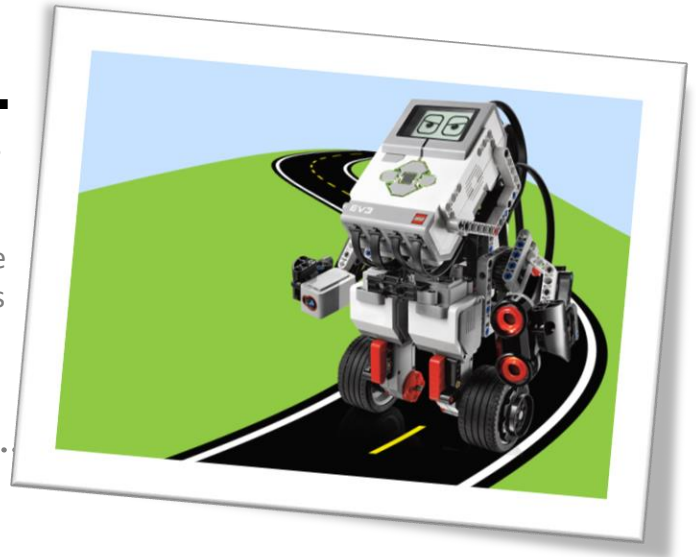# ROBOT DRIVING SCHOOL

LEARNER'S PERMIT REQUIREMENTS
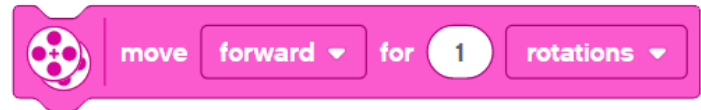
When you complete all of these tasks, you will receive your learner's permit. Then you can start on the tasks to earn your Robot Driver's License.

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TASK 1:
MOVING

Drive forward 6 feet then back up 3 feet.

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

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TASK 2:
TURNING

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)
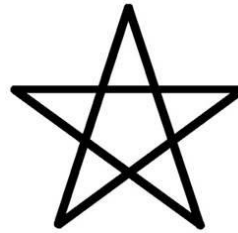- GRADUAL TURN (both wheels go forward but one goes faster than the other)

Make a spin turn for 4 seconds, then pivot the opposite direction for 4 seconds. Finally, drive forward using a gradual turn for 4 seconds.

(Hint: The MOVE WITH STEERING brick or MOVE WITH TANK brick can be adjusted to make all 3 turns.)

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TASK 3:
COMPLEX MOVEMENT

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

Drive in a "star" pattern. The robot should finish in the same spot it started. The sides of the star should be at least 2 feet long.

(Hint: When you know how far to drive and turn, use a REPEAT brick to repeat the steps.)

## TASK 4:
USING THE COLOR SENSOR

Attach a color sensor to your robot so it can sense when it reaches a line on the floor. Since you don't know how far your bot needs to travel, use a START MOVING block together with a WAIT UNTIL block checking to see when the color sensor reaches a certain value.

Drive to the tape line and stop immediately without crossing it.

(Hint: When using any sensor, use PORT VIEW on the EV3 brick to check what the robot is seeing.)
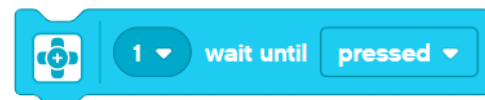
TASK 5:
BACK AND FORTH
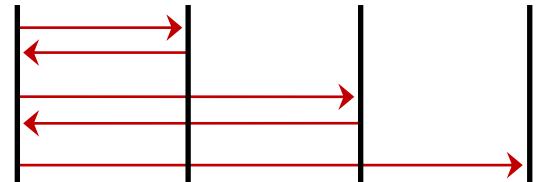
Drive to the first tape line and return to the start.
Then drive to the second line and return to the start. Drive to the finish line and stop.

(Hint: Do NOT use time/distance. Use the color sensor to figure out where you are on the course.)

TASK 6:
AVOIDING OBSTACLES

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

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

Move around the obstacle course. Each time you encounter a barrier, reverse and change directions.

(Hint: Try this with the ultrasonic sensor first. Then program it to use the touch sensor. Which works better?)