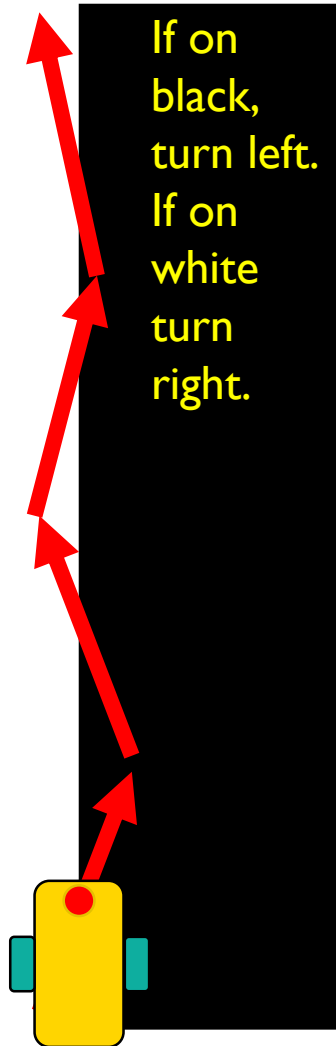# LINE FOLLOWER

BY SANJAY AND ARVIND SESHAN
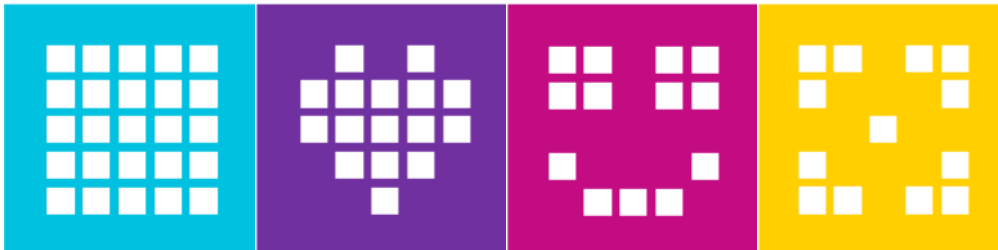
LESSON OBJECTIVES

- Learn how to get a robot to follow a line using Color Mode on the SPIKE Prime Color Sensor

- Learn how to follow a line until a sensor is activated

- Learn how to follow a line for a particular distance

- Learn how to combine sensors, loops and switches

ROBOTS FOLLOW THE EDGE OF THE LINE
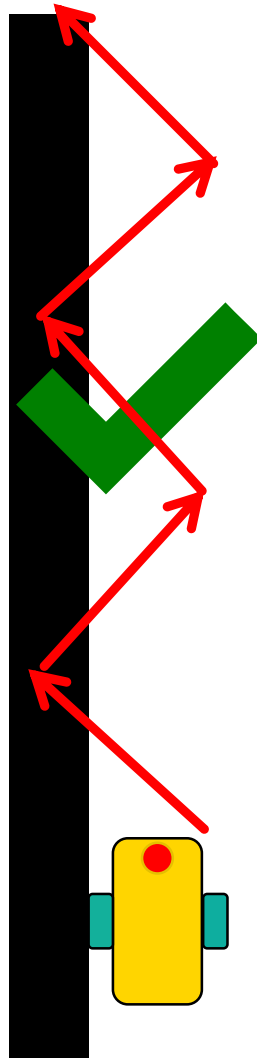
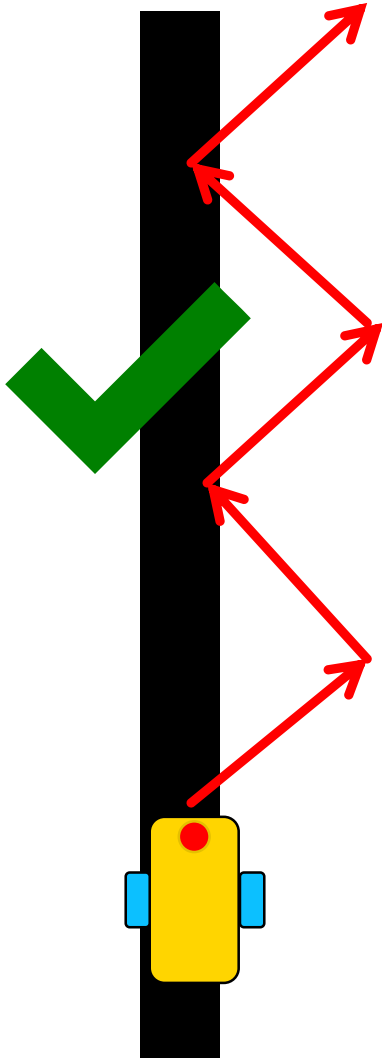If on black, turn left.
If on white turn right.

The robot has to choose which way to turn when the color sensor sees a different color.

The answer depends on what side of the line you are following!

If on black, turn right.
If on white turn left.
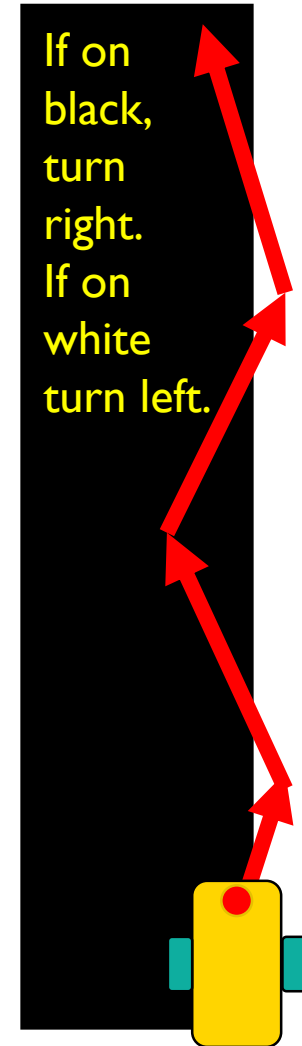
WHICH SIDE OF THE LINE SHOULD YOU START ON

If you write a line follower to follow the right side of the line, you have to start the robot on the right of the line
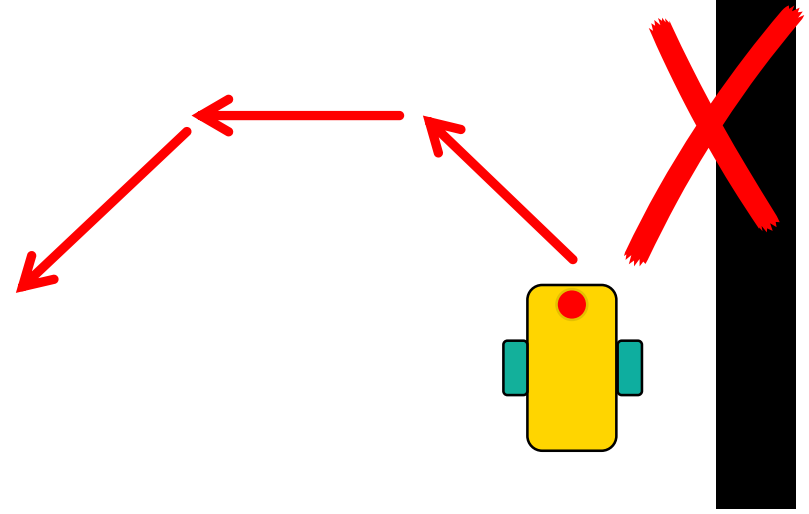
CHALLENGE: FOLLOW A LINE

- ■ Write a program that follows the right edge of the line

- ■ If your sensor sees black, turn right

- ■ If your sensor sees white, turn left

- ■ Use an If-Else block to make that decision

- ■ Repeat the line follower forever

- ■ Use Color Mode or Reflected Light Mode

Note: To line follow with the Advanced Driving Base (ADB) in Color Mode you will have to make a modification to the design because the color sensor does not recognize black at the height in the original build instructions. See our Color Sensor lesson.

PERCENT SPEED VS. PERCENT POWER
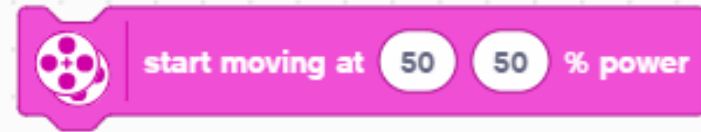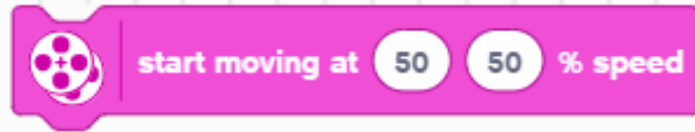
- Motor Synchronization: The block will try to keep the number of motor rotations of each wheel proportional to each other.

- Acceleration/Deceleration: The block will increase to the desired speed over a short time.

- Speed Control: The robot will adjust the power going to the motor to maintain the same speed.

- Does not have the features on the left

- While speed blocks have more features, when you use movement blocks in a loop (Repeat Block), where it goes through the loop very quickly, you should use a "power" block.

- For this lesson, you will use a "power block"

LINE FOLLOWER – COLOR & REFLECTED MODE

This program follows a right side of a black line using the Color Mode

To use reflected light mode substitute the condition

When the sensor sees black, the robot turns left

When the sensor sees white, the robot turns right

EXTENSION

- CHANGING EXIT CONDITIONS

  - What if you did not want to line follow forever? What it would wanted to line follow until a Force sensor was pressed?

  - Combine this lesson with the Repeat block lesson to solve this problem.

CREDITS

- This lesson was created by Sanjay Seshan and Arvind Seshan for SPIKE Prime Lessons
- More lessons are available at www.primelessons.org