9. Calibrate Color Sensor

Differences between environments are critical for the control of a robot. Even light variations can affect how they behave. For this reason, calibrating your robot's awareness of light reflection is essential.

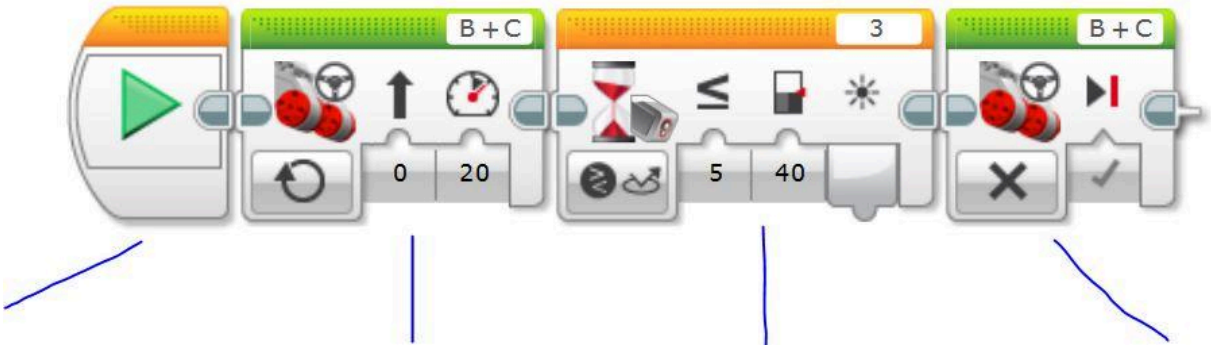
Your mission is to calibrate the Color Sensor and observe your robot's behavior.

You might REVIEW beyond basics tasks: **Stop at Line, Color Sensor-Calibrate**

CREATE PROGRAM, RUN, and OBSERVE

Recreate the program from the software. Download the program then put your robot in position 10 on mat 3. Run the program. **NOTE: where does your bot stop?**

1. Describe each block of the program below:



2. If you replace the wait block with a color sensor-compare-ambient light, will you get a different response from your robot? Try it.

CALIBRATE YOUR SENSOR

Rebuild your program to calibrate the Color Sensor before driving down the gray scale. You can find instructions on the next few slides on the software.

Observe the program and fill in the blanks below describing the program:

Once the program is played, the _____ sensor is reset. When the bottom button is pressed the light sensor, which is measuring _____ light, is now set as the _____ value and a sound is played. If I press the top button on the bot, the light sensor now sets the _____ value and plays a sound. But if I press the center button then my bot _____ until it senses _____ and stops.

RUN YOUR PROGRAM AND OBSERVE

1. Place your robot so that the Color Sensor points at position 10.1 on mat 3, run the program, and set the minimum by pressing the Down Button.
2. Point the Color Sensor at position 10.2 and set the maximum by pressing the Up Button.
3. Then put the robot in Position 10 and press the Center button to have the robot drive down the gray scale.

Where did your robot stop? Did it stop at the same position as the first program?

What, if anything, changed?

CONTINUE TO EXPLORE

Rebuild your program to calibrate the Color Sensor before following the gray line oval, starting at position 9, mat 2. The white surface is the **maximum value**, and the gray oval is the **minimum value**. Combine your program with the program used in the Learning Mission Follow a Line.

GET A TEACHER SIGNATURE once you can follow the gray line oval.