

FIRST LEGO LEAGUE - Ontario

Activity Sheet	
Gr 8 - Lesson #8	Mission Based Challenges
Date:	Name(s):

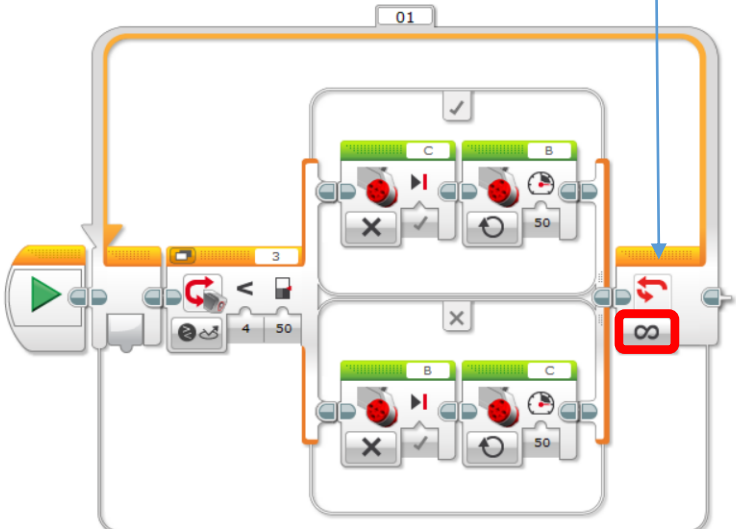
Check That I'm Done

Lessons 1-7 or experienced with sensors, loops, switches and wait blocks

Learn

Exiting Loops

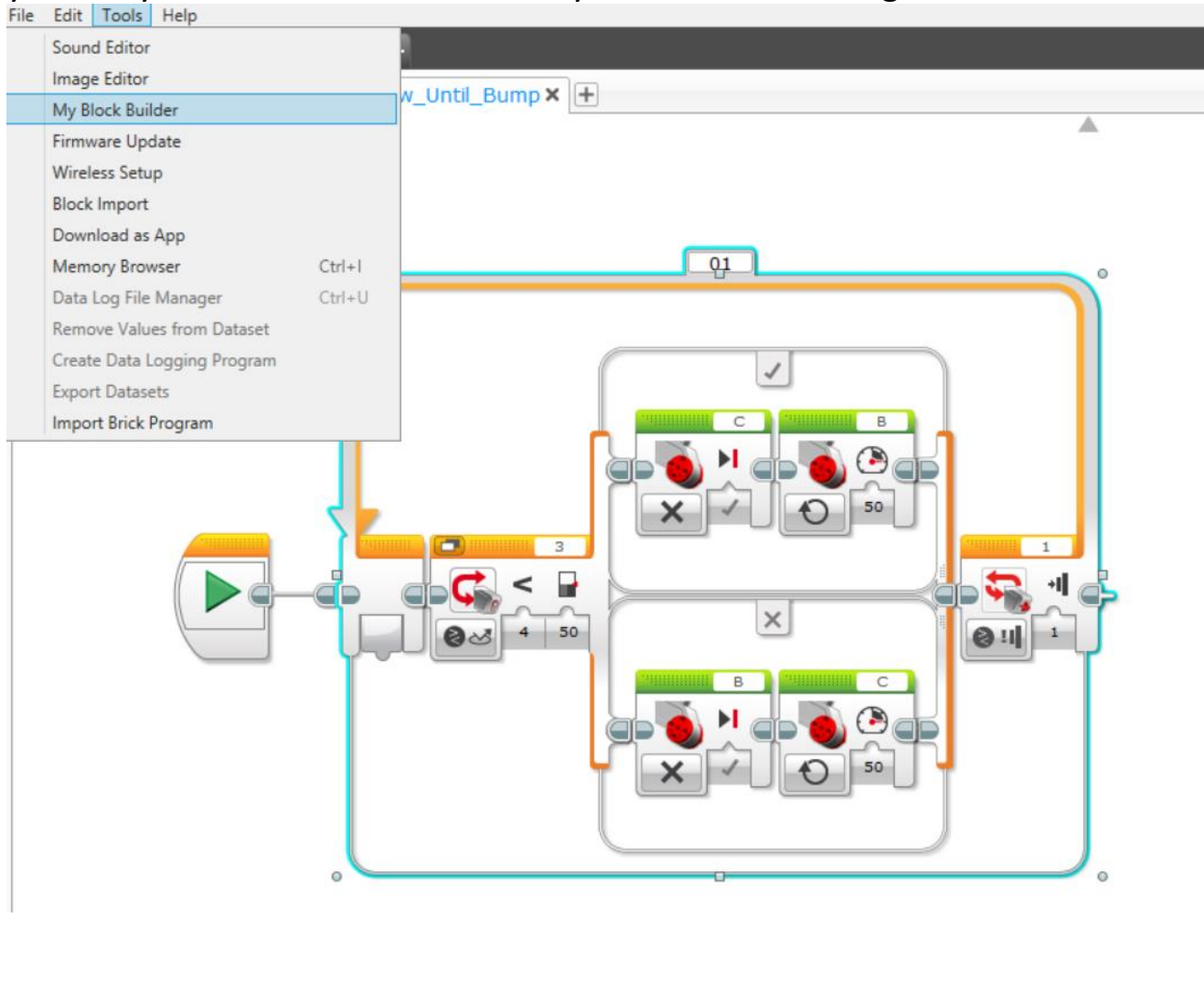
For your robot to be truly autonomous, you will need to be able to enter AND exit loops when needed, so you can complete several tasks all within one program. You do this by clicking here, and choosing the condition by which the loop will end. This can be another sensor value, time, or any other input you choose.



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My Blocks

To be able to quickly and easily reuse parts of a program, you can create your own custom block. This makes large programs easier to read, and faster to create. Simply drag and select all the blocks you wish you use in your “My Block” then click Tools>My Block Builder and give it a name.



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Predict and Plan

With the work time given by your teacher, your task is to earn as many points as possible by completing the missions marked out in the table in the next section. Any and all missions you attempt must all be completed by a single program. (That is you cannot touch your robot in between missions). In addition, you have a time constraint for your robot's performance. All missions must be completed within a 3-minute window to count for points. You will need to be strategic about which missions you choose to attempt based on their difficulty, time they take to complete, and the points they will earn you. The "mission area" can be set up however you like in order to complete the missions. After reviewing them carefully, use the table below to decide on your priorities.

Demonstrate/Design/Discover

Mission Name	Success Case	Points
Follow Until Bumped [Bump End Condition]	Follow a line all the way up to a wall, and then the bump sensor is triggered, freeing your robot to move onto other missions.	75
Moving Target [Ultrasonic]	A stack of books (or other tall object) is to be placed at varying distance to your start position. You must drive up to the books and stop exactly 20cm away. (You may wish to do this last).	75
Move to Colour [Stop at Line]	Drive in the open ground until you see a coloured line where the robot stops, and then continues. (Colour of your choice)	50
Grab and Relocate [Medium Motor and]	Use tape to mark the exact placement of the cuboid. This must be 30 cm from any	100



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Gyro]	other of the elements in the mission field. Have your robot grab the cuboid using the arm, and rotate it exactly 90 degrees.	
Two Speed Options	Be able to run your program at two different speeds (by only changing the motor power and not any other parameters).	200
Penalty	A penalty is incurred each time your touch your robot during your final run.	-50
Total	The sum of all successful missions	500

Tips: Remember these missions do not need to take place in any particular order, but *must* (eventually) be completed with one program. The name of the game is consistency.

Record

Total Points Achieved in One Run Within 3 Minutes: _____