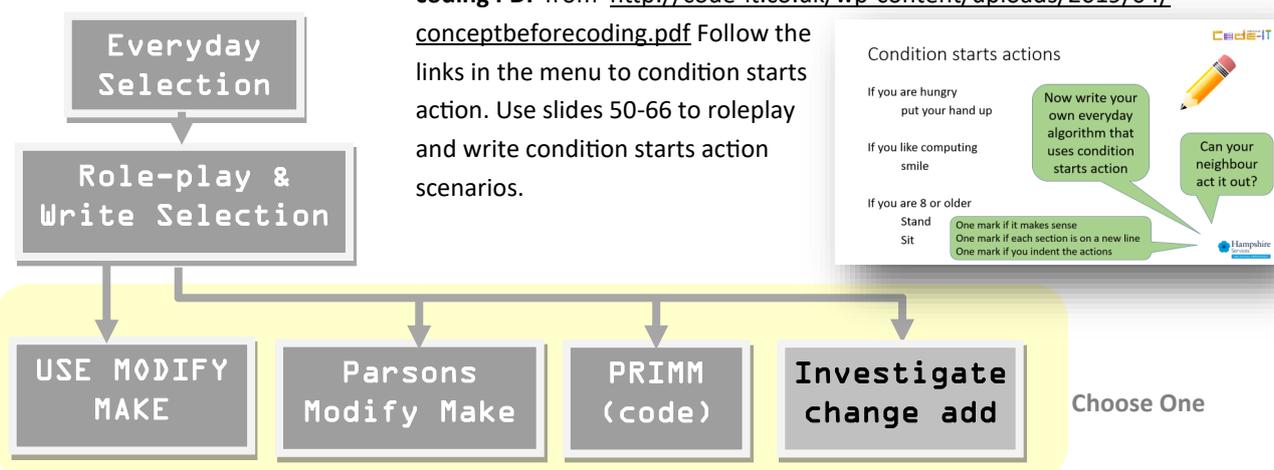
Making Choices

Questions & Answers

How does this fit in with other app programming? See overview document
What age is this for? Y4 or Y5 is a good place to use this if pupils have done other work on sequence and repetition first. **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.

Everyday Selection Download **Everyday computing concepts PDF** from <http://code-it.co.uk/wp-content/uploads/2019/04/everydaycomputingconcepts.pdf> Use slides 15-21 (everyday selection) to introduce the idea of selection in our everyday lives. By linking the concept to its everyday use you are linking to known knowledge which means pupils are more likely to assimilate the idea into an established mental schema.

Role-play & write Selection 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 condition starts action. Use slides 50-66 to roleplay and write condition starts action scenarios.



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. Separate the answer sheet (last pages 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.

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 Selection and role-play and write condition starts action. 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 separate 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 predict, investigate/use or modify ask them to read code or algorithm out loud. 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.

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. You can move partners around between modules so that pupils benefit from different interactions.

Assessing which version helps

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

Y5 9-10 Years old Diving Beetle PRIMM Algorithm Mean average 5.2/9 for 32 pupils.

Any other feedback, verbal or written, is also welcome.

Resources

Everyday Selection

[PDF Download](#) Slides 15-21
(10 mins)

Role-play & Write Selection

[PDF Download](#) Slides 50-66
(15 mins)

Parsons Modify Make

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 MAKE OR INVESTIGATE CHANGE ADD

Pupil booklets
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 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



I look for how a project can be extended

I can design criteria to evaluate my creations



Insert picture of your students here



I can break complex problems into parts

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

I can contribute useful ideas to a partner or group

Copes with Complexity

I can identify patterns in problems & solutions

I can encourage others to share their ideas



I can adapt existing ideas to solve new problems

I lead using all the people talent in my group

Communicates

Adapts

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

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



I make predictions about what will happen

I can persevere even if the solution is not obvious

Perseveres

I repeatedly experiment through predicting, making, testing & debugging