

1:1 with VEX - Sample Hybrid Classroom Lesson Plan (Beginner)

- This Hybrid Classroom Lesson Plan was designed to be used in conjunction with the [1:1 VEX Pacing Guide](#), for classrooms using VEX V5 and VEXcode VR in parallel. It was created as part of the [COVID Resources](#), to support teachers as they prepare for the 2020 school year.
- See the Knowledge Base articles for more information about accessing and using the Teacher's Portal for [STEM Labs](#) or about [VEXcode VR](#).

VEX V5 - VEXcode VR

At a Glance:

Objectives	Face to Face Learning Activities	Description of F2F Activities	Out of Class Learning Activities	Description of Out of Class Activities
Combining Basic Movement Commands: • Differentiate between the movements by the robot to drive forward, drive in reverse, turn left, turn right, and wait. • Decompose problems into smaller components through systematic analysis	VEX V5 STEM Lab: Medbot STEM Lab STEM Lab Preview	<i>Students are asked to program a robot to deliver medication to patients on a hospital floor that they create.</i>	VEXcode VR Activities: • Number Maze • Letter Maze	<u>Number Maze:</u> <i>Program the VR Robot to move through the Wall Maze, stopping on each of the numbered locations.</i> <u>Letter Maze:</u> <i>Program the VR Robot to move through the Wall Maze, stopping on each of the lettered locations.</i>

	Face to Face Learning Activities	Out of Class Learning Activities
Assessment	• STEM Lab “Know” section questions • Successful execution of Medbot projects	• Successful completion of activity (projects can be saved and shared with the teacher)

Teaching Guide:

<u>Overview and Objectives:</u> The purpose of the Medbot STEM Lab/VR Activities is to give students a chance to apply their learning of basic robot movement behaviors and commands. Both a physical robot and a VR robot can give students good practice with these CS concepts. Using basic movement and drivetrain commands, students will explore how to control the movement of a robot, and to decompose a goal into a series of commands.	
Purpose	Facilitation Ideas
<u>Getting Started:</u> Begin with a whole group discussion about how and why robot behaviors and commands could be combined. Reinforce terms like complex behaviors and commands, as you discuss the process of creating a project to navigate to a particular location. Revisit the blocks that will be used by students in both V5 and VR, and answer any remaining questions about them.	<u>Discussion Prompts:</u> • <i>What are some situations where a robot may need to travel a specific path?</i> • <i>How can you use comments in your code to help you decompose a project?</i> • <i>How are you going to get started if you're working with V5?</i> • <i>How will you get started if you're working with VR?</i>
<u>Monitoring Progress In Class:</u> As students are working, circulate around the classroom and look and listen for student engagement. Encourage students to “think out loud”, or in their Engineering Notebook to offer insight into how they are decomposing their projects.	<u>Facilitation Questions:</u> • <i>Can you explain what you want the robot to do, in words?</i> • <i>What is one way you can make your robot's path more efficient?</i> • <i>What is an advantage to using pseudocode to help you plan your code?</i>
<u>Wrapping Up:</u> Come back together for a whole group discussion about their projects. Offer time for a demonstration of an V5 and a VR successful project, and allow students to discuss what they learned, what challenges they had, and what problem solving strategies they discovered.	<u>Discussion Prompts:</u> • <i>How can complex robotic behaviors be useful in real life?</i> • <i>What is one problem solving strategy that was successful for you today? What was one challenge you faced?</i> • <i>What are some similarities between the V5 and VR projects you used?</i>
<u>For Asynchronous Progress Monitoring:</u> If students are working independently, use a mix of discussion and written prompts to monitor progress. The Leveled stages of the VR Activities can provide scaffolding and differentiation prompts, if students need extra practice or have finished early. For Out of Class use of VEXcode VR, encourage students to share their VR projects, or screenshots of code, then ask and answer questions in brief exchanges via email or a digital classroom setting.	