

Robot Algorithms

Robot Commands API

Command	Symbol	Description
Move_Forward	F	Moves the robot forward one square in the direction it is facing.
Rotate_Left	L	Rotates in place 90 degrees counter clockwise
Rotate_Right	R	Rotates in place 90 degrees clockwise
Can_Move	M?	Determines if the robot can move forward one block.
Repeat n Times	R(n)	Repeats a series of commands a set number (n) of times. Use [] around the commands that should be repeated.
If/else	If (M?) symbol else symbol	Allows directions based upon whether the robot can move or not. If (M?) is true, the commands that follow within { } will be executed. If (M?) is false, the first set of commands will be ignored and the commands following the else within { } will be executed. Example: If (M?) { F } Else { R } This code would check if the robot can move. If it can, it will move forward one spot. If it can't, the robot would rotate right 90 degrees.

You have a maze in front of you. Your job is to program your robot to get from the starting location to the ending location. **Other than the start and end blocks, you can not land on any block that has a symbol on it.**

Discuss your algorithm with your partner. Record the potential solution on the chart below. Then test the algorithm. One partner needs to be the robot. The second partner will call out commands for the robot to follow. The robot can only perform the commands...it can not modify the commands during the movement. There are six tasks on the chart on the next page. Complete this chart. For row 7, create your own program by deciding on the starting and ending point.

Task	Starting Block	Your code	Ending Block
*Sample	#	M M R M L M M	%
1	@		&
2	#		//
3	\$		@
4	//		%
5	&		\$

*Sample: We have different grids with different layouts. This solution may not work on your grid. The sample is provided to show you how to record your responses.

For task 6: Decide upon your own starting and ending blocks.

Task	Starting Block	Your code	Ending Block
6			

For task 7: Choose a previous task (1 - 6). Modify the code so that you have incorporated a repeat command.

Task	Starting Block	Your code	Ending Block
Which task are you modifying ?			

For task 8: Choose a previous task (1 - 6). Assume that you can not see the symbols on the grid except for the starting block and the ending block. Modify your previous code so that you have incorporated at least one if/else command. You may use as many if/else commands as you need. The answer response grid for this task is changed so that you have plenty of room to write your code.

Task that you are revising:	
Starting point:	
Your code:	
Ending point:	