Blockly Challenge 10

What is Blockly?

Blockly is a block-based visual programming tool. It is written in JavaScript, which is a popular programming language. We will be using Blockly to complete a series of maze challenges – this will introduce you to some programming fundamentals such as loops and conditionals!

The Tenth Maze

Do this challenge after completing maze 1-9. This challenge uses While Loops and If Statements/Conditionals – an explanation of these can be found in the programming concepts box.

This maze is quite challenging!
Step 1 – As before, navigate https://blockly.games to and select "maze" – you can skip straight to challenge 10. If you're doing this straight after the second challenge, you'll probably have automatically been moved on to the third maze.
Step 2 – Complete the maze by choosing blocks and putting them into the correct sequence (creating an algorithm).
Step 3 – Click "Run Program" to test your program and if you're wrong, try again!

You could use a blank piece of paper or the back of this sheet to write down your workings out if you need to.

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Why Are we Doing This?

Blockly is a great introduction into the fundamentals of programming, and uses problem solving skills. The challenges are fun and can be quite challenging – this encourages computational thinking, and you'll start using loops and conditionals.

What You'll Need

Access to the internet and this handout. There is a video tutorial covering While Loops and If Statements, and there is a walkthrough for the solution to this maze also available.

Programming Concepts

This maze uses if/else statements. These are very similar to standard if statements, but they offer an alternative option. An action will be performed if the conditional is met, else a different specified action will be carried out. This allows more control over different possibilities.

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Solution

```
repeat until 📍
do    move forward
      if path  ahead ▾
      do    if path  to the right ↻ ▾
            do    turn  right ↻ ▾

            else  if path  to the left ↻ ▾
                  do    turn  left ↻ ▾


      else  if path  to the left ↻ ▾
            do    turn  left ↻ ▾

            else  turn  right ↻ ▾
```