

4 The Logo language

To make the screen turtle move, the user needs to input a command.

The format is the command followed by a space and then normally a number.

To make the screen turtle move forward type fd 1. Instructions can be typed in lower case, upper case or a mixture of the two.

There are a range of different instructions in Logo.

Instruction	Description	Example
BK	Move backwards a distance of units	BK 50 – Move the turtle back 50 units
FD	Move forward a distance of units	FD 50 – Move the turtle forward 50 units
LT	Turn left a given number of degrees	LT 90 – Turn the turtle 90° left
RT	Turn right a given number of degrees	RT 45 – Turn the turtle 45° right
RPT	Repeat a set of instructions a number of times	RPT 4[FD 10 RT 90] – This will draw a square. The instructions to be repeated must be inside square brackets.
SETPC	Set pen colour to a value or colour word	SETPC 1 – Pen colour is RED SETPC BLUE - Pen colour will be blue The colours that are included by name in 2Logo are; black, white, red, blue, green, yellow, orange, purple, pink, grey, brown, lime, cyan, magenta Advanced users can also create their own colours using HTML color codes e.g. setpc "#990000" - dark red (you need the # and the ")
SETPS	Sets the thickness of the pen	SETPS 1 (line will be thin) SETPS 20 (line will be thick) The default value is 4.
PU	Lifts the pen off the screen	
PD	Places the pen to begin drawing	



7 Logo Challenges



There are 12 Logo challenges that take the form of an adventure game. They form a storyline in which a young time cadet jumps through time to fix errors in the time-line caused by a robot called Logonator. In each location, they have to solve a Logo puzzle in order to progress.

Each challenge has a video which takes the form of an update from TimeHQ telling them what they must do. The videos also include important teaching points about how to complete the challenge.

The challenges get progressively harder see the following sections for details of the Logo in each challenge.



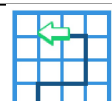
Each challenge has a list of success criteria which players must fulfill.

When a teacher opens the Logo Challenges they can set any challenge as a 2Do for their class(es) and try out all the challenges

When a pupil opens the challenges they only have the choice of the challenges that they have successfully completed or are in the process of working on, the rest are locked



Teacher view



How to play the Challenges


Children should write their Logo in the text area at the bottom. It is essential that they build up their Logo code progressively so that their solution displays the full answer rather than typing one step, deleting it and then typing the next. This means that they will not have to start from the beginning every time they make a mistake. The following is an example using challenge 1

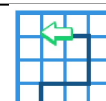


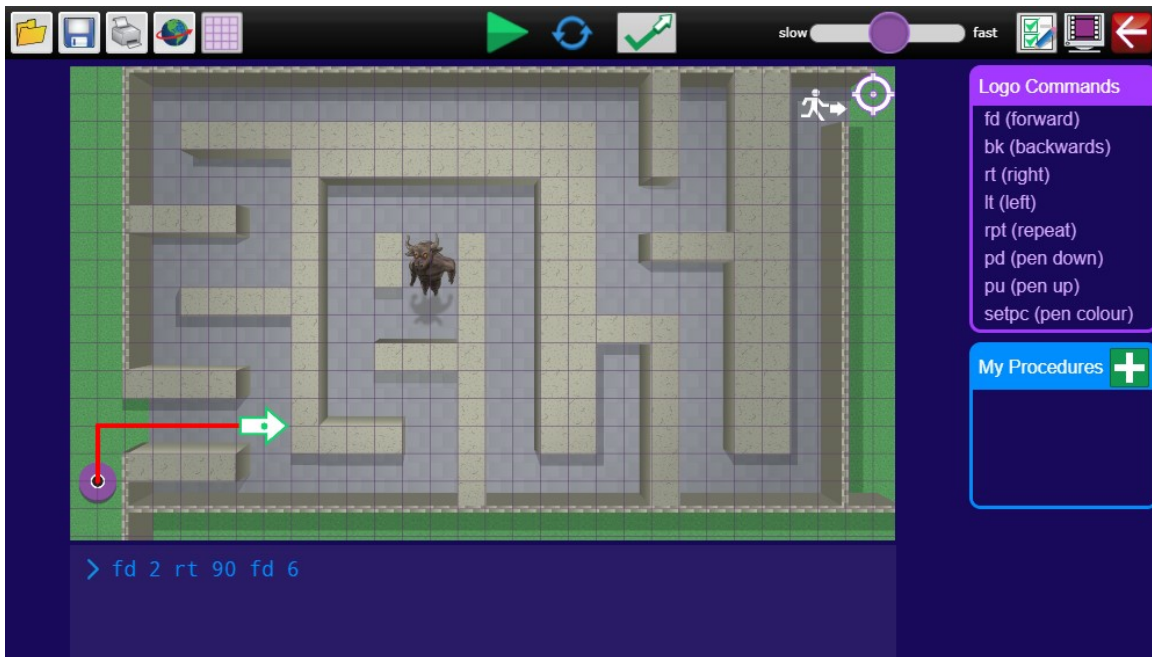
1) Write the first few instructions and press the  button to try them out. Normally this involves some trial and error but children should be encouraged to try inputting a few steps at a time if they can.



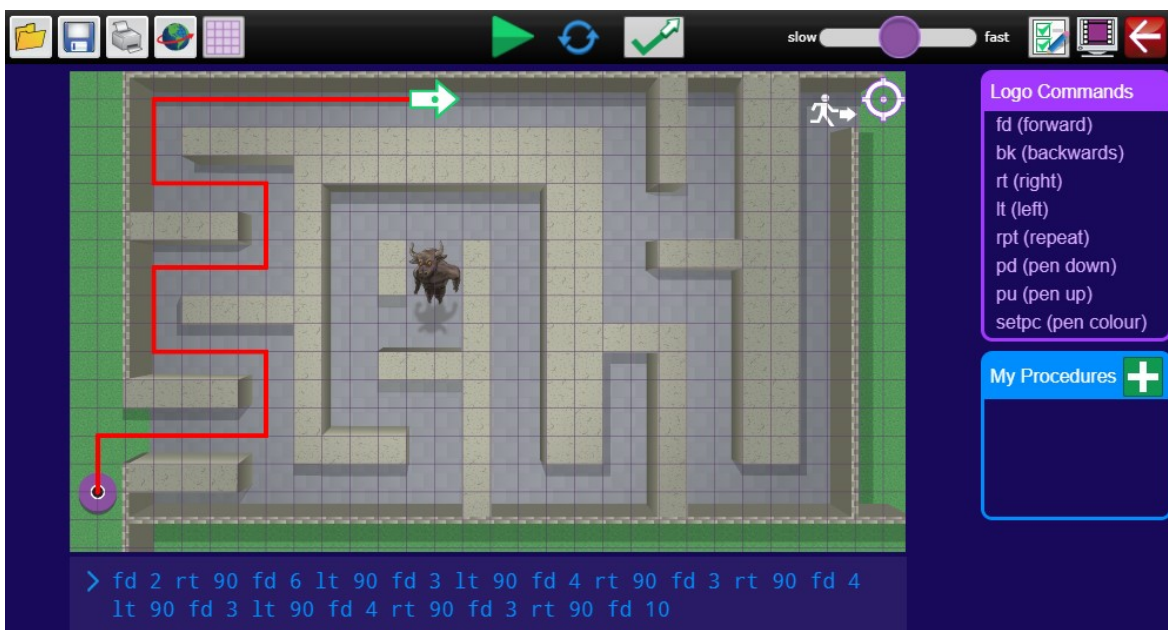
2) Correct any errors in the code, press the  button to reset the character and line and then re-

run by pressing . Repeat this process until the code is correct so far.





3) Add some more instructions and repeat steps 2 and 3.



4) Continue to build up the code until you think you have the correct solution. Pupils can make use of

the play speed slider to run their code at different speeds



. When the

solution is reached, click on the check solution button

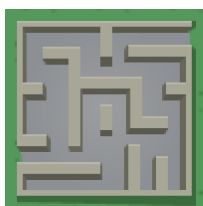


. This gives pupils some idea of what is correct and what is missing or incorrect.

Use the slider to view their result and the correct result. They can then correct their challenge.



7.1 Challenge 1: The Minotaur's Maze



Location and Time: Ancient Greece, 1705 BC

Story:

Logonator has travelled back in time to Ancient Greece to interrupt the time continuum. He rules over the city of Athens and each year he sends a young child to the island of Crete to be eaten by the minotaur - the awful monster that King Minos keeps as a pet in his labyrinth. But this child will grow up to be an important inventor. He must be saved!

Your mission is to lead the child through the Minotaur's maze to safety to protect the future.

Teaching points:

Use FD, RT and LT commands to navigate through the maze.

Use of degrees to turn - only 90° in this challenge.

Building up the code ([see previous section](#)).



Use of the grid to help with distances

Solution:

```
fd 2 rt 90 fd 6 lt 90 fd 3 lt 90 fd 4 rt 90 fd 3 rt 90 fd 4 lt 90 fd 3 lt 90 fd 4 rt 90 fd 3 rt 90 fd 17 rt 90 fd 7 lt 90 fd 3 rt 90 fd 7 lt 90 fd 4 lt 90 fd 14 rt 90 fd 2
```

