Key Stage 1
Program Solutions Table

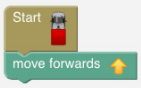
KS1-S1

- Understand that an **algorithm** is a set of instructions in a particular order
- Create a set of instructions to navigate a simple route, using **move forwards**, **turn left** and **turn right** commands
- Follow a set of instructions accurately
- Record instructions accurately

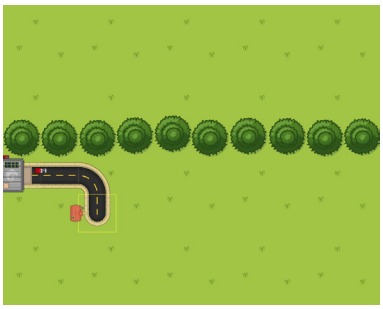
Getting started

KS1-S2

- Build a simple sequence of instructions for a simple route
- Use the term **algorithm**
- Understand that a computer follows instructions called code
- Begin to debug a simple program

Level 1	**Can you help the van get to the house?**		
		• move forwards	
Level 2	**This time the house is further away.**		
		• move forwards	

Level 3 **Can you make the van turn right?**

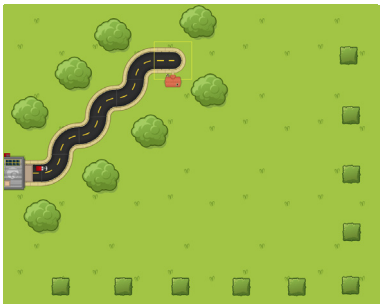


- move forwards
- turn right

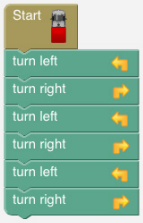
Level 4 **You are getting good at this! Let's try turning left.**

- move forwards
- turn left

Level 5 **Good work! You are ready for something harder.**



- turn left
- turn right

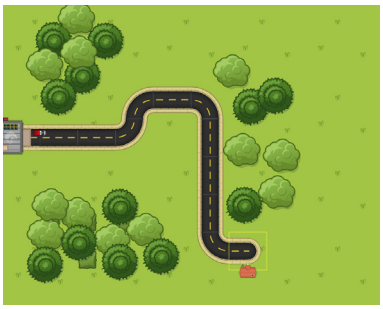


KS1-S3

- Describe the **algorithm** you need to reach a destination
- Build your code using the 'direct drive' buttons
- Practice identifying left and right turns in the 'bird's eye' view
- Begin to debug a sequence of instructions

Level 6

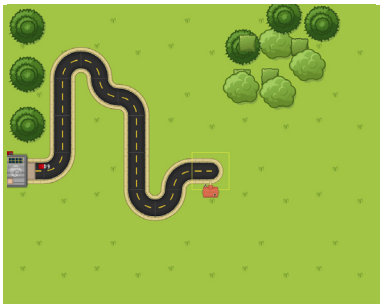
Well done! Let's use all three blocks.



- move forwards
- turn left
- turn right

Level 7

This road is more complicated.



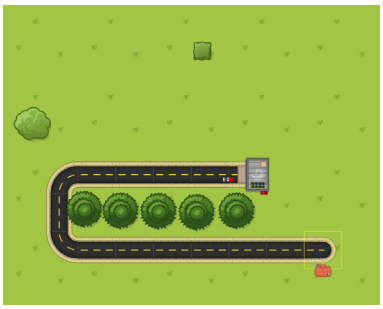
- move forwards
- turn left
- turn right

Level 8

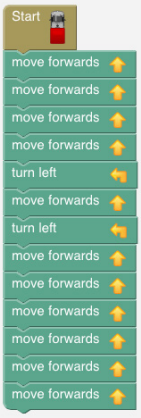
The warehouse is not always in the same place.

- move forwards
- turn left
- turn right

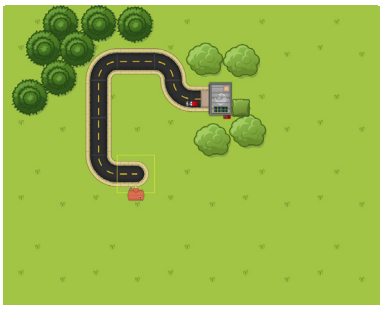
Level 9 **Can you go from right to left?**



- move forwards
- turn left



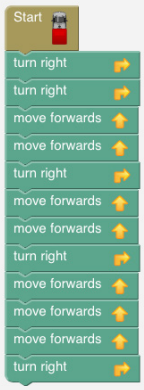
Level 10 **Well done! How about another go?**



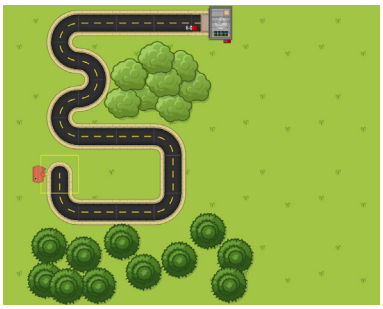
- move forwards
- turn left
- turn right

Level 11 **Snail maze!**

- move forwards
- turn left
- turn right



Level 12 **This road is more complicated.**



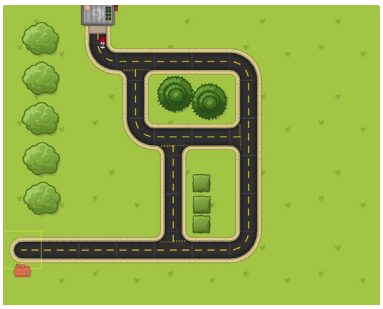
- move forwards
- turn left
- turn right

Shortest route

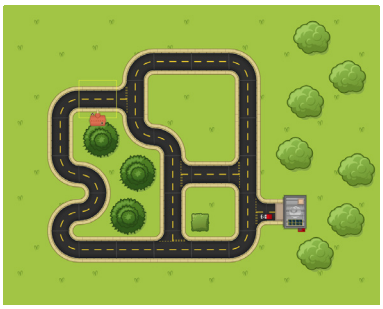
KS1-S4

- Identify different **algorithms** to reach the same destination
- Select the most efficient **algorithm** and create the program for this
- Begin to debug a sequence of instructions

Level 13 **Multiple routes.**

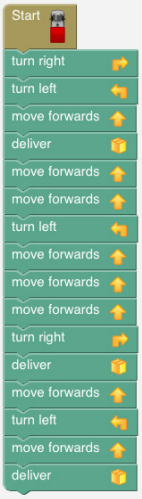


- move forwards
- turn left
- turn right

Level 14	**Can you spot the shortest route?**		
		• move forwards • turn left • turn right	

KS1-S5

- Write an **algorithm** to include intermediate deliveries
- There will be buildings at one or more points on the route - children decide which route is the best

Level 15	**What if there is more than one delivery?**		
		• move forwards • turn left • turn right • deliver	
Level 16	**This time there are even more houses.**		
		• move forwards • turn left • turn right • deliver	

KS1-S6 (extension)

- Write an **algorithm** to include intermediate deliveries
- Here there are more complex routes involving up to two to three deliveries

Level 17 **House overload!**

- move forwards
- turn left
- turn right
- deliver

Level 18 **This one is quite a tangle.**

- move forwards
- turn left
- turn right
- deliver

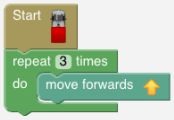
Loops and repetitions

KS1-S7

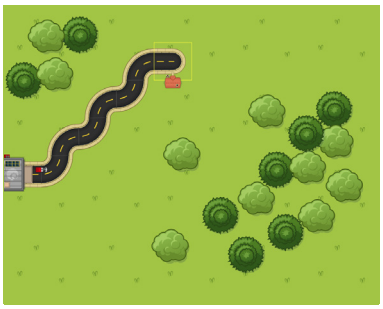
- Understand and use simple repetition
- Some children will use more than one **repeat** loop in an **algorithm**

Level 19 **Multiple routes.**

- move forwards
- repeat



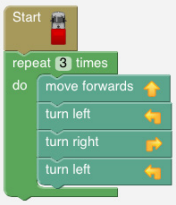
Level 20 **Use the 'repeat' block to make your sequence shorter and simpler.**

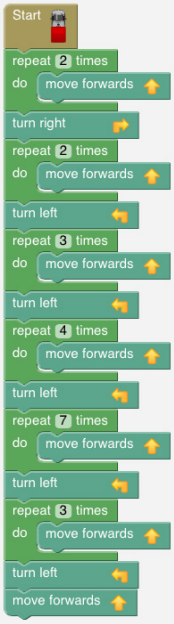


- turn left
- turn right
- repeat

Level 21 **Four leaf clover.**

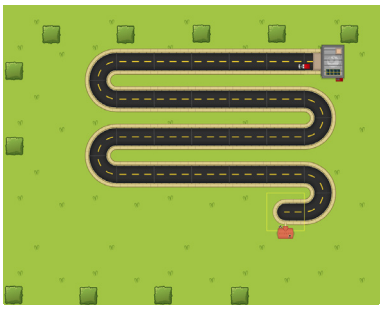
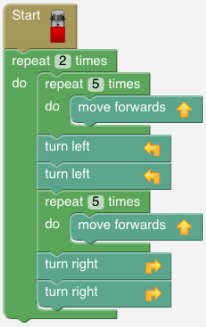
- move forwards
- turn left
- turn right
- repeat

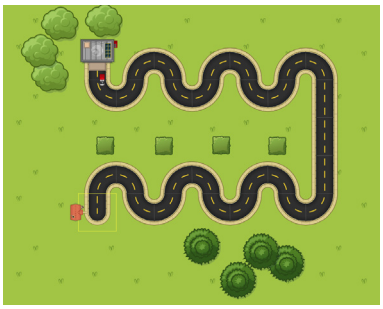
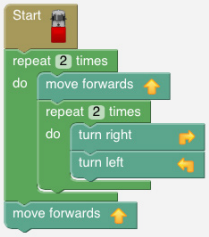


Level 22	**Now things are getting quite long and complicated.**		
		• move forwards • turn left • turn right • repeat	

KS1-S8 (extension)

- Understand and use simple repetition
- Use the **repeat** instruction several times in a program
- Use a **repeat** within a **repeat** loop (extension)

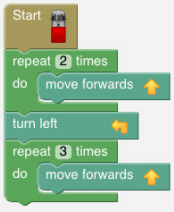
Level 23	**Sssssssssnake!**		
		• move forwards • turn left • turn right • repeat	

Level 24	**The road is very long and very bendy.**		
		• move forwards • turn left • turn right • repeat	
Level 25	**Waterfall level.**		
		• move forwards • turn left • turn right • repeat	

KS1-S9

- Design a programming challenge for a friend
- Use logical reasoning to check that the challenge is achievable

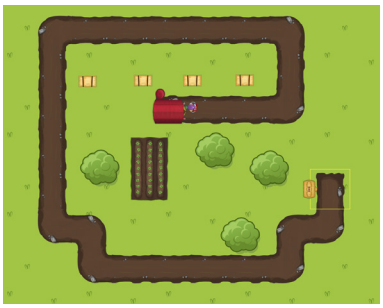
Note: Levels 26 to 28 illustrate that children can use different backgrounds in 'Create' mode.

Level 26	**Winter wonderland!**		
		• move forwards • turn left • repeat	

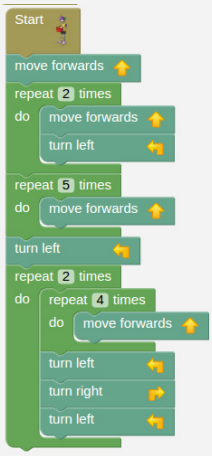
KS1-S10

- Complete a programming challenge set by a peer
- Use sequence and repetition independently
- Evaluate and debug their program independently

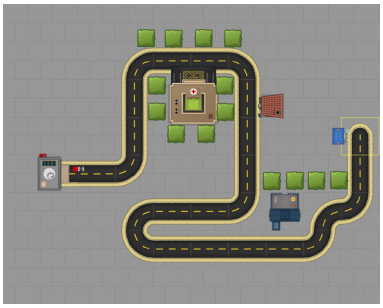
Level 27 **Farmyard.**



- move forwards
- turn left
- turn right
- repeat



Level 28 **The big city.**



- move forwards
- turn left
- turn right
- repeat