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# VEX ROBOTICS

## VEX ROBOTICS VEX 123 Programmable Robot



## Product Specifications

- Product Name: VEX 123
- Manufacturer: Innovation First, Inc. (dba VEX Robotics)
- Copyright: 2025 Innovation First, Inc. All rights reserved.
- Website: <https://copyright.vex.com/>

## Teaching Computer Science with VEX 123

### 9 Week Scope and Sequence for CS with VEX 123

- This Scope and Sequence is designed to offer a pathway to teaching Computer Science with VEX 123, with students who are familiar with the robot.
- Lessons begin with coding with the Coder and Coder cards and progress to using VEXcode 123.
- Each week gives guidance for what teachers can do before, during, and after class in order to be prepared for the computer science concepts and teaching with VEX 123 curricular resources.

**Note:** If students have never used VEX 123 before, it is recommended to complete the Introduction to VEX 123 Scope and Sequence ([Google doc](#) / [.pdf](#)) first.

## Scope and Sequence for VEX 123 At a Glance

| Week | Lesson                                                       | Description                                                                                                                                                                                       |
|------|--------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | <a href="#">Intro to Coding STEM Lab Unit</a>                | Students explore foundational concepts like programming language, behaviors, and sequence as they use the Coder and Coder cards to make their robots dance and find treasure.                     |
| 2    | <a href="#">Find the Bug STEM Lab Unit</a>                   | Bugs in our code help us learn! Students practice using a debugging process to identify, find, and fix bugs in their Coder projects so the 123 Robot can move the way they intended.              |
| 3    | <a href="#">Little Red Robot STEM Lab Unit</a>               | Students are introduced to the Eye Sensor and practice coding sensor-based behaviors through the Little Red Riding Hood story.                                                                    |
| 4    | <a href="#">Little Red Robot STEM Lab Unit</a> (continued)   | Students continue learning about the Eye Sensor to build their own Wolf Detecting Algorithms, using sequence, selection, and iteration to code the robot to make a decision based on sensor data. |
| 5    | <a href="#">Mars Rover: Surface Operations STEM Lab Unit</a> | Students are introduced to VEXcode 123 and sequence blocks to move the robot around the Field.                                                                                                    |

|   |                                                                                                                                |                                                                                                                                                                                                   |
|---|--------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6 | <a href="#">Mars Rover: Landing Challenge STEM</a><br><a href="#">Lab Unit</a>                                                 | Students create algorithms to solve an open-ended challenge, applying learning about sequence, sensors, and loops to VEXcode.                                                                     |
| 7 | AI Literacy Activities: <a href="#">What is AI?</a> ; <a href="#">Hue Value Hunt</a> ; and <a href="#">Lighting Technician</a> | Students continue learning about the Eye Sensor, to discuss robot perception, and explore hue value and how light affects the sensor.                                                             |
| 8 | AI Literacy Activities: <a href="#">Bug Hunter</a> and <a href="#">Code a Course</a>                                           | Students dive deeper into AI Literacy as they practice debugging a VEXcode 123 project and coding their robots to navigate a course based on detected colors.                                     |
| 9 | AI Literacy Activities: <a href="#">Alien Planet Mapper</a> and <a href="#">Mystery Planet Mapper</a>                          | Students apply all that they've learned to navigate an Alien Planet – first exploring a planet of their own design, then one that they cannot see and must rely on the robot's perception to map. |

## Scope and Sequence for Teachers

### Get ready to teach with VEX 123

#### Before Week 1

- Be sure your robots and Coders are ready for use. Follow the steps in the Best Practices for Using the Classroom App with VEX 123 Article to charge, update, name, label, and pair your 123 Robots and Coders if needed.
- Watch the Computer Science fundamentals video in Unit 6 of the Introduction to VEX 123 Intro Course to learn about teaching foundational CS concepts to students.
- Review the Implementing VEX 123 STEM Labs Article to learn about how STEM Lab

Units are organized.

## Introduce programming language, behaviors, and sequencing with the Coder and Coder cards

|                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                            |
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| Week 1                                                                                                                                                                                                                                                                                                                                                                                                                  | Lesson: <a href="#">Intro to Coding STEM Lab Unit</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                            |
| Before class                                                                                                                                                                                                                                                                                                                                                                                                            | During class                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | After class                                                                                                                                                                                                                                                                                                                                                                                                |
| <ul style="list-style-type: none"><li>• Print and cut the treasure map labels (<a href="#">Google doc</a> / <a href="#">.docx</a> / <a href="#">.pdf</a>) and have tape ready to attach them to the Fields.</li><li>• Review the <a href="#">Environment Setup</a> section of each Lab and get your Coder cards and Fields ready.</li><li>• Send the <a href="#">Intro to Coding Letter Home</a> to families.</li></ul> | <ul style="list-style-type: none"><li>• <a href="#">Lab 1: Robot Dance</a><ul style="list-style-type: none"><li>◦ <a href="#">Engage</a> – Discuss vocabulary of symbols, programming language, and behavior.</li><li>◦ <a href="#">Play</a> – Code the robot to perform a dance.</li></ul></li><li>• <a href="#">Lab 2: Robot Treasure Hunt</a><ul style="list-style-type: none"><li>◦ <a href="#">Engage</a> – Introduce vocabulary of sequence and why the order of Coder cards matters.</li><li>◦ <a href="#">Play</a> – Navigate the robot to the treasure chest in different ways.</li></ul></li></ul> | <ul style="list-style-type: none"><li>• Give <a href="#">student certificates</a> for completing the Intro to Coding Unit.</li><li>• Clean off the Fields and take them apart.</li><li>• Use the prompts in the Share sections of the Intro to Coding Labs for journal prompts or class discussions.</li><li>• Use the <a href="#">Intro to Coding Choice Board</a> to extend lesson activities.</li></ul> |

## Learn and practice a process for debugging

|        |                                                    |
|--------|----------------------------------------------------|
| Week 2 | Lesson: <a href="#">Find the Bug STEM Lab Unit</a> |
|--------|----------------------------------------------------|

| Before class                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | During class                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | After class                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
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| <ul style="list-style-type: none"> <li>• Print the bug printables for use during the Unit (<a href="#">Google doc / .docx / .pdf</a>)</li> <li>• Review the <a href="#">Environment Setup</a> section of each Lab and get your Coder cards and materials ready.</li> <li>• Send the <a href="#">Find the Bug Letter Home</a> to families.</li> <li>• Optional: Print the <a href="#">Printable Coder cards</a> in large sizes to use while teaching. <ul style="list-style-type: none"> <li>◦ <a href="#">Read the VEX 123 Printables article for more about printables.</a></li> </ul> </li> <li>• Optional: <a href="#">Review how to use the Step feature on the Coder with this article.</a></li> </ul> | <ul style="list-style-type: none"> <li>• <a href="#">Lab 1: Find and Fix the Bug</a> <ul style="list-style-type: none"> <li>◦ <a href="#">Engage</a> – Introduce the concept of a bug and frame it positively as a learning opportunity.</li> <li>◦ <a href="#">Play</a> – Follow the debugging process to fix the project and take the robot to the desired destinations.</li> </ul> </li> <li>• <a href="#">Lab 2: Step Up to the Bug</a> <ul style="list-style-type: none"> <li>◦ <a href="#">Engage</a> – Introduce the Step button and how it is used.</li> <li>◦ <a href="#">Play</a> – Practice debugging using the Step button.</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>• Give <a href="#">student certificates</a> for completing the Find the Bug STEM Lab Unit.</li> <li>• Clean the Tiles to remove marks.</li> <li>• Use the <a href="#">Find the Bug Choice Board</a> to extend lesson activities. <ul style="list-style-type: none"> <li>◦ Create a class poster of the Identify-Find-Fix debugging process to reference as you work with VEX 123.</li> </ul> </li> <li>• Create a classroom Bug Board for students to post their bug finds and fixes, to help reiterate that bugs are not a bad thing, but a way that we learn when coding.</li> <li>• Use the Share section of both Labs for journal prompts or discussion questions.</li> </ul> |

## Introduce the Eye Sensor on the 123 Robot

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|--------|----------------------------------------------------------------------------------------------|
| Week 3 | <b>Lesson:</b> <a href="#">Little Red Robot STEM Lab Unit</a> (Lab 1 and a portion of Lab 2) |
|--------|----------------------------------------------------------------------------------------------|

| Before class                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | During class                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | After class                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
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| <ul style="list-style-type: none"> <li>• Print the <a href="#">Little Red Robot printable</a> for students to attach Grandmother's house to the Field. <ul style="list-style-type: none"> <li>◦ Note: When coloring in Grandmother's house do NOT use red.</li> <li>◦ Save the wolf to use later.</li> </ul> </li> <li>• Review the Environment Setup section of each Lab to get your Fields and Coder cards ready. <ul style="list-style-type: none"> <li>◦ <a href="#">Lab 1 Setup</a></li> <li>◦ <a href="#">Lab 2 Setup</a></li> </ul> </li> <li>• Send the <a href="#">Little Red Robot Letter Home</a> to families.</li> <li>• Optional: <a href="#">Review this article to learn more about coding with the Eye Sensor and the Coder cards.</a></li> </ul> | <ul style="list-style-type: none"> <li>• <a href="#">Lab 1: Drive to Grandmother's</a> <ul style="list-style-type: none"> <li>◦ <a href="#">Engage</a> – Review the story of Little Red Riding Hood and create Little Red on Art Rings.</li> <li>◦ <a href="#">Play</a> – Code the robot to reach Grandmother's house as many ways as possible.</li> </ul> </li> <li>• <a href="#">Lab 2: Watch out for the Wolf!</a> <ul style="list-style-type: none"> <li>◦ <a href="#">Engage</a> – Introduce the Drive until object Coder card and talk about what students think is happening to make that command work.</li> <li>◦ <a href="#">Play Part 1</a> – Test driving to Grandmother's house using only the Drive until object Coder card.</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>• Save the Fields for use in the next week.</li> <li>• Use the <a href="#">Little Red Robot Choice Board</a> to extend lesson activities. <ul style="list-style-type: none"> <li>◦ View the Activities to support reteaching and the Extending this Unit sections of the <a href="#">Unit Pacing Guide</a> for additional extensions or reteaching options.</li> </ul> </li> <li>• Use the Share section of either Lab for journal prompts or discussion questions.</li> </ul> |

**Make a decision using the Eye Sensor to scare away the Wolf and get safely to Grandmother's**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
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| <b>Week 4</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>Lesson:</b> <a href="#">Little Red Robot STEM Lab Unit</a> (The rest of Lab 2 and Lab 3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Before class</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <b>During class</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <b>After class</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <ul style="list-style-type: none"> <li>• Print the <a href="#">Little Red Robot printable</a> for students to attach Grandmother's house to the Field. <ul style="list-style-type: none"> <li>◦ <b>Note:</b> Color the Wolf in red. Try to match the red color to the red 123 Robot/Art Ring as much as you can, to help ensure that the wolf is detected by the Eye Sensor as intended.</li> <li>◦ Be sure there is not any red on Grandmother's house.</li> </ul> </li> <li>• Optional: <a href="#">Review this article to learn more about coding with the Eye Sensor and the Coder cards.</a></li> <li>• If the Eye Sensor does not detect red as expected, <a href="#">use this article and the VEX Classroom App to help you troubleshoot.</a></li> </ul> | <ul style="list-style-type: none"> <li>• <a href="#">Lab 2: Watch out for the Wolf!</a> <ul style="list-style-type: none"> <li>◦ <a href="#">Mid-Play Break &amp; Play Part 2</a> – Talk about the Eye Sensor on the robot and introduce the Wolf into the scenario. Then add onto the project to scare away the Wolf.</li> </ul> </li> <li>• <a href="#">Lab 3: Wolf Detecting Algorithm</a> <ul style="list-style-type: none"> <li>◦ <a href="#">Engage</a> – Introduce color detection with the Eye Sensor</li> <li>◦ <a href="#">Play</a> – Code the Little Red Robots to drive until an object is detected and perform different behaviors depending on if red is detected.</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>• Give <a href="#">student certificates</a> to celebrate completing the Little Red Robot STEM Lab Unit.</li> <li>• Take apart your Fields in preparation for the next week.</li> <li>• Use the <a href="#">Little Red Robot Choice Board</a> to extend Lesson activities. <ul style="list-style-type: none"> <li>◦ View the Activities to support reteaching and the Extending this Unit sections of the <a href="#">Unit Pacing Guide</a> for additional extensions or reteaching options.</li> </ul> </li> <li>• Use the Share section of either Lab for journal prompts or discussion questions.</li> </ul> |

## Begin using block-based coding in VEXcode 123

| Week 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Lesson: <a href="#">Mars Rover – Surface Operations STEM Lab Unit</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Before class                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | During class                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | After class                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <ul style="list-style-type: none"> <li>Be sure all student devices you will be using have access to VEXcode 123. <a href="#">Review this article for help with setting up VEXcode 123.</a></li> <li>Review the Environment Setup section of the Labs to get your Fields and materials ready.               <ul style="list-style-type: none"> <li><a href="#">Lab 1</a></li> <li><a href="#">Lab 2</a></li> </ul> </li> <li>Have pom poms or small classroom items to use as ‘samples’ in the activities.</li> <li>Send the <a href="#">Mars Rover – Surface Operations Letter Home</a> to families</li> </ul> | <ul style="list-style-type: none"> <li><a href="#">Lab 1: Collect a Sample</a> <ul style="list-style-type: none"> <li><a href="#">Engage</a> – Introduce the concept of a Mars Rover.</li> <li><a href="#">Play</a> – Introduce VEXcode 123 and guide students to building and testing projects to navigate the Field with blocks.<br/><i><b>Note:</b> You may want to complete the Lab 1 Play section as a guided exploration, to ensure that all students are following along with using VEXcode 123 together.</i></li> </ul> </li> <li><a href="#">Lab 2: Collect and Bury Mission</a> <ul style="list-style-type: none"> <li><a href="#">Play</a> – Build onto the previous projects to code the robot to collect and bury additional samples around the Field.</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>Clean off the Fields to get them ready for the next week.</li> <li>Give <a href="#">student certificates</a> to celebrate completing the Mars Rover: Surface Operation Unit.</li> <li>Use the <a href="#">Mars Rover: Surface Operations Choice Board</a> to extend lesson activities.               <ul style="list-style-type: none"> <li>View the Activities to support Reteaching and the Extending this Unit sections of the <a href="#">Unit Pacing Guide</a>.</li> </ul> </li> <li>Use the Share section of either Lab for journal prompts or discussion questions.</li> </ul> |

## Code with the Eye Sensor in VEXcode 123

|                     |                                                                            |                    |
|---------------------|----------------------------------------------------------------------------|--------------------|
| <b>Week 6</b>       | <b>Lesson:</b> <a href="#">Mars Rover: Landing Challenge STEM Lab Unit</a> |                    |
| <b>Before class</b> | <b>During class</b>                                                        | <b>After class</b> |

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| <ul style="list-style-type: none"> <li>Review the Environment Setup section of the Labs to get your Fields and materials ready. <ul style="list-style-type: none"> <li><a href="#">Lab 1</a></li> <li><a href="#">Lab 2</a></li> <li>Have light colored scrap paper available to ball up and use as obstacles on the Field.</li> </ul> </li> <li>Send the <a href="#">Mars Rover: Landing Challenge Letter Home</a> to families.</li> </ul> | <ul style="list-style-type: none"> <li><a href="#">Lab 1: Detect Obstacles</a> <ul style="list-style-type: none"> <li><a href="#">Engage</a> – Review what students remember about the Eye Sensor on the robot.</li> </ul> </li> <li><a href="#">Play</a> – Code the robot to drive until the object is detected, glow and wait while the obstacle is removed in VEXcode 123. <p><b>Note:</b> <i>You may want to complete the Lab 1 Play section as a guided exploration, to ensure that all students are following along with using VEXcode 123 together.</i></p> </li> <li><a href="#">Lab 2: Clear the Landing Area</a> <ul style="list-style-type: none"> <li><a href="#">Engage</a> – Introduce the concept of a loop, and talk about what a loop does in a project.</li> <li><a href="#">Play</a> – Open-ended challenge – Build onto previous projects to code the robot to detect obstacles repeatedly, anywhere on the Field.</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>Clean off the Fields to get them ready for the next week.</li> <li>Use the <a href="#">Mars Rover: Surface Operations Choice Board</a> to extend lessons on activities. <ul style="list-style-type: none"> <li>View the Activities to support Reteaching and the Extending this Unit sections of the <a href="#">Unit Pacing Guide</a>.</li> </ul> </li> <li>Use the Share section of either Lab for journal prompts or discussion questions.</li> </ul> |
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**Introduce AI and the concept of computer perception by exploring hue value data**

| <b>Week 7</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>Lesson:</b> 3 AI Literacy Activities – <a href="#">What is AI?</a> ; <a href="#">Hue Value Hunt</a> ; and<br><br><a href="#">Lighting Technician</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Before class                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | During class                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | After class                                                                                                                                                                                                                                                                                                                                                                                               |
| <ul style="list-style-type: none"> <li>• Read the cover page of the AI Literacy Activities for context about AI Literacy with young students. (This is the first page of each linked Activity doc.)</li> <li>• Review the <a href="#">Using VEX 123 Activities in the Classroom Article</a> to learn about how an Activity is organized so you can teach with it if needed.</li> <li>• Optional: <a href="#">Watch Dr. Touretsky's keynote from the 2023 VEX Robotics Educators Conference</a> to learn more about AI in the content of K-12 education.</li> </ul> | <ul style="list-style-type: none"> <li>• <a href="#">What is AI? Activity</a> – Students first discuss in their small groups, then facilitate a whole group discussion about their definitions, to come to a classroom consensus.</li> <li>• <a href="#">Hue Value Hunt Activity</a> – Explore hue values with the Eye Sensor on the 123 Robot and VEXcode 123 and chart results. Come together to discuss findings as a whole class.</li> <li>• <a href="#">Lighting Technician</a> – Explore how light/darkness affects hue value readings and chart results. Come together to discuss findings as a whole class.</li> </ul> | <ul style="list-style-type: none"> <li>• Create classroom posters or bulletin board resources that synthesize your learning and discussions.             <ul style="list-style-type: none"> <li>◦ Post class definitions (in the students' words) of terms like AI, hue value, or Eye Sensor.</li> </ul> </li> <li>• Extend the lesson using the 'Level Up' prompts in each of the Activities.</li> </ul> |

**Dive deeper into perception by practicing debugging and navigating with sensor data**

|                     |                                                                                                       |                    |
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| <b>Week 8</b>       | <b>Lesson:</b> 2 AI Literacy Activities: <a href="#">Bug Hunter</a> and <a href="#">Code a Course</a> |                    |
| <b>Before class</b> | <b>During class</b>                                                                                   | <b>After class</b> |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                          |
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| <ul style="list-style-type: none"> <li>• Set up your Fields and gather materials needed for the Code a Course Activity. Use the setup image at the top of the activity document for guidance. <ul style="list-style-type: none"> <li>◦ Note: Using Art Rings can help ensure that color detection works as expected. If using other objects, try to match the colors as closely as possible.</li> <li>◦ Optional: Print <a href="#">Motion Planning printables</a> for students to use to plan their projects.</li> </ul> </li> <li>• <a href="#">Read this article to learn more about coding with the Eye Sensor in VEXcode 123.</a></li> <li>• If the Eye Sensor is not detecting colors as expected, <a href="#">use this article and the VEX Classroom App to help you troubleshoot.</a></li> </ul> | <ul style="list-style-type: none"> <li>• <a href="#">Bug Hunter Activity</a> – Practice debugging with a VEXcode 123 project. <ul style="list-style-type: none"> <li>◦ Review the Identify – Find – Fix process used in Week 2 in the <a href="#">Find the Bug STEAM Lab Unit</a> to help students tackle debugging with intention.</li> <li>◦ Have groups share the bugs they found and how they chose to fix them. Discuss pros/cons of each solution.</li> </ul> </li> <li>• <a href="#">Code a Course Activity</a> – Build onto the starter code in the Activity doc to successfully navigate the color maze. <ul style="list-style-type: none"> <li>◦ Help students apply what they learned about hue value to troubleshoot their projects if needed.</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>• Create a Bug Board, or add to an existing one to showcase what students learned from finding and fixing bugs in their projects.</li> <li>• Extend the lesson using the ‘Level Up’ prompts in each of the Activities.</li> <li>• Take apart the Fields to be ready for the next week.</li> </ul> |
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**Apply everything you’ve learned to map an Alien Planet with sensor feedback**

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| <b>Week 9</b>       | <b>Lesson:</b> 2 AI Literacy Activities: <a href="#">Alien Planet Mapper</a> and <a href="#">Mystery Planet Mapper</a> |                    |
| <b>Before class</b> | <b>During class</b>                                                                                                    | <b>After class</b> |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                     |
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| <ul style="list-style-type: none"> <li>• Get materials ready for the activities. Use the setup image at the top of the activity document for guidance. <ul style="list-style-type: none"> <li>◦ Note: Using Art Rings can help ensure that color detection works as expected. If using other objects, try to match the colors as closely as possible.</li> </ul> </li> <li>• In Mystery Planet Mapper, students will need a visual barrier so they can not see the planet they are mapping. Cardboard boxes or desk dividers can work well for this. <a href="#">Read this article to learn more about coding with the Eye Sensor in VEXcode 123.</a></li> <li>• If the Eye Sensor is not detecting colors as expected, <a href="#">use the VEX Classroom App to troubleshoot.</a></li> </ul> | <ul style="list-style-type: none"> <li>• <a href="#">Alien Planet Mapper Activity</a> – Students code their robot to find the blue water on their ‘planet’. <ul style="list-style-type: none"> <li>◦ This activity is shown on a single tile. Add additional tiles if needed for an additional challenge, or to allow more space for student setup.</li> <li>◦ Discuss as a whole class how students used what they learned about coding with the Eye Sensor to complete the activity.</li> </ul> </li> <li>• <a href="#">Mystery Planet Mapper Activity</a> – Now students will not be able to see the planet they are mapping, and will have to rely only on what is reported by the robot. <ul style="list-style-type: none"> <li>◦ Pair groups together to set up each other’s planets.</li> <li>◦ Use additional objects for an added challenge.</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>• Extend the lesson by using the ‘Level Up’ prompts in the Activities.</li> <li>• Revisit students’ definitions of AI from Week 7. How have they grown or changed after completing the rest of the activities?</li> <li>• Looking for more? Try the <a href="#">Mars Rock Adventure Activity Series</a> to continue exploring the Eye Sensor and data collection.</li> </ul> |
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## Frequently Asked Questions

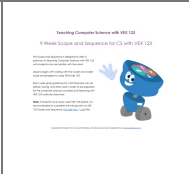
Can I use VEXcode 123 with other VEX Robotics kits?

VEXcode 123 is specifically designed for use with the VEX 123 kit and may not be compatible with other VEX Robotics kits.

How can I troubleshoot if my robot is not responding to commands?

If your robot is not responding, check the battery levels, ensure proper connectivity between the Coder and robot, and review the coding instructions for any errors.

## Documents / Resources

|                                                                                     |                                                                                                                                                |
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|  | <a href="#">VEX ROBOTICS VEX 123 Programmable Robot [pdf]</a> Owner's Manual<br>VEX 123, VEX 123 Programmable Robot, Programmable Robot, Robot |
|  | <a href="#">VEX Robotics VEX 123 Programmable Robot [pdf]</a> User Guide<br>VEX 123 Programmable Robot, VEX 123, Programmable Robot, Robot     |

## References

- [User Manual](#)

 VEX ROBOTICS ROBOTICS Programmable Robot, Robot, VEX 123, VEX 123 Programmable Robot, VEX

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