

Brough Primary School – Curriculum Intention Plan 2023 - 2024



Subject: Computing		Area of learning: Computing (We are Treasure Hunters - Rising Stars 1.1)	
Year Group: 1/2			
Links to previous work/Remember when	Children use geographical language. In maths, children recognise movements in a straight line (translations) and rotations, and combine them in simple ways. In English, children provide clear instructions.		
Term	Key Skills to be taught		
Autumn 2 2023			
What the children should know at the end of this series of lessons	In this unit, the children will program a toy to move around a map to find buried treasure. They will start by thinking of algorithms for their routes, then input these as stored programs for the robot. They predict how the robot will move and will debug their programs.		

Vocabulary

algorithms, programs, digital devices, debug, instructions, programmers, input, output, predict

Sequence of learning	Learning Objectives/Outcomes	suggested Lesson Outline
1	<p>Learning Objective: To give and follow instructions to reach a location on foot.</p> <p>Key Knowledge: The instructions are called an algorithm. When we enter these into a computer, this is programming.</p>	<p>Recap – Tell them that they can only use ‘forwards’, ‘backwards’, ‘turn left’ and ‘turn right’ as instructions.</p> <p>Take the pupils into a large space, such as the school hall or playground. Put treasure (perhaps a box or a bag) at one location and gather the pupils at another location. Set pupils the challenge of deciding on what instructions they would need to follow to get from where they are to the treasure.</p> <p><i>Photo evidence.</i></p>
2	<p>Learning Objective: To write my own instructions to reach a</p>	<p>Recap – What do they think the symbols on the map represent?</p>

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	<p>location using a toy figure.</p> <p>Key Knowledge: The class may wish to agree on a common format for this, either using symbols, words, or both. Ask the children to follow the instructions that they wrote down. Did they work? If not, the pupils should correct ('debug') these and start again.</p>	<p>Put a toy figure on the dock, on the large map, and tell the children where it needs to get to. Working as a class, the children should give the figure instructions to move, one step at a time, to its destination.</p> <p><i>The pupils write down instructions to move the figure from the dock to a different location.</i></p>
3	<p>Learning Objective: To experiment with a programmable toy.</p> <p>Key Knowledge: Explain that the toy is a computer – it accepts inputs and then produces output according to a stored program. Ask the children to think of other technologies that also accept input, store programs and produce outputs.</p>	<p>Recap – The pupils should look for other devices around their homes that accept inputs, use stored programs and produce outputs, such as games consoles, smartphones, tablet computers, microwave ovens and washing machines.</p> <p>Introduce your chosen programmable toy to the children. Provide them with some time to experiment with this, discovering how it works for themselves, particularly if it is a toy with which they are unfamiliar. Ask the pupils to demonstrate what they've discovered to the class. Correct any misconceptions. Show them what buttons to press to make the toy move one step at a time, if they have not discovered this for themselves. Allow the children time to take turns doing this (either within a group or in pairs).</p> <p><i>Photo evidence.</i></p>
4	<p>Learning Objective: To follow and input instructions into a programmable toy.</p> <p>Key Knowledge: Explain that the programmable toy is going to be a treasure hunter, and if they program it with Blackbeard's</p>	<p>Recap – The pupils could talk to their step-by-step directions to get from home to school.</p> <p>Place the programmable toy on the dock and ask one or more pupils to input Blackbeard's instructions as a complete sequence in one go. Ask the children where they think the toy will end up. Show them if they are right. Ask them how they made their predictions. Repeat with the other set of instructions and/or a different starting point, again asking pupils to predict where the toy will end up when programmed. One or more children</p>

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	instructions it will go to the treasure.	should program the instructions so that the class can test their predictions. <i>Photo evidence.</i>
5	<p>Learning Objective: To write my own instructions and input them into a programmable toy.</p> <p>Key Knowledge: Input the sequence of instructions they have noted down and then test whether the instructions lead the toy to the treasure.</p>	<p>Recap – The children could refer to the software Scratch blocks to program it to move on-screen.</p> <p>Give each group a counter that represents the programmable toy. Ask each group to place the counter on the dock and move it one step at a time until it reaches the X, making a note of each step the counter takes (using a pencil and paper). The groups should then see whether they can find the treasure using the programmable toy on the large treasure map. First, ask them to place the toy on the dock and the X in the square of the large map that relates to the A4-sized hard-copy version of the map. Ask them to input the sequence of instructions they have noted down and then test whether the instructions lead the toy to the treasure.</p> <p><i>Make a note of each step the counter takes (using a pencil and paper).</i></p>
6	<p>Learning Objective: To debug a faulty set of instructions.</p> <p>Key Knowledge: Set pupils the challenge of finding and correcting errors in one another's programs for the robot, either by logical reasoning alone or by testing the programs on the robot.</p>	<p>Recap – Ask pupils to discuss with their parents or carers examples of programs they use on computers or other devices that don't work exactly as they should. Are these bugs?</p> <p>Show pupils the map again, and the faulty set of instructions (see Resources). Explain that the algorithm is meant to move the robot from one point to another, but that you think it might be wrong. Ask pupils to predict what would happen if it was typed in as a program. Where would the robot end up? Can they suggest any way to fix the program? Explain that this is called debugging.</p> <p><i>Photo evidence.</i></p>

Learning Outcome/product

Give one another instructions to move around a large space. Understand input, program and output in the context of a robotic toy. Create a program to move a toy to a particular location. Debug a program.

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Assessment records	List only those children who have not achieved the expected outcomes.