



Sustainability Ambassadors



Literacy



Healthy Citizens



Cultural Explorers



Designers



Mathematics



Careers Pathfinders



Scientific Investigators



Digital Learners



Global Enquirers



Engineers

Subject: Computing Unit: Programming

Year Group: 4 Term: Summer Term

Medium Term Plan:

How can programming help me to simulate relate life events?

Essential Vocabulary

program
command
simulate
selection
objects
actions
events

Big Concepts

Programming/coding requires precise instructions
Programming can be used to simulate real life events

Flag any content that might not have been covered during school closure

Year 3 programming unit was not covered due to school closure. Therefore this shortened unit of work must be delivered in Year 4 to cover key concepts of algorithms, actions, events and checking for errors (debugging)

Retrieve Essential knowledge to support learning of big unit concepts

Pupils will need to understand that algorithms require precise instructions and that when these are used in programming the outcome will depend on the sequence of the commands given (order of instructions given).

Subsequent National Curriculum Coverage

The Year 4 objective of using decomposition in programming will have 'light touch' in current Year 4 due to limited time available due to lockdown; however this will be built into the long term planning for Year 5.

Sequence of Teaching and Learning

Consideration has been given to the reduced time available for foundation subjects and a focus on key concepts that are priority for the remainder of this year. Teachers are able to either use the ICT suite or chromebooks as the Purple Mash 2Code will be used in the lessons.

Notes: Write and debug programs that simulate virtual events. Pupils will be using 2Code in Purple Mash. This allows them to simulate real life/virtual events by using coding blocks. It also ensures that any errors are corrected before moving onto the next task.

1	<p>Memory recall -afI</p> <p>L.O. Review understanding of algorithms and introduction to the 2Code interface and the actions of character, car and animal objects.</p>	<p>Memory recall: What is an algorithm? Pupils to be given prepared activity to work in pairs to write an algorithm to control Blue-Bot floor turtle (this is only paper activity and will not require floor turtles).</p> <p>Pupils create simple program to control objects on screen using 2Code (Fish example) Teacher to model each step/task and then pupils to complete independently (with support if needed). This is a very basic introduction to coding using 2Code and will give pupils opportunity to become familiar with 2Code interface, learn what objects and 'when clicked events' and actions are (teacher video to support staff cpd in Lesson 1 folder) and pdf flash cards included in folder which explain what actions, objects and 'when clicked events' are. .</p> <p><i>Expectation: by end of lesson pupils should be able to explain that they have used a command block to control the fish on screen. They could also explain what happens when they use "when clicked".</i></p>
2	<p>NC: Write and debug programs that simulate virtual events</p> <p>Using logical reasoning to detect and correct errors in programs</p> <p>L.O. To be able to create a simple program using objects and events</p>	<p>Retrieval question/s – e.g. what is an algorithm? What is a click event?</p> <p>Pupils will continue to use 2Code and teacher should model at least first activity on board. There are two possible activities that could be used in this lesson (Bubbles and the Planes activities). Both of these are still using events but with slightly different outcomes. The Bubbles code requires pupils to "hide" a bubble when clicked. Teacher to use judgement as to whether to use one or both. Pupils again should be thinking of how they are using the commands, objects, events and simulating real life/virtual events. It is important that this is discussed with pupils.</p> <p>In both of these activities there are opportunities to detect and correct errors in programs. This develops computational thinking and logical reasoning.</p> <p><i>Expectation by end of lesson that pupils are able to independently detect the errors and correct. That most will be able to independently read challenge and be able to use command blocks to create a program to complete the task.</i></p> <p>HA: There may be pupils who are able to develop their coding skills very quickly. These should be encouraged to move onto the next activity in the 2Code sequence. Each different coding activity builds on prior learning. For example the Snails activity introduces number of movements, the vehicle – able to select random speed between a specified range.</p>

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3	<p>Memory recall -afI</p> <p>NC: Write and debug programs that simulate virtual events</p> <p>Using logical reasoning to detect and correct errors in programs</p> <p>L.O. To be able to use time in a program</p>	<p>Retrieval activity</p> <p>Teacher to demonstrate and explain use of timer in Clock activity. There is a teacher video in the folder on the drive to support staff prior to their delivery of lesson.</p> <p>Through this activity pupils will develop their understanding of using timer command. Teacher should model on board and then after each step pupils should be complete on their workstation. The Magician activity which follows enables pupils to use their gained knowledge to write code using timers to control actions on screen and should be completed independently with minimum front of class input. Some pupils may need further support.</p>
4	<p>NC: Write and debug programs that simulate virtual events</p> <p>Using logical reasoning to detect and correct errors in programs</p> <p>L.O. To be able to create a simple program using objects and events</p>	<p>Retrieval question/s –</p> <p>If additional lessons are available then pupils should be moved onto the ‘Gibbon’ section of 2Code. Sequencing and repeat are introduced in these activities.</p>

Skills for Life

Resilience

Communication

Being
Safe

Team-working

Problem
Solving

Self-motivation

Real World Links including pupil experiences:

Programming and algorithms are part of our everyday lives and although may not be easily identified by pupils, this could be linked to using pedestrian crossings, automatic doors, light sensors, traffic lights, washing machines etc.

Skills for Life/ Core Values:

Safe
Resilience
Problem solving
Communication
Self-motivation

Influential Figures:

Plan for deliberate Reading opportunities: