

Lower Key Stage 2 - Session 3

Using simple selection and repetition: repeat until at destination and if... do...



Objectives

- Understand selection using the **if... do...** statement
- Understand that you can use an **if** statement inside a **repeat** loop
- Use this knowledge to create short efficient programs to complete simple single routes

Resources

- Levels 33 to 35 in Rapid Router
- Resource sheet LKS2-S3-1
- Video 4
- Interactive Whiteboard (IWB)

Vocabulary

- If ... do
- Selection
- Debug

Let's get started

Explain that in all programming languages, there is a way of asking a question and telling the computer what to do, depending on the answer. This is the **if... do...** statement: **if** it is raining **do** put your coat on. **If** it is sunny **do** put on sun cream. Ask the children to come up with their examples.

Watch **Video 4** to hear Matt and Chris explain how important the little statement **if** is in programming.

So for our van, **if** the road ahead goes straight forwards **do** move forwards. Model this as a van driver – or ask a child to do so, going along a masking tape path.

The blocks of code have to be more precise than our spoken language, so we will need to use: **if road exists forwards... do [move forwards]**

Draw three routes on the IWB:

- Road going forward
- Road turning right
- Road turning left

Ask the children what the computer will do with the van in each case, if it follows the **if** statement: **if road exists forwards... do [move forwards]**

Do the same for the following **if** statements:

if road exists right... do [turn right];

if road exists left... do [turn left].

Demonstrate how this can work at level 33 [fig S3.1], inside the repeat loop. Drag the **repeat** block and the **if... do...** block into the workspace.

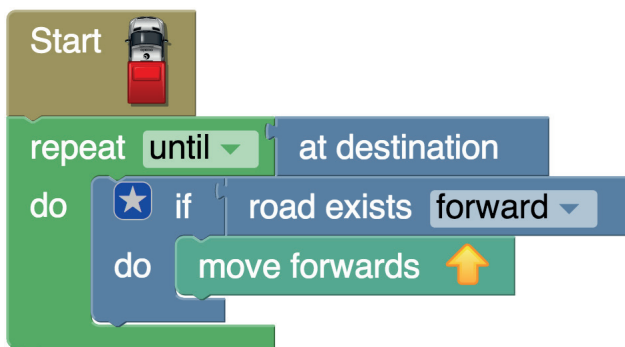


fig S3.1

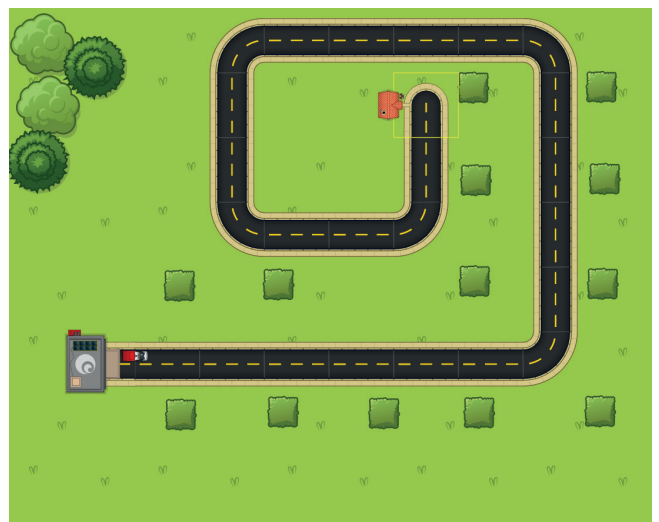


fig S3.2

Why do we need to put the **if statement inside the **repeat until at destination** loop?**

(Otherwise the computer will only ask the question once and after one move forward, the van would stop).

What happens if there is a turn in the road? Look at level 34 [fig S3.2].

What instruction would we need to add?

Practical

Give the children time to test this out, using levels 33 to 35.

Share and review

Arrange the children into groups of four to discuss what they have found. Tell them that you will choose a spokesperson from two groups at random to explain the group's method to the class.

Can you explain your algorithm using correct programming language?

Unplugged activity to consolidate understanding – choose one child to be the van driver, lay out a 'road' for the driver to follow with some right and left turns (you can do this with masking tape, construction blocks or even by creating a route with the classroom tables).

Give one child the resource sheet LKS2-S3-1 [fig S3.3] to hold up at the end of the route.

Put the code on the IWB and enlarge:

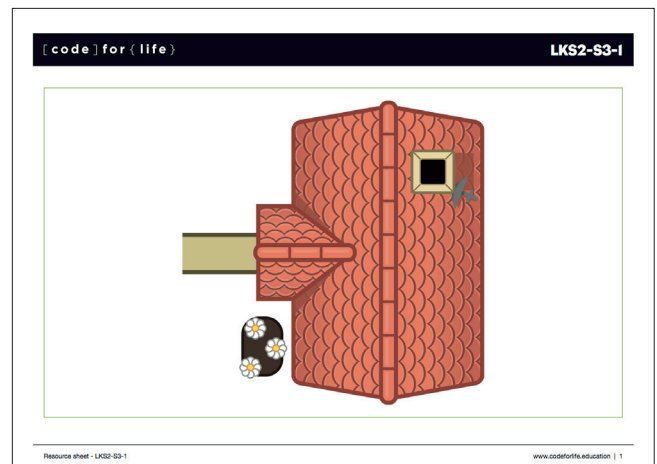
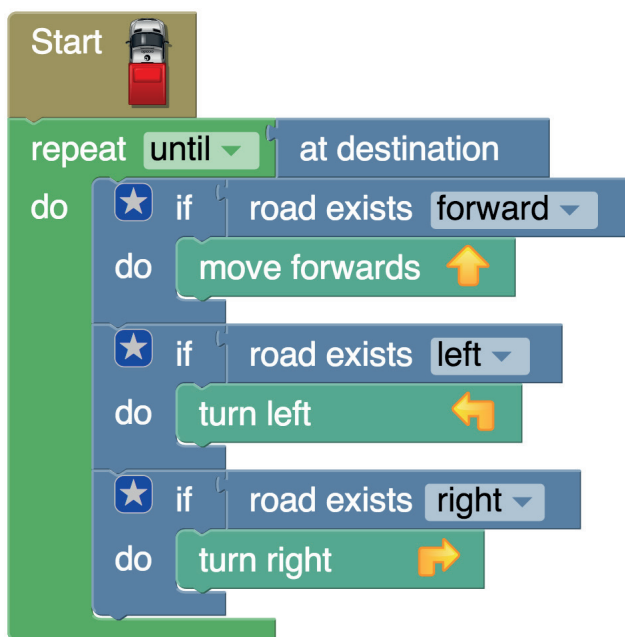


fig S3.3

Add the **if... do...** statement to your code wall display with children's written explanation of how it works.

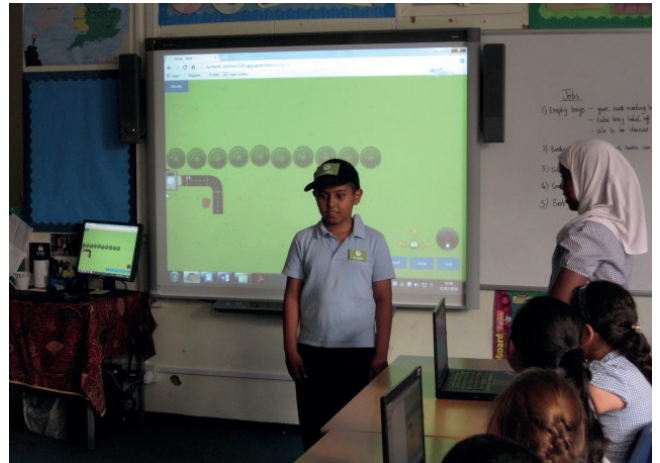


fig S3.4