Direct Instruction Summary
Intro to Color Codes 02: Speed

1. Introduction
Evo can move at 6 different speeds. Using Speed Color Codes, students can program Evo to go Short Super Slow (3 seconds), Slow, Cruise, Fast, Turbo, or Nitro Boost (3 seconds).

2. Concept of Speed
Review the concept of speed. Review that a Color Code is a sequence of color blocks that program Evo to do specific things. Evo will read the input of the Color Code, process the instructions, and output an action.

Speed is the rate at which an object covers a distance.
Acceleration happens when an object changes speed, direction, or both.

3. Use Color Codes to Complete the Path
Students will complete the Color Codes on the path according to the Color Codes Key. Number 1 on the path goes with number 1 in the key, and so on.
1. Short Super Slow
2. Slow
3. Cruise
4. Fast
5. Turbo
6. Nitro boost
Trace the rest of the line with black marker.

4. Run Evo from Start 1
Students will place Evo on Start 1 and observe the Color Code input and speed output.

5. Analyze the Color Codes
Did students notice a change in speed? Could they see the changes in the top LED's color as the bot went over a Color Code?

The bot should have increase in speed from Start 1 to the end of the line.

6. Run Evo from Start 2
Students place Evo on Start 2 and observe the Color Code input and speed output.

7. Analyze the Color Codes
What was the difference in starting from Start 1 and Start 2? Did students notice that the first and last codes are asymmetric?

Since the bot is traveling the opposite direction, the first code (#6) is read from the opposite direction becoming Short Super Slow. The last code (#1) becomes Nitro Boost. Otherwise, the bot should have decreased in speed as it traveled along the line.

8. Check for Understanding
Have students explain to a partner, in writing, or in a group discussion:
1. the Color Codes they used
2. a problem they encountered and how they attempted to solve it
3. how their bot behaved based on the Color Codes used and if the bot demonstrated the correct outcome

9. Extensions
Have students take their bot on a road trip! On a blank sheet of paper, have students draw their own pathway and use Color Codes to program their bot to change speed as it moves from the start to its final destination.