

Woodland Hills Scope and Sequence for VEX 123

In this document you will find:

- Scope and Sequence At a Glance
- Example Choice Board
- Day by Day breakdown



Scope and Sequence At a Glance

Week	Lesson/Activity
1	Meet Your Robot STEM Lab Unit (with story) Pathfinder Activity
2	Robot Count Activity
3	Move Around Activity
4	Clean Your Room Activity
5	Invention Time Activity
6	Flamingos in the Wild Activity
7	Train Your Pet Activity
8	Ring and Run Activity Trick or Treat Activity
9	Fishbowl Activity
10	Dragon in the Village Activity Series (Get to the Castle Activity)
11	Dragon in the Village Activity Series (Gather Materials Activity)
12	Dragon in the Village Activity Series (Push the Dragon Activity)

Choice Board Ideas

Either you or your students would choose a Choice Board extension. These ideas are able to be used with all of the Lessons and activities, but are meant as a jumping off point for you to get started with, and then adapt as needed.

Find a new way	Robot Journal	Debug Your Project
What is a different path your robot could take to solve the challenge? Code your 123 Robot to solve the challenge in a new way.	Draw or write a journal entry about 1 thing you liked or learned about coding with your partner today.	Watch your 123 Robot move through your project, and find where it goes wrong. Draw or write about the bug you found, and how to fix it!
Use the Art Ring	Tell a Story	Challenge
Use the Art Ring to turn your 123 Robot into a character related to the challenge. Build your creation on the Art Ring, then add the Art Ring to the robot. Start your project and watch your character move!	Draw or write a story that tells about what your 123 Robot is doing in this challenge. Your story should have a beginning, middle, and end. You can add a fun twist before the ending too!	Look at the Challenge section on the bottom of the Activity. Choose one to do together with your partner.

Week 1 Day by Day

Introduce the 123 Robot to the class

Day 1	Day 2	Day 3	Day 4	Day 5
Engage: Whole group	Play: Plan/Test/ChoiceBoard Centers	Play: Plan/Test/ChoiceBoard Centers	Play: Plan/Test/ChoiceBoard Centers	Share: Whole group
Meet Your Robot Lab 1 - Hello, 123!		Pathfinder Activity		<i>Meet Your Robot Lab 2 (optional)</i>
Read the Meet Your Robot Story and introduce the 123 Robot to students.	PLAN: Predict what each button will do; setup Features chart	PLAN: Make a path and plan the project to drive on the path	PLAN: Make a new path, and plan the project to drive on the path	Share Pathfinder projects and recap how to use the robot, and work with a partner. Optional: Decide on Robot Rules together (Meet Your Robot Lab 2)
	TEST: Test each button and fill in the chart	TEST: Test your plan with the robot	TEST: Test your plan with the robot	
	CHOICE: Meet Your Robot Choice Board/ Choice Board Ideas above	CHOICE: Meet Your Robot Choice Board/ Choice Board Ideas above	CHOICE: Meet Your Robot Choice Board/ Choice Board Ideas above	

Journal/Discussion Prompt Ideas:

- What is something that helps you be successful when you are working with a partner?
- What are 3 things that you and your partner learned about your 123 Robot?
- What is something you want to try to code your robot to do? Why?
- What is one thing that was surprising to you about your robot? Why?
- See *Meet Your Robot STEM Lab Unit* for additional prompts

Week 2 Day by Day

Sequencing, decomposition, turn taking

Day 1	Day 2	Day 3	Day 4	Day 5
Engage: Whole group	Play: Plan/Test/ChoiceBoard Centers	Play: Plan/Test/ChoiceBoard Centers	Play: Plan/Test/ChoiceBoard Centers	Share: Whole group
<p>Robot Count Activity <i>Start with writing numbers 1-3 on Day 1 and 2, then add 1-5 on Day 3, and 1-9 on Day 4.</i></p>				<p><i>Meet Your Robot Lab 2 (optional)</i></p>
<p>Recap how Touch buttons work</p> <p>Introduce the idea of coding the 123 Robot to drive to a specific location.</p>	<p>PLAN: Plan a project to drive to the numbers 1, 2, and 3 in order</p>	<p>PLAN: Plan a project to drive to the numbers 1-5 in order</p>	<p>PLAN: Plan a project to drive to the numbers 1-9 in order</p>	<p>Share projects and talk about how partners worked together successfully.</p> <p>Optional: Decide on Robot Rules together (Meet Your Robot Lab 2)</p>
	<p>TEST: Test the plan with your robot</p>	<p>TEST: Test your plan with the robot</p>	<p>TEST: Test your plan with the robot</p>	
	<p>CHOICE: Choice Board Ideas above/ change the order or numbers on the Tile</p>	<p>CHOICE: Choice Board Ideas above/ change the order or numbers on the Tile</p>	<p>CHOICE: Choice Board Ideas above/ change the order or numbers on the Tile</p>	

Journal/Discussion Prompt Ideas:

- What was 1 tricky thing you and your partner had to figure out about coding your robot? How did you solve the problem?
- Describe a different coding challenge you could try with numbers on the Tile. How would you solve your new challenge?
- What is one thing that you learned about coding your robot? How will that help you next time?
- What is something that helps you be successful when you are working with a partner?

Week 3 Day by Day

Sequencing, decomposition, turn taking

Day 1	Day 2	Day 3	Day 4	Day 5
Engage: Whole group	Play: Plan/Test/ChoiceBoard Centers	Play: Plan/Test/ChoiceBoard Centers	Play: Plan/Test/ChoiceBoard Centers	Share: Whole group
Move Around Activity <i>Start by driving from one corner to the other around 1 item on Days 1-2; add extra obstacles on Days 3 and 4</i>				
Recap coding to drive to numbers on the Tile. Introduce the new challenge of driving to avoid an obstacle.	PLAN: Plan a project to drive from one corner of the Tile to the other avoiding 1 obstacle on the Tile	PLAN: Plan a project to drive from one corner of the Tile to the other avoiding 2 obstacles on the Tile	PLAN: Plan a project to drive from one corner of the Tile to the other avoiding 3 or more obstacles	Share projects and talk about how to use the robot and take turns with partners.
	TEST: Test the plan with your robot	TEST: Test the plan with your robot	TEST: Test the plan with your robot	
	CHOICE: Choice Board Ideas above/ change the location or number of obstacles	CHOICE: Choice Board Ideas above/ change the location or number of obstacles	CHOICE: Choice Board Ideas above/ change the location or number of obstacles	

Journal/Discussion Prompt Ideas:

- Why do you think is it important to code your robot to avoid obstacles?
- How did you and your partner make decisions about which way the robot would drive? Would you do anything differently next time? Why or why not?
- What is one thing that you learned about coding your robot? How will that help you next time?

Week 4 Day by Day

Sequencing, decomposition; multiple solutions to the same problem

Day 1	Day 2	Day 3	Day 4	Day 5
Engage: Whole group	Play: Plan/Test/ChoiceBoard Centers	Play: Plan/Test/ChoiceBoard Centers	Play: Plan/Test/ChoiceBoard Centers	Share: Whole group
Clean Your Room Activity <i>Start by trying to clear 1 item on Days 1-2; add extra items on Days 3 and 4</i>				
Recap your class's Robot Rules. Introduce the idea of a 'room cleaning' robot.	PLAN: Plan a project to push 1 item off of the Tile with the 123 Robot	PLAN: Plan a project to push 2-3 items off of the Tile with the 123 Robot	PLAN: Plan a project to push 3 or more items off of the Tile with the 123 Robot	Share how students successfully completed the challenge. Celebrate how there were multiple solutions to solving the same challenge, and that this is a big part of coding and working together.
	TEST: Test the plan with your robot	TEST: Test the plan with your robot	TEST: Test the plan with your robot	
	CHOICE: Choice Board Ideas above/ change the location or number of items	CHOICE: Choice Board Ideas above/ change the location or number of items	CHOICE: Choice Board Ideas above/ change the location or number of items	

Journal/Discussion Prompt Ideas:

- Describe a situation where there was more than one way to solve a problem. What is one thing you can do to be helpful in these moments?
- What is one thing you learned from another group that you didn't think about when you were coding? How will this help you next time?
- What is something you can do to help you to be flexible when someone has a different idea or solution than you do?

Week 5 Day by Day

Sequencing; multiple solutions to the same problem; using the Art Ring

Day 1	Day 2	Day 3	Day 4	Day 5
Engage: Whole group	Play: Plan/Test/ChoiceBoard Centers	Play: Plan/Test/ChoiceBoard Centers	Play: Plan/Test/ChoiceBoard Centers	Share: Whole group
Invention Time Activity <i>Build on the previous week's projects to focus on the Art Ring design and iterating on an 'invention'</i>				
Recap the Clean Your Room Activity. Introduce the Art Ring as a tool to add something to your robot to make it easier to clean items off the Tile. <i>Setup Note: Use the projects/setup from the previous week's Activity as a basis for this week's.</i>	PLAN: Plan a design for an attachment on the Art Ring to help clean items off the Tile more easily	PLAN: Plan an improvement for your 'invention' on the Art Ring to make it work better	PLAN: Plan a second improvement for your 'invention' on the Art Ring to make it work better	Share all designs and 'inventions' with the class. Talk about how their designs changed over the course of the week, and how many different ideas they came up with as a whole class to solve the same problem.
	TEST: Build your design and test it on the robot	TEST: Build your design and test it on the robot	TEST: Build your design and test it on the robot	
	CHOICE: Choice Board Ideas above/ change the items or iterate on the design	CHOICE: Choice Board Ideas above/ change the items or iterate on the design	CHOICE: Choice Board Ideas above/ change the items or iterate on the design	

Journal/Discussion Prompt Ideas:

- Look at another group's invention. What is similar to your invention? Why do you think that design is useful?
- Look at another group's invention. What is different from your invention? Why might their idea be useful too?
- Describe 1 fun thing about designing your invention. Describe 1 challenge you had while making your invention, and the solution you figured out to solve it.

Week 6 Day by Day

Sequencing; using the Art Ring to create a character

Day 1	Day 2	Day 3	Day 4	Day 5
Engage: Whole group	Play: Plan/Test/ChoiceBoard Centers	Play: Plan/Test/ChoiceBoard Centers	Play: Plan/Test/ChoiceBoard Centers	Share: Whole group
Flamingos in the Wild Activity <i>Plan and create your flamingos on Day 1-2; Code them on days 3-4</i>				
Recap how to use the Art Ring and attach materials to it. Introduce the idea of using the Art Ring to turn the robot into a character, like a flamingo.	PLAN: Plan your design for a flamingo on the Art Ring	PLAN: Plan a project to drive to the pond on the Tile	PLAN: Add a 2nd Tile and move the pond. Plan the project to drive to the new pond location.	Share flamingo creatures and talk about how groups worked together to create their flamingos and to code them successfully.
	TEST: Build your flamingo and test it on the Art Ring	TEST: Put your flamingo on the robot and build and test your project	TEST: Put your flamingo on the robot and build and test your project	
	CHOICE: Choice Board Ideas above	CHOICE: Choice Board Ideas above	CHOICE: Choice Board Ideas above	

Journal/Discussion Prompt Ideas:

- Draw or write a story about what your robot flamingo is doing in this project.
- What is another animal you might turn your robot into? Draw a design and describe how you would code your robot to act like that animal.
- What is one thing you and your partner disagreed about? How did you compromise together?

Week 7 Day by Day

Sequencing; representing behaviors in code

Day 1	Day 2	Day 3	Day 4	Day 5
Engage: Whole group	Play: Plan/Test/ChoiceBoard Centers	Play: Plan/Test/ChoiceBoard Centers	Play: Plan/Test/ChoiceBoard Centers	Share: Whole group
Train Your Pet Activity <i>Choose a pet and plan your trick on Day 1-2; Code the trick on Day 3; Make the pet on Day 4</i>				
Recap how the Art Ring was used to create a flamingo. Introduce the idea of coding something like a pet trick. How can you use the robot's behaviors to show actions a pet might do?	PLAN: Decide what pet and trick you are going to do. Plan a trick and match robot behaviors to it.	PLAN: Plan your project to code your pet trick.	PLAN: Plan your pet creature for the Art Ring.	Have a Robot Pet Show! Share all of the pets and their tricks with the class. Talk about how each group represented pet actions with the 123 Robot's behaviors.
	TEST: Act out your robot behaviors and test sequences that could be used in your trick.	TEST: Build and test your project to perform your pet trick.	TEST: Build your pet on the Art Ring and test it out with your pet trick project.	
	CHOICE: Choice Board Ideas above	CHOICE: Choice Board Ideas above	CHOICE: Choice Board Ideas above	

Journal/Discussion Prompt Ideas:

- Why do you think the robot behaviors in your project match your pet trick?
- How did your group decide on a pet and trick together?
- If you were going to code a different pet trick, what would it be and why?

Week 8 Day by Day

Sequencing; decomposition; applying what we've learned

Day 1	Day 2	Day 3	Day 4	Day 5
Engage: Whole group	Play: Plan/Test/ChoiceBoard Centers	Play: Plan/Test/ChoiceBoard Centers	Play: Plan/Test/ChoiceBoard Centers	Share: Whole group
Ring and Run/Trick or Treat Activity <i>Happy Halloween! Dress up your robots for Halloween and code them to trick or treat :)</i>				
Recap what you've learned about using the 123 Robots and Art Rings. Introduce the idea of trick or treating with your robots. First you'll make their costumes, then you will code them to trick or treat!	PLAN: Decide what costume your robot will have and design it for the Art Ring.	PLAN: Plan a project to drive to one house and play a sound.	PLAN: Plan a project to 'trick or treat' at two or more houses.	Share your costumes and trick or treat together! Talk about what you've learned about using the robot and working with your partners so far this year.
	TEST: Build your costume for the Art Ring.	TEST: Build and test your project to 'trick or treat' at a house.	TEST: Build and test your project to 'trick or treat' at more houses.	
	CHOICE: Choice Board Ideas above	CHOICE: Choice Board Ideas above	CHOICE: Choice Board Ideas above	

Journal/Discussion Prompt Ideas:

- What coding challenge are you most proud of solving so far this year? Why?
- What is your favorite thing about coding a robot? Why?
- What is one thing that you have gotten better at about coding or being a good partner?

Week 9 Day by Day

Sequencing; decomposition; collaborative coding

Day 1	Day 2	Day 3	Day 4	Day 5
Engage: Whole group	Play: Plan/Test/ChoiceBoard Centers	Play: Plan/Test/ChoiceBoard Centers	Play: Plan/Test/ChoiceBoard Centers	Share: Whole group
Fishbowl Activity <i>Start by coding a single fish in the 'bowl' on Days 1-2, try to code 2 fish in the same 'bowl' on Days 3-4</i>				
Recap how to plan projects together with a partner. Introduce the idea of coding your robot to move with another robot at the same time.	PLAN: Plan a path to drive around the fishbowl. (Draw the path so you can see it later.)	PLAN: Work with another group to plan paths so that both fish can drive in the fishbowl without crashing. (Use the previous days plans to start)	PLAN: Add or change your path plan to make sure that both fish can drive successfully around the fishbowl without crashing.	Share projects and fish designs with the class. Talk about how you worked together in your larger groups to make your fish robots drive together successfully.
	TEST: Build and test your project to drive around the fishbowl.	TEST: Build and test your projects to drive around the fishbowl.	TEST: Build and test your projects to drive around the fishbowl.	
	CHOICE: Choice Board Ideas above	CHOICE: Choice Board Ideas above	CHOICE: Choice Board Ideas above	

Journal/Discussion Prompt Ideas:

- What is different about having to code two robots to move in the same space, rather than just one? Was that easier or harder for you? Why?
- What is 1 thing that your group did that helped you work together?
- What are 3 things you learned about coding your robot or being a good partner?