



Sustainability Ambassadors



Literacy



Healthy Citizens



Cultural Explorers



Designers



Mathematics



Careers Pathfinders



Scientific Investigators



Digital Learners



Global Enquirers



Engineers

Subject: Computing Unit: Algorithms Year Group: Yr1 Term: Assessment Period 2
Medium Term Plan:

What is an algorithm?
How can floor turtles be controlled by algorithms?

Essential Vocabulary

algorithm
instructions
Bee-Bot
floor turtle
order

Big Concepts

Programming - Examples: **Write** a **set of instructions** to make a get dressed and **explain** order

Plan and write an **algorithm** to map out a journey for a programmable toy (**forward, back, turn**).

Test and identify errors (this activity would also cover **decomposition** and **abstraction**)

Write instructions to control a Bee-Bot on an iPad (using forward, back and turn)

Sequencing – Examples: Able to put set of instructions **in order** to make a jam sandwich

Order cards which show their daily routine at school

Order instructions for a Blue-Bot to reach a destination on a map

Curriculum Coverage

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

Retrieve Essential knowledge to support learning of big unit concepts

Pupils can be referred back to using instructions to complete a task – i.e. morning routines when arriving in school, getting dressed in the morning.

Subsequent National Curriculum Coverage

Understand that programs execute by following precise instructions

Create and debug simple programs

Sequence of Teaching and Learning

Create simple programs

Use logical reasoning to predict the behaviour of simple programs

Pupils will review understanding of what algorithms are and begin to create simple programs using the Daisy the Dinosaur app on iPads. Most of this unit will be pupil led in that they will be exploring the app and investigating how they can control the movements of the character. There are a set of resources to accompany this unit from Primary Computing.co.uk which are held in the google folder, these include lesson plans, badge images for the pupils etc. For non-specialist subject teachers it is strongly recommended that you follow these lesson plans and use the resources included when introducing algorithms to your pupils. However; please feel free to adapt to suit the needs of your class.

It is recommended that pupils work in pairs when using the iPads – teachers/TAs should gather evidence of progression by taking photographs, of code, pupils using the app and documenting a sample of Q&A from pupils in the floor books.

1 & 2	NC: Understand what algorithms are and how they are implemented on digital devices L.O. To be able to write an algorithm	Lesson plans and resources from Primarycomputing.co.uk are in the Year 1 folder. These can be used/adapted or teachers can develop their own. There are questions within the resources to aid assessment.
3	NC: Understand what algorithms are and how they are implemented on digital devices L.O. To be able to write and follow an algorithm	Memory recall: What is an algorithm? Further opportunities for pupils to work in small group or pairs to write algorithms - including one requiring school hall as pupils will be acting out instructions. Introduce into sessions that algorithms are used to control devices such as remote control cars, robots, make things happen on computers. (digital devices)

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4	<p>NC Understand how algorithms are implemented on digital devices</p> <p>L.O. Understand that algorithms are used to control digital devices</p>	<p>Memory recall</p> <p>Allow pupils time to experiment and tinker with Blue-Bots – what do they do? How can you control them? What happens when you press the buttons? What does the Blue-Bot need to be able to work? – instructions/algorithms.</p> <p>Using Blue-Bots pupils are to write algorithms to that will make the Blue-Bot complete a task. This may be follow the outline of a shape, go to different parts on a map. (Teachers are able to make their own maps to link with topic if they wish (each square needs to be 15cm x 15cm – this will be one space fd when the Blue-Bot moves).</p>
5	<p>NC: Predict the behavior of simple programs</p> <p>L.O. To be able to write a program to control an object</p>	<p>Memory recall: - possibly give an algorithm and ask pupils to find error i.e. brushing teeth – in wrong order).</p> <p>Opportunities to set challenging tasks using Blue-Bots. Staff can also choose to introduce iPads and Daisy the Dinosaur app or Blue-bot app. The same principal applies that algorithms are required to control the object on the screen. Teachers should look at these apps prior to decide on tasks</p>

Skills for Life

Resilience

Communication

Being
Safe

Team-working

Problem
Solving

Self-motivation

Real World Links including pupil experiences:

Following instructions given in school – morning routines
Solving problems

Skills for Life/ Core Values:

Being safe (using technology)
Problem solving
Communication
Team-working
Resilience

Influential Figures:

Plan for deliberate Reading opportunities: