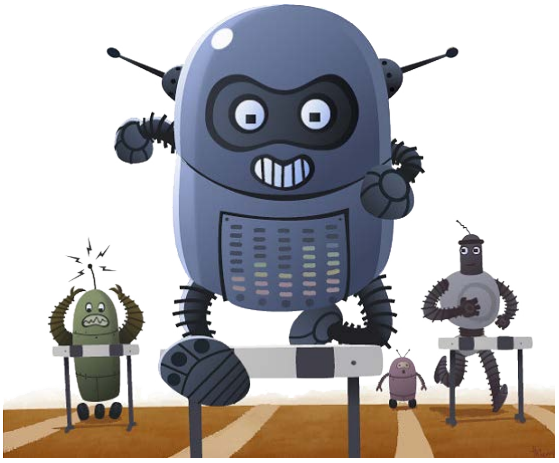
ROBOGAMES

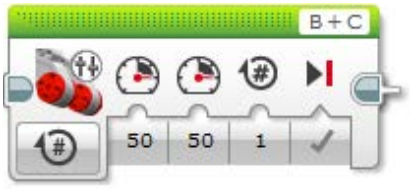
QUALIFYING EVENTS



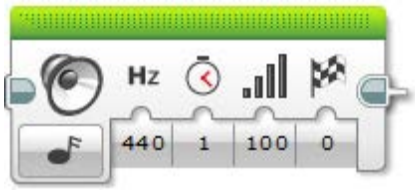
When you complete all of these tasks, you will be eligible to compete in Olympic Events. Then you can begin building and programming for the events you plan to enter.

EVENT 1:

MOVING / TURNING / WAITING



Use a MOVE TANK block to best control movement. Positive power moves forward, and negative power moves backward.



There are three kinds of turns:

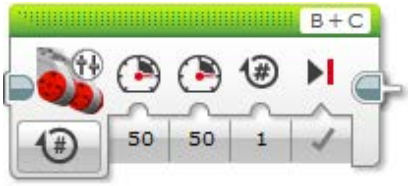
- SPIN TURN (one wheel goes forward and the other backward)
- PIVOT TURN (one wheel goes forward and the other is stopped)
- SLOW TURN (both wheels go forward but one goes faster than the other)

Drive FORWARD 2 feet, SPIN TURN left, WAIT 2 second, BEEP, drive BACKWARD 1 foot, then PIVOT TURN right.

(Hint: 1 rotation turns the wheel around once. How big around is your wheel?)

EVENT 2:

MORE MOVING and TURNING



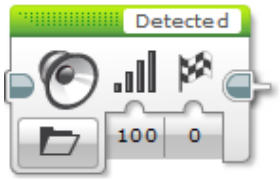
*** You must use a PLANNING SHEET for this task ***

Drive in the shape of the letter "R". It must be 2 feet tall.

(Hint: Using PORT VIEW can help you see how many degrees or rotations it takes to make a turn.)

EVENT 3:

USING the COLOR SENSOR



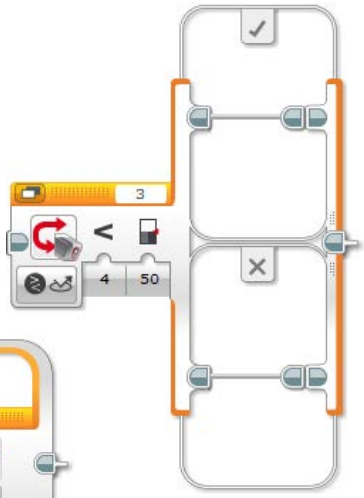
Attach a color sensor to your robot so it can tell when it reaches a line on the floor. Since you don't know how far your bot needs to travel, MOVE blocks need to be set to ON. Then WAIT for sensor to reach a certain value.

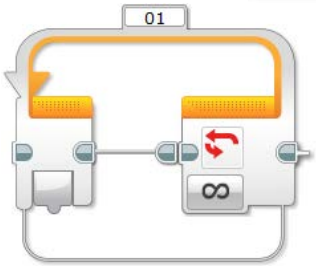
Drive forward until you see a line, stop and say "detected."
Then back up until you see a different line, stop and say "detected."

(Hint: When using any sensor, PORT VIEW helps you check what the robot is seeing.)

EVENT 4:

FOLLOWING a LINE





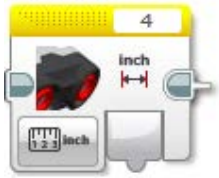
An easy line follower program looks at one edge of the line. Turn AWAY from the line when you are on it and turn TOWARD the line when you are not.

Follow a line for 20 seconds, then STOP.

(Hint: Use a SWITCH block set to "compare light intensity."
A LOOP controls how long to follow the line.)

EVENT 5:

USING the ULTRASONIC SENSOR



Have your robot display how tall you are on the screen.
Place the robot with an Ultrasonic Sensor level with the top of your head, pointed toward the floor, press the DOWN button on the EV3 brick and show your height in INCHES on the display.

(Hint: Make sure there is nothing between the sensor and the floor.)

TASK 6:

USING the TOUCH SENSOR

*** You must use a PLANNING SHEET for this task ***

Attach a touch sensor (with some form of bumper) to your bot.

Drive forward until you run into something, back up, then randomly turn 90^{o} either left or right. Put this all in a loop so that it continues indefinitely.

(Hint: A random number generating block and a switch would be helpful here.)