Year 1 Programming 3 My moves on screen with 2Go or JIT (Choice)

Timing 4 sessions of approximately 40 minutes	**Children will** • Use 2Go program (2Simple Infant Video Toolkit or Purple Mash) to program the car to go around the village and visit designated houses and buildings. Use pen down tool to track the pathway. Improve instructions • OR use www.j2e.com/j2code on laptop or tablet • Can link to a Bee-Bot activity on a mat with drawings of houses in the village • Use turning level of 2Go where added challenge is appropriate • Use blank screen to draw their own house using a flow chart on 2Go or j2e.com/j2code
e-safety links • I am careful with technology devices (R) • I can talk about why it's important to be kind and polite	**Objectives** **Programming** • I can describe what actions I need to do to make something happen. • I can press the buttons in the correct order to make my robot do what I want. • I can begin to predict what will happen for a short sequence of instructions. • I can begin to use software to create movement and patterns on a screen. • I can use the word debug when I correct mistakes when I program.
Links to other learning **Mathematics:** support problem solving, directions and turns, shape, counting moves.	
Resources 2Simple Infant Video Toolkit / Purple Mash / JIT in www.j2e.com/j2code for iPads and laptops KS1 self-assessment poster Bee-Bot (optional)	**Preparation** • Print out 'I can debug' stickers from Education Technology website • Check KS1 self-assessment poster is displayed • Use teacher controls to set the arrows to turning mode with up, down, and turning arrow (use control, shift, O). (For optional additional experience with BeeBot – session 2) • Create a blank floor mat with 15cm x 15cm square). Grid size depends on floor area available and number of 'roads' you want to add • Bee-Bot instruction cards

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	Expectations	Activity	Success Criteria
1	**Programming** I can begin to use software to create movements and patterns on a screen.	**Moving the ladybird in** 2Go (set to turning level) (iPad users can use the flower background in JIT www.j2e.com/j2code • Introduce the children or remind them of the program 2 Simple 2Go (Infant video toolkit) if you did programming 2. Let the children have a go with the arrow buttons work. Children can try the blank screen to explore how they move the robot and what shapes and patterns they can make with the pen down. • Ask the children to describe what each of the buttons do. • What shapes can they make? Can they make a square? • Show the children the flower screen game in 2Go (Infant video toolkit). Relate to their work using the Bee-Bot. Ask the children to navigate the ladybird around to the flowers using the keypad. • Use pen down so they can track their movements. Discuss difficulties in turning, crashing etc. • Remind the children of the word algorithm – this is what we will need to do to solve a problem. What will you need to do to move from the purple flower to the red flower? Record a solution offered by the children. This is our algorithm. • We are going to write a program so that we can execute this. What will we need to do? Refer to self-assessment poster to check children's confidence. Identify those that may need further support.	Gold: Can I tell you the program needed to move the ladybird between particular flowers? Silver: Can I program the ladybird to move to a particular flower? Bronze: Can I move the ladybird around the flowers?
2	**Programming** ***(optional session if children need further experience with Bee-Bot*** I can use the	**Bee-Bot cards to create a program** • Create a town on the floor mat with 15cm x 15cm squares. • Bee-Bot card game: Use instructions cards to make a program for Bee-Bot to go around the town. Talk about the algorithm (what the Bee-Bot will need to do). • Set out the cards which will be the program (the buttons we will press on Bee-Bot).	Gold: Can I debug a program accurately at the prediction stage? Silver: Can I debug a program accurately after testing? Bronze: Can I attempt to debug a program after testing?

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	word debug when I correct mistakes when I program *a floor robot*.	• Using the Bee-Bot mats created, give children Bee-Bot cards with a program for them to test if the instructions work. Get them to predict first then test and then debug. • Explain you have had difficulties and need the children's help. Discuss what was supposed to happen, what actually happened and what needs to be changed/ debugged. • Children ask their partners to predict a destination using their own card sequence. They predict and test, debugging where necessary and discussing. Take turns with the cards.	
3	**Programming** I can describe what actions I will need to do to make something happen and begin to use the word algorithm.	**2Go Town (or www.j2e.com/j2code)** • Ask the children to visit the 2Simple 2Go town screen. Allow exploration time for the children to use the keypad to move the car around the town. Where possible relate to a previous real life walk around the local area. • Explain the 2Go screen is similar to the Bee-Bot floor village they have used but it is now simulated on screen. • What will you need to do / what is the algorithm for the car to visit hospital / church / other buildings? Use self-assessment poster to check children's confidence and to identify those that will need further support. • Use pens and whiteboards or pencil and paper for children to record the program they will need to use to achieve the algorithm. Model this first using arrows and number. • Using pen down. Ask the children to execute the program for the car to visit hospital / church / other buildings. • Look at how accurately children reach the destinations. Discuss difficulties as a class, especially confusing the turn of the car with moving forward by using a number of moves. If unsuccessful, start route again and debug (correct) the sequence. Reward children with 'I can debug' stickers.	Gold: Can I describe the algorithm to move the car to a specific building? Silver: Can I tell you the onscreen icons I will need to click to move the car to a specific building? Bronze: Can I move the car to a specific building?

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	Programming I can begin to predict what will happen for a short sequence of instructions. .	**Using the word algorithm** • Have an image of the town with the car parked outside the blue house facing left. Show/describe an algorithm for the car to move from the blue house to the church (Go forward until it reaches the junction, turn left, go forward to the next junction, turn left, go forward until the you reach the steeple). Where will the car go? • Refer to self-assessment poster. Can the children record the program they will need to use? (paper and pencil / pen and whiteboard). • Allow the children to use their program. Does the car arrive where you wanted it to go? Repeat for a different journey. • Ask the children whether they use sequences of instructions for other reasons? (School routines, sequencing stories, solving maths problems) Start to use the word algorithm in these contexts. Remind children of the algorithm rap.	Gold: Can I predict where an algorithm will send the car and write my own program? Silver: Can I write a program to move the car to a specific building? Bronze: Can I move the car to a specific building?
4	**Programming** I can use the word debug when I correct mistakes when I program *a floor robot.*	**Debugging a program** • Show the children a set of instructions (draw arrows and number) that will take the car from the blue house to a place on the 2Go village map (or JIT j2e/2code). • Children predict in pairs and write their prediction on paper/whiteboard. They then input the instructions and test their prediction. • Show the children a set of instructions, containing an error to move the car, from the blue house to the hospital. Model inputting the program. 'Oh no, my car has gone wrong'. Ask the children to help you sort out what has happened. Some children may need to put in the instructions themselves to be able to work out where the error is happening. We have debugged the program. • Provide another set of instructions with an error. Ask the children to debug your program. Those that achieve this can receive a sticker. • Extension: They choose their own town destinations and write instructions containing a 'bug' for their partners. Can their partner debug the program?	Gold: Can I recognise the error in a program? Silver: Can I recognise that something is wrong with a program? Bronze: Can I recognise where the car arrives at the wrong place?

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