ANSWER KEY

CODEBOT MISSION 5 LOG - Lesson 1

Pre-Mission Warm-Up

What are some things you would like CodeBot to detect?	Answers will vary, and can be very creative. Students may say “things in front of the ‘bot” or “objects.” They might also think outside the box and say something about temperature or sounds. This is a good time to share ideas.

Mission 5 Lesson 1 – Fence Patrol

Mission 5 Introduction

How many line sensors does CodeBot have?	5 line sensors, on the front of the CodeBot
What has driven CodeBot in previous projects?	Timing (the sleep() function) and detecting a button press
This mission has four project goals. Which one interests you the most?	Answers will vary. Choices are: • Read the line sensors and display the results on their LEDs. • Use the analog readings to measure the contrast between surfaces. • Make a contact counter using the user LEDs • Drive between the lines using line sensor data.

Mission 5 Objective 1

- Create a new file ***LineSense***.

What are the parts of the line sensor?	The emitter, the detector and the reflector
What are factors in the brightness level?	Reflectivity and distance
What is the difference between analog and digital?	Answers can vary, but should include: Analog has infinite possibilities, while digital is in increments.
What function reads a line sensor?	ls.read(0)

Mission 5 Objective 2

What reading does a line sensor give for different surfaces?

Use the test surface paper for black, gray and white. Then try at least 5 other surfaces/materials/colors directly under CodeBot. Record the reading on the chart.

Surface	Reading
Test surface - black	3964
Test surface - gray	415
Test surface - white	244
Desktop (brown wood)	2952

	<table><tr><td>Finger</td><td>177</td></tr><tr><td>Your choice</td><td></td></tr><tr><td>Your choice</td><td></td></tr><tr><td>Your choice</td><td></td></tr></table>
Post-Mission Reflection	
What possible values are returned when reading a line sensor?	Integer values from 0 to 4095
What are some uses for line sensors?	Answers will vary. For robotics, students may say to stay within lines or to follow lines. They could also be used for input, like a particular value triggers a specific action. Students may get creative with their answers.