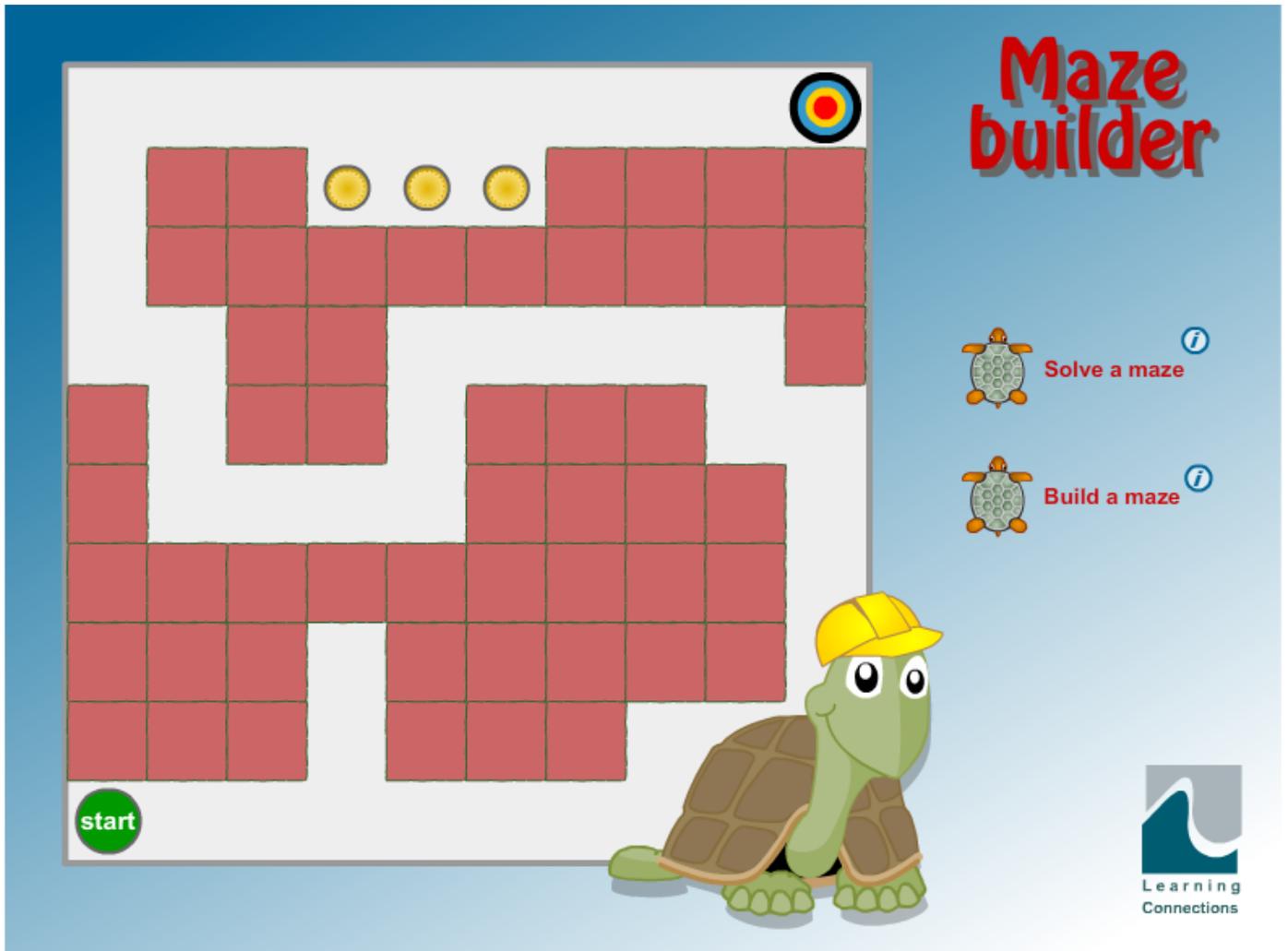


Maze builder



Maze builder is a desktop program in which you use simple turtle-graphics commands; Forward, Backward, Left and Right to guide a turtle through a series of mazes collecting coins as you go.

Your program, which is displayed as it runs, can be edited and adapted and saved to your hard disc.

You can create your own mazes for others to solve using the '**Build a maze**' option.

www.learning-connections.co.uk/learning-interactives/maze-builder

National Curriculum programme of study

Maze builder provides opportunities for children to know, apply and understand subject content from the computing programme of study.

Key Stage 1

- understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions
- create and debug simple programs
- use logical reasoning to predict the behaviour of simple programs

Key Stage 2

- design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
- use sequence, selection, and repetition in programs; work with variables and various forms of input and output
- use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs



Running Maze builder

Maze builder is supplied as a downloaded .zip file.

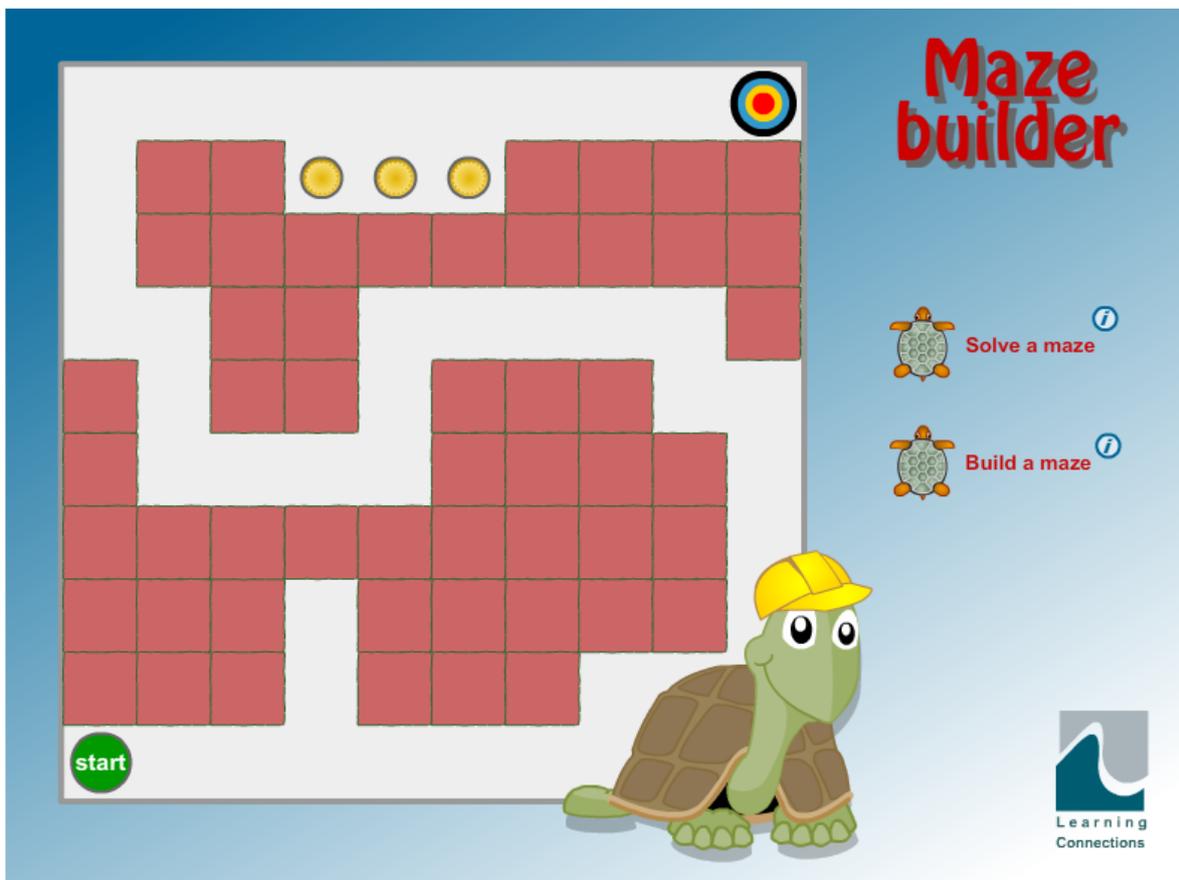
Copy the .zip file onto your hard disc and double-click on it to extract the Maze builder folder.

In addition to this manual, the Maze builder folder contains the Maze builder program and three folders, **library**, **mazes**, and **programs**.

-  **library** The library folder contains configuration files
-  **mazes** The mazes folder contains five sample mazes initially and all the mazes that you create with the **build** option.
-  **programs** The programs folder holds five sample programs to solve the sample mazes and any programs that you write and save.
-  **Maze builder**

NB - These folders must be located in the same place as the Maze builder program.

To run the program, double-click on the Maze builder icon. 



The Home screen has two options

- **Solve a maze**
- **Build a maze**

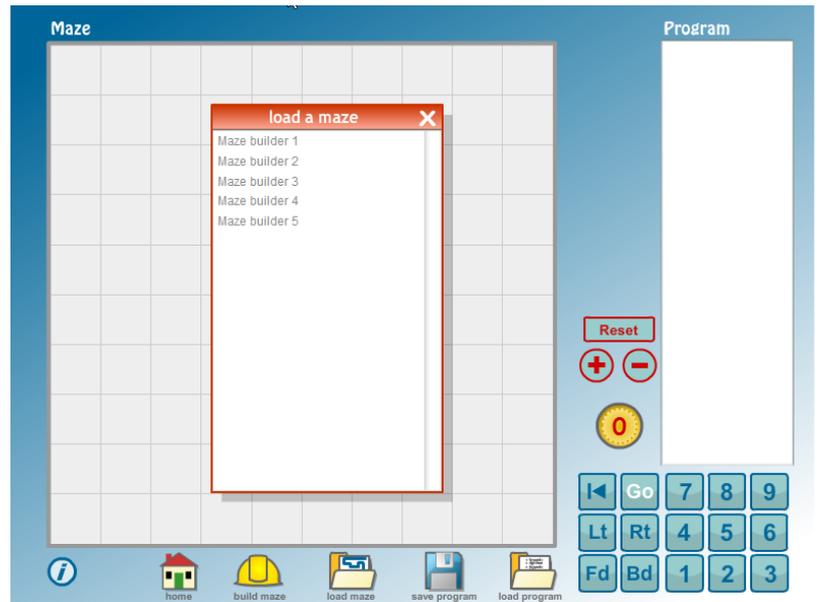
Solve a maze

Click on the turtle icon next to **Solve a maze** to open the Solve a maze window.

It shows a blank maze and opens the **load a maze** window which lists all the available mazes.

Initially, there are five mazes to pick from. Any mazes that you create with the **Build a maze** option will also be shown here.

Click on a maze name to load it, e.g. Maze builder 1.



Maze 1 is a simple maze. The aim is to write a program to guide the turtle through the maze using the commands

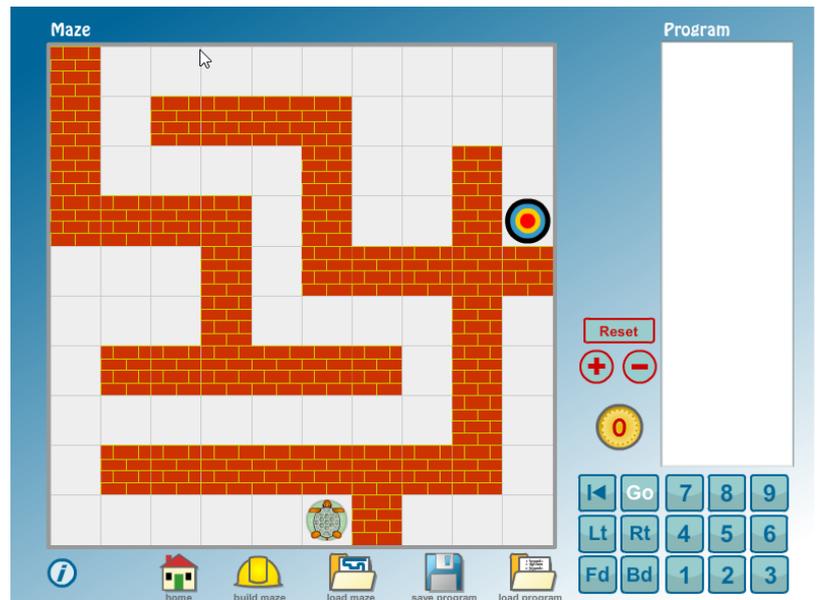
Fd - forward

Bd - backward

Rt - right turn (90°)

Lt - left turn (90°)

Use the keypad to enter the commands in the **Program** window.



Fd **forward** (number) - move the turtle forward a number of squares; e.g. **forward 4** moves the turtle 4 squares forwards

Bd **backward** (number) - move the turtle backward a number of squares; e.g. **backward 2** moves the turtle 2 squares backwards

Rt **right turn** - turns the turtle 90° to the right in its current square

Lt **left turn** - turns the turtle 90° to the left in its current square

Go **Go** - tells the turtle to follow the commands in the program

Rewind - sends the turtle back to the start square

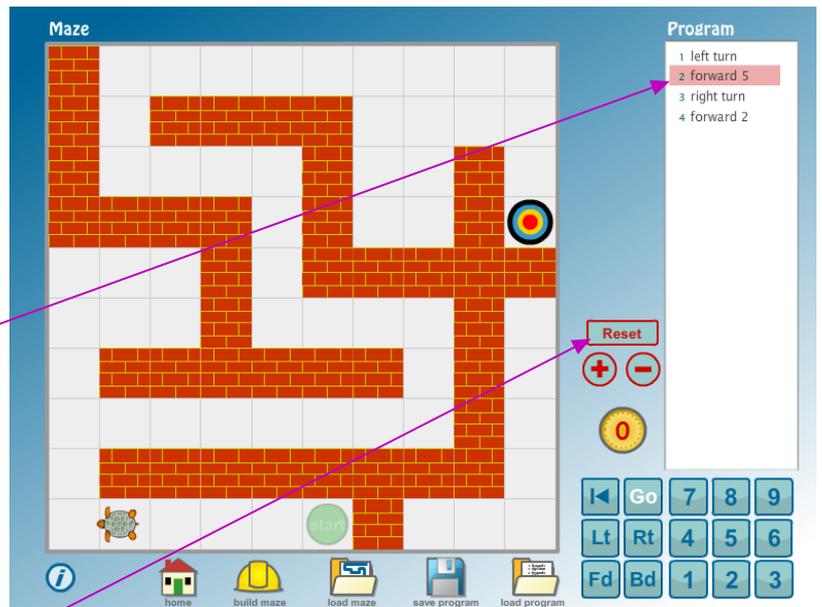
Test your program

As you enter commands they appear in the **Program** window.

You can test your program as you go along by pressing the **Go** button.

Each command is highlighted as the turtle carries it out.

Use the **Rewind** button to send the turtle back to the start square and continue entering commands.



Clear the program

Click on the **Reset** button to clear the program window.

Change a command

To change a command in the program, click on the command in the **Program** window to highlight it. Then use the keypad to enter a new command.

Delete a command

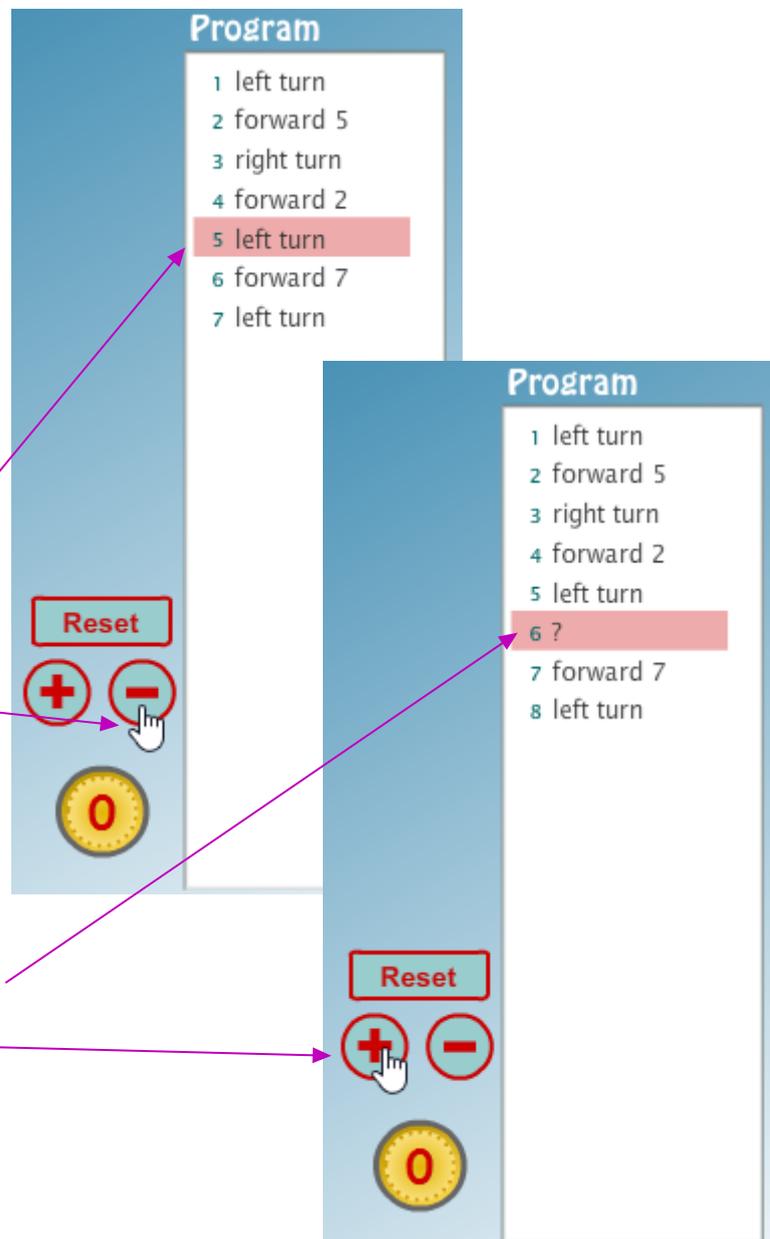
To delete a command from the program, click on the command in the **Program** window to highlight it.

Then press the **-** button to remove it.

Insert a command

To insert a command in the program, highlight the command **before** the new command's position.

Press **+** to insert a **?** in the new position, then use the keypad to enter the new command.



Save your program



You can save a program at any stage, e.g. a partially built program which you want to finish later or a completed program as evidence of your work.

Click on the **save program** icon on the bottom of the screen to open the **Save** window.

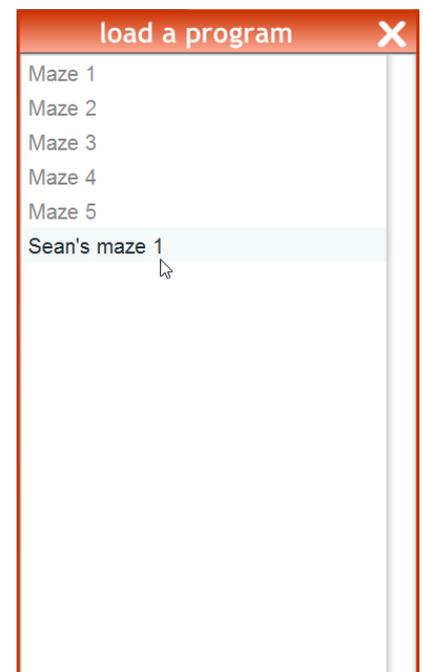


Enter the name of your program and click the **yes** button.

Load a program



Click on the **load program** icon at the bottom of the screen and click on the program you wish to load.

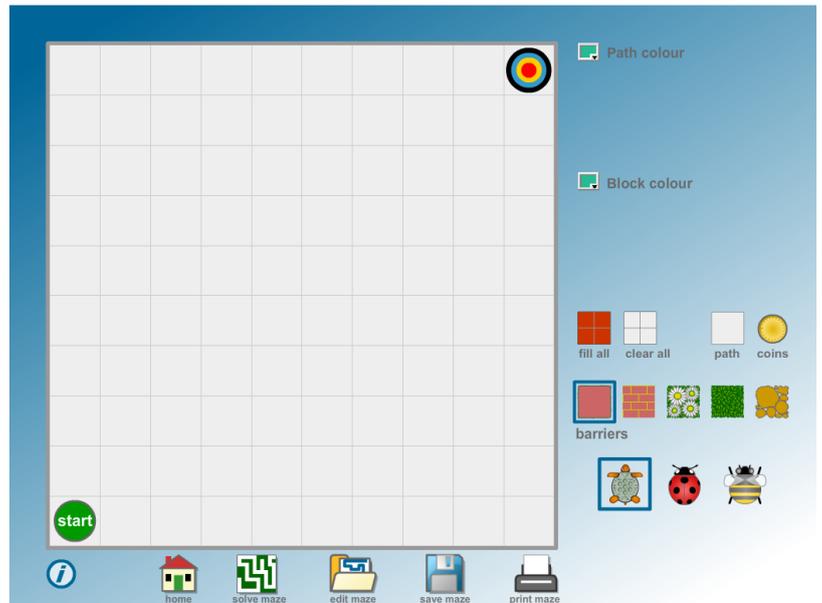


Build a maze

On the Home page, click on the turtle icon next to **Build a maze** to open the Build a maze window.

This has an empty 10 x 10 grid of squares which you can fill with colours, barriers or paths to create the maze.

The quickest way to build a maze is to choose a barrier or colour and select **fill all**. The select **path** and click on squares to make a path through the maze.



 **Path colour** - the colour of the squares where the turtle can move

 **Block colour** - the colour of any blocks or bricks in your maze

 **fill all** - fills all the squares with the selected barrier
 **clear all** - removes all the barrier squares

 **start** Drag the **start** marker to the square where the turtle will start.

 **target** Drag the **target** marker to the square where the turtle will complete the maze.

 **coins** Select **coins** to place coins on the path for the turtle to collect as it moves through the maze.



Select a **barrier** style.



Select a **turtle**, **ladybird** or **bee**.

Save a maze

 Click on the **save maze** icon at the bottom of the screen to open the Save window.

Enter the name of your maze and click **yes** to save your maze.



Edit a maze



Click on the **edit maze** icon at the bottom of the screen to open the **load a maze** window.

Click on the name of the maze you wish to edit.

Print a maze



Click on the **print maze** icon at the bottom of the screen to print a maze.

A print-out of your maze can be used as a record of your work or as an aid to writing a program to solve the maze away from the computer.

