



TSS Primary ICT MTP 2022-2023 Year 1 Block 5 - Robots

Week	Key Targets and Learning Objectives	Key Activities	Key Vocabulary
1	<ul style="list-style-type: none">➤ 1CS.06 Identify what a robot is and where they may be found in the real world.➤ 1CS.05 Know that there are many everyday devices that use computers to control what they do.	<ul style="list-style-type: none">➤ <i>Are robots real?</i> (Think, pair, share)➤ Start to categorise them in a meaningful way, for example 'good robots' and 'bad robots', 'robots that look like people', 'robots that do a job' and 'toy robots'.➤ Show https://youtu.be/8wHjLMnikU and https://youtu.be/3Mi62VKDhm0?t=50➤ Explain that we use computers to do lots of everyday jobs more efficiently than humans.➤ Support learners to understand that, in addition to robots, there are many everyday devices that contain computers e.g. cars and washing machines.➤ <i>Can you think of any more devices that have computers inside them?</i>➤ <i>Can you think of any more jobs that computers do for us?</i>➤ Display the key vocabulary flash card for 'algorithm' and support learners to understand that robots are able to operate by following the algorithms that humans have programmed into them.➤ Ask learners to draw a picture of their own robot and label it with information about what it does.➤ Invite learners to describe some of the features of their robot and the task or tasks it performs.	<ul style="list-style-type: none">➤ device➤ algorithm
2	<ul style="list-style-type: none">➤ 1CT.03 Know how to give simple instructions, using directional language (forward, backwards, left, right), to navigate a path.➤ 1CT.07 Suggest ways that an algorithm could be changed to affect the outcome.	<ul style="list-style-type: none">➤ Practise moving to instructions such as forward, backward, left and right on a grid on the floor.➤ Introduce EaRL movement cards.➤ Work with partner on a similar grid on A4 paper to move a small robot to get to a block. Use EaRL movement cards to record the instructions. Record the instructions using arrows.➤ Review the fact that they have made an algorithm.➤ What happens if the last direction of the algorithm is changed? (small change in the outcome)	<ul style="list-style-type: none">➤ forward / backward➤ left turn / right turn➤ algorithm



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3	<p>➤ 1P.03 Predict what is likely to happen when programs are run.</p> <p>1CS.03 Know that information and data can be input to a computer in many different ways.</p> <p>1CS.04 Know that a computer can output information in many different ways.</p> <p>1P.02 Know how to recreate algorithms as programs to perform simple tasks.</p>	<ul style="list-style-type: none"> ➤ What happens if a direction earlier in the algorithm is changed? (a bigger change in the outcome) ➤ Review vocabulary and reinforce left and right turns. ➤ Remind learners that when we 'input' information into the computer, or give it an instruction, we want to see something happen – we want to see an 'output'. ➤ Link this to the previous activity where learners were 'programmers' and 'robots'. The programmer input some directions to the robot, and then they saw the output as the robot moving along a path. ➤ Look at EaRL. What can be seen on the robot? How can it be switched on? ➤ Talk about how to handle and share the device. ➤ Allow time to explore what the EaRL can do. ➤ Ensure that learners can: <ul style="list-style-type: none"> ○ switch the robot on ○ press the buttons accurately ○ move the robot forward and backwards ○ turn the robot ○ recognise how far each instruction moves the robot ○ delete or undo an instruction ○ press go ○ turn the robot's sound on and off. ➤ Give the children an algorithm. What will happen? Test out your prediction. ➤ Get children to predict the algorithms to get to various numbers or colours on their grids before testing to see if they were correct. ➤ Get the children to debug the algorithms if they don't work. ➤ Self-assess their learning 	<ul style="list-style-type: none"> ➤ input ➤ output ➤ predict ➤ algorithm
4	<p>➤ 1P.02 Know how to recreate algorithms as programs to perform simple tasks.</p>	<ul style="list-style-type: none"> ➤ Review the learning from the previous lessons. ➤ Demonstrate how to delete an instruction or to clear the memory of the robot in case learners make a mistake. 	<ul style="list-style-type: none"> ➤ input ➤ output ➤ algorithm



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		<ul style="list-style-type: none">➤ Put learners into pairs or small groups. Ask them to solve some maths problems and then to match the answers with the correct algorithms.➤ Support learners to:<ul style="list-style-type: none">○ first calculate the answer to the maths problem○ then match the answer to the number in the grid○ then find the algorithm that would make the robot move to that square.➤ Get children to work on matching the algorithms with the answers on the grid. Then get children to pair up and test out the answers.➤ Self-assess their learning	
5	<ul style="list-style-type: none">➤ 1P.04 Know that programs can contain errors.	<ul style="list-style-type: none">➤ Review the idea of a bug in an algorithm. Remind them that if there is a bug that they need to find and fix it, which is called debugging.➤ On a grid place some landmarks, using a character get the children to give directions to get the character to certain land marks.➤ Give the children an algorithm with a bug. Can they find the bug? Practice with a couple of examples.➤ Indecently, or in pairs the children than need to find and circle any bugs in the algorithms.➤ Review what they have learnt and self-assess.	<ul style="list-style-type: none">➤ Algorithm➤ Bug/bugs
6	<ul style="list-style-type: none">➤ 1P.07 Know that 'debugging' is the correction of errors in a program.	<ul style="list-style-type: none">➤ Review the learning from last week and that their task was to find bugs in their algorithms.➤ This time the children are going to debug the errors.➤ Go through examples from last week and debug the algorithms. Check to see if the new algorithm works.➤ Return the work from last week and get the children debug the errors they found.➤ Review and self-assess.	<ul style="list-style-type: none">➤ Algorithm➤ Bug/bugs➤ Debug