Color Sensor

By Sanjay and Arvind Seshan

BEGINNER PROGRAMMING LESSON

LESSON OBJECTIVES

1. **Learn how to use the Color Sensor**

2. **Learn about Coast and Brake**

WHAT IS A SENSOR?

- **A sensor lets an EV3 program measure and collect data about is surroundings**

- **The EV3 sensors include:**

  - Color – measures color and darkness
  - Gyro – measures rotation of robot
  - Ultrasonic – measures distance to nearby surfaces
  - Touch – measures contact with surface
  - Infrared – measures IR remote's signals

Touch Sensor   Ultrasonic Sensor   Light Sensor   Gyroscope Sensor   Infrared Sensor

Image from: http://www.ucalgary.ca/IOSTEM/files/IOSTEM/media_crop/44/public/sensors.jpg

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WHAT IS THE COLOR SENSOR?

- What are they? Sensors that detect the intensity of light that enters it

- Three modes: Color, Reflected Light Intensity and Ambient Light Intensity

  - **Color Mode:** Recognizes 7 colors (black, brown, blue, green, yellow, red, white) and No Color
  - **Reflected Light:** Measures the intensity of the light reflected back from a lamp that emits a red light. (0=very dark and 100=very light)
  - **Ambient Light:** Measures the strength of the light that enters the sensor from the environment. (0=very dark and 100=very light)

- USES:

  - Move until a line, Follow a line, Find a color
  - Play a game using the color sensor

We will use COLOR MODE in this Lesson

ANOTHER MOVE STEERING TIP: COAST OR BRAKE?

- Something more about the Move Steering Block

- You will notice you have an option to COAST or BRAKE

- Coast will make the motors keep moving. Brake makes the motors stop immediately.

- Which do you use to stop EXACTLY on a colored line?
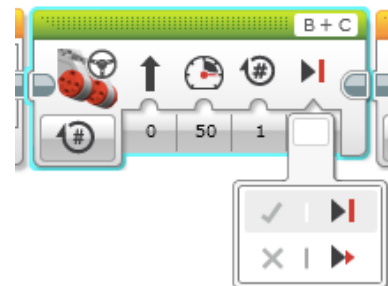
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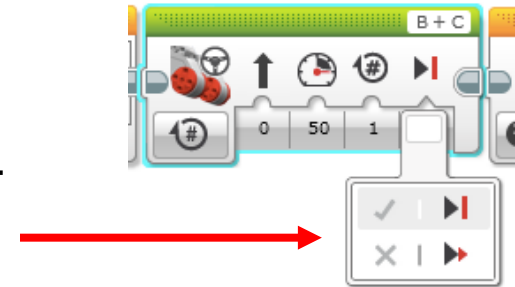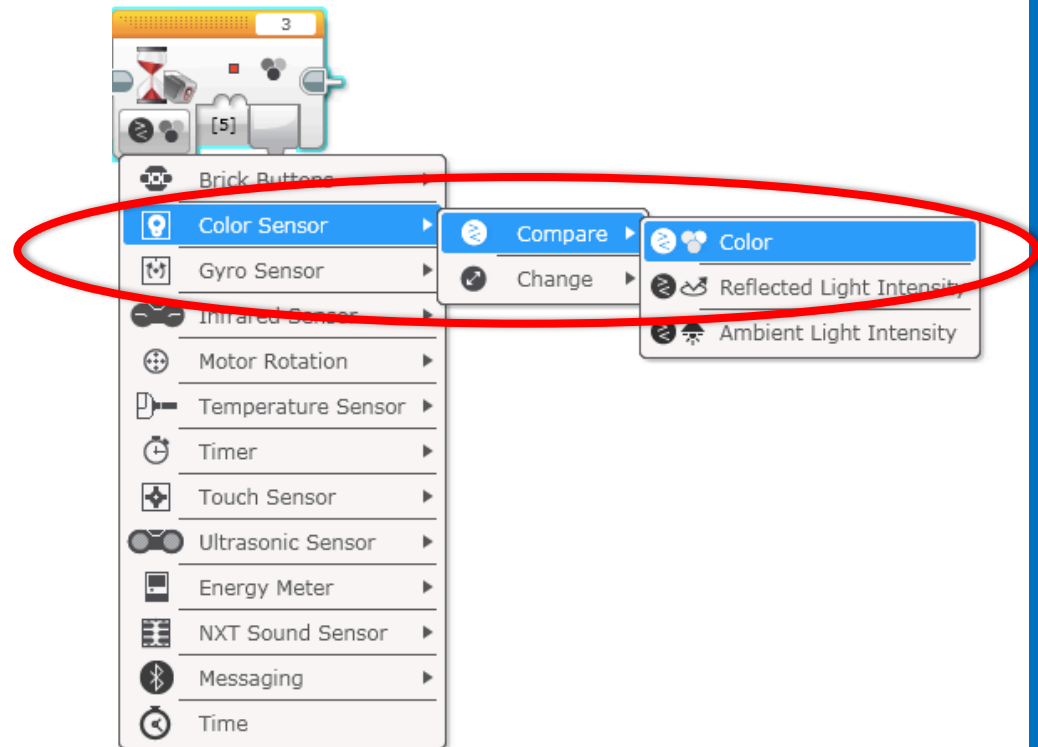
COLOR SENSOR CHALLENGE

Make the robot move up to a green line using the color sensor?
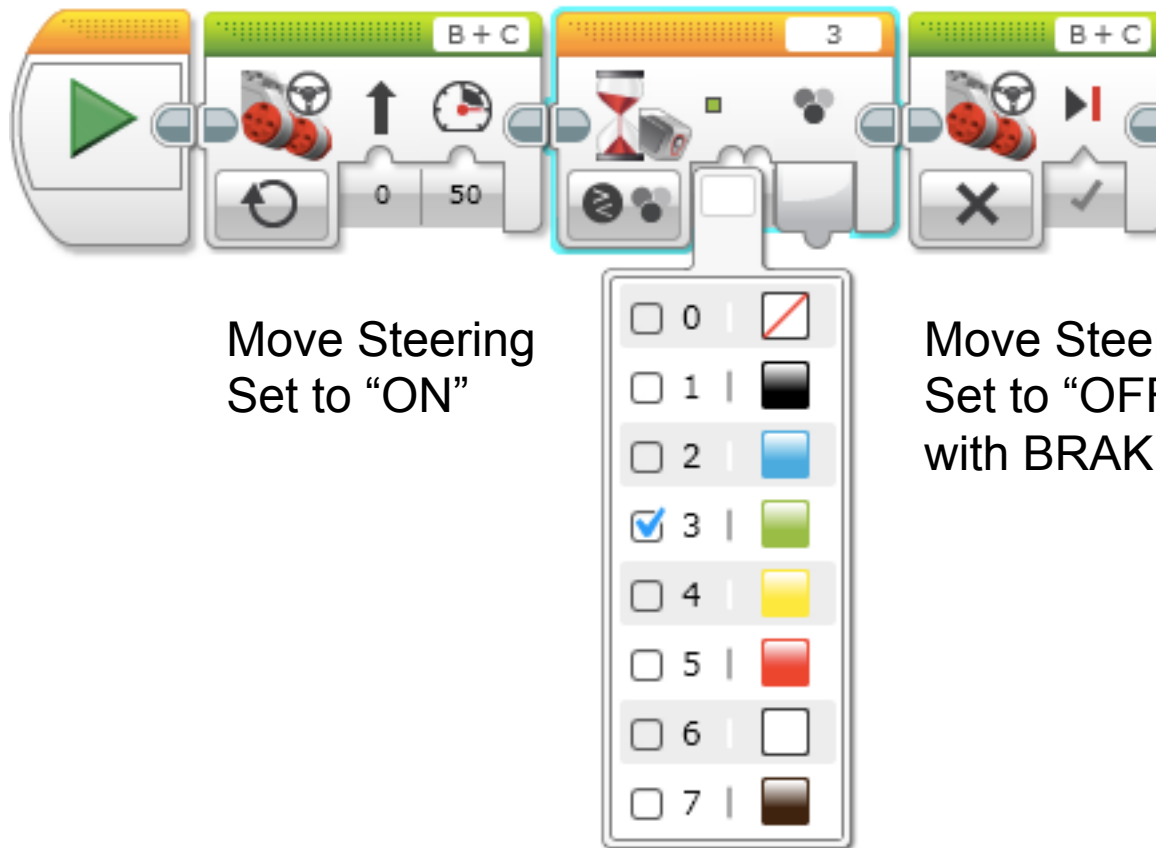
Step 1: Use Wait For Color

Step 2: Use the color sensor in COLOR MODE

Step 3: Coast or Brake?

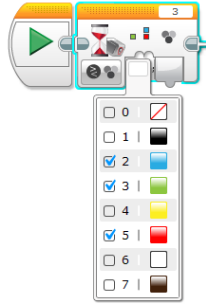Hint: You will use Move Steering (think about motor on and off) and Wait for "Color"

COLOR SENSOR CHALLENGE SOLUTION

Move Steering Set to "ON"

Move Steering Set to "OFF" with BRAKE

Wait until Color is Green (#3)

FINISH

START

DISCUSSION GUIDE

Can you look for more than one color with the color sensor?

Answer: Yes

**What is the difference between
COAST and BRAKE in a Move Steering Block?**

Ans. Coast will allow your motors to
spin freely after a move, but Brake will
Immediately stop it

CREDITS

- **This tutorial was created by Sanjay Seshan and Arvind Seshan**

- **More lessons are available at www.ev3lessons.com**