



# Automation & Robotics Virtual Learning

## 7th & 8th Virtual Robots

Vex VR - STEM LAB Coding a Vex Robot

May 13, 2020



PLTW: Automation & Robotics  
Lesson: May 13, 2020

**Objective/Learning Target:**  
Learn & practice Movement in VEXcode VR

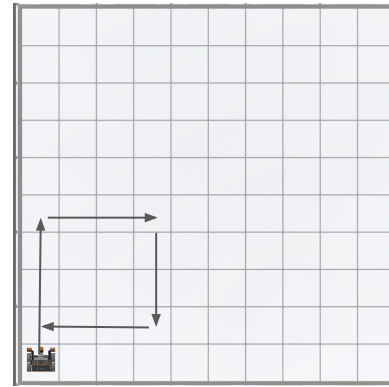
# Warm-up


Check over your focused notes.

Review the answers to yesterday's questions.

How far is it in mm to make the bot move one block? **200 mm**

What did yesterday's code do? 

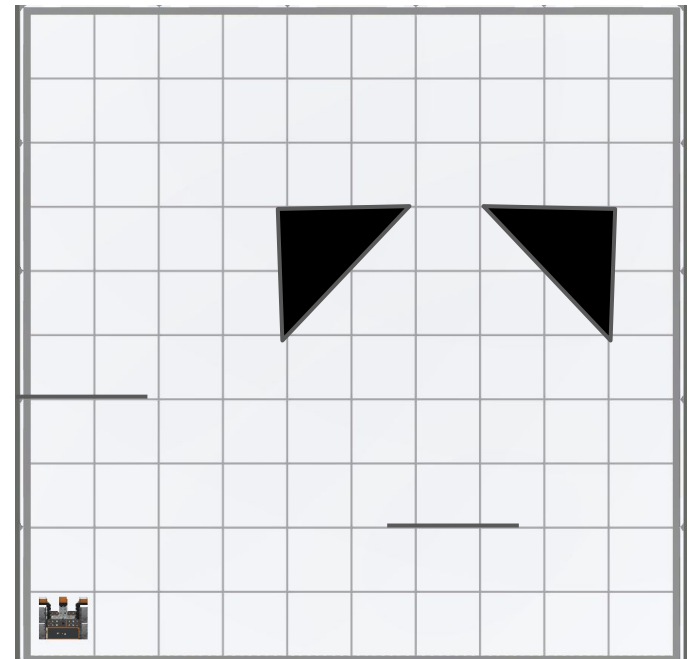


What will this code do on playground? 

Draw its path below

Include what direction the bot ends up facing.

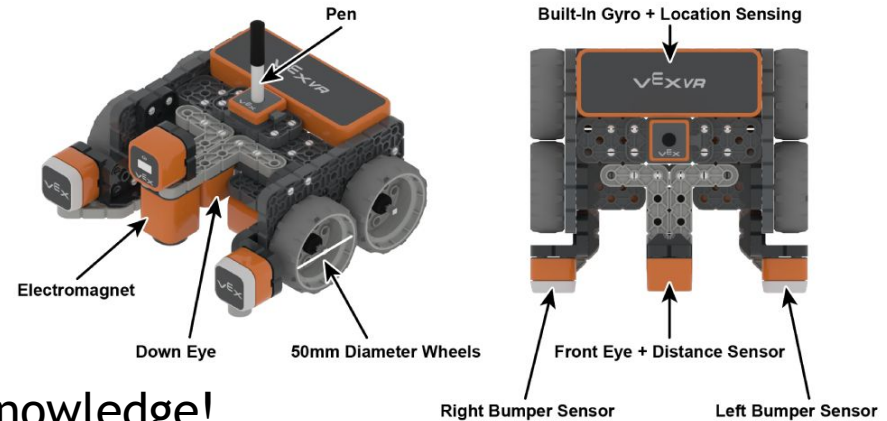
```
when started
  drive forward for 400 mm
  turn right for 90 degrees
  drive forward for 400 mm
  turn left for 90 degrees
  repeat 3
    drive forward for 800 mm
    turn right for 90 degrees
```



## Lesson/Background:

Remember your Virtual Bot can...

Navigate, use sensors to solve maze and a Pen that can be coded for creative drawing.



Make sure you have your navigation blocks knowledge!

**With each lesson you will learn more about how to code your VEX VR bot.**

**For today's lessons you will need:**

Your focused notes and a new one if the other one is full ----> [HERE](#)

Go to [VEXcode VR](#)

Type in the code from the warm up. Were you correct in the path you drew on the Warm up slide? Record your success or corrections you needed to make on your **focused notes**.

Add any new commands, tips or ideas you have from today's work.

To get started you will be working with mazes & the pen!

# Practice/Challenge:

Answer ALL questions below in your focused notes. Question on the left, answers on the right.

## Movement

### Number Maze

#### Playground: Wall Maze

#### Challenges:

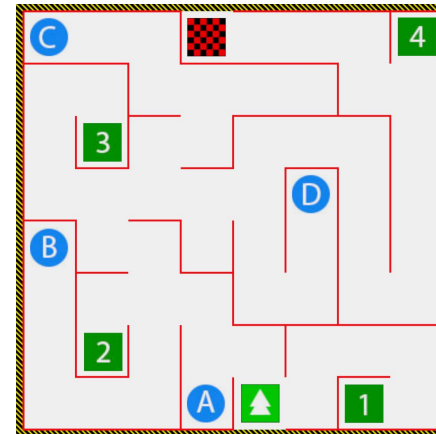
Level 1: Program the VR Robot to move through the maze from Start (green square) to Finish (checkered square).

Level 2: Program the VR Robot to move through the maze stopping on each of the numbers in order (1, 2, 3, 4) and then traveling to Finish. The VR Robot should stop on each number for 2 seconds.

Level 3: Try it in reverse! Program the VR Robot to move from Start, to 4, 3, 2, 1, then Finish. The VR Robot should stop on each number for 2 seconds.

#### Helpful Hint:

Try using the Drive for block from the Drivetrain category. This block moves the Drivetrain for a given distance.



Remember to get to different Playgrounds, click on the Playground icon (top menu)



## Practice/Challenge:

Answer ALL questions below in your focused notes. Question on the left, answers on the right.

# Movement

## Draw a House

**Playground:** Art Canvas

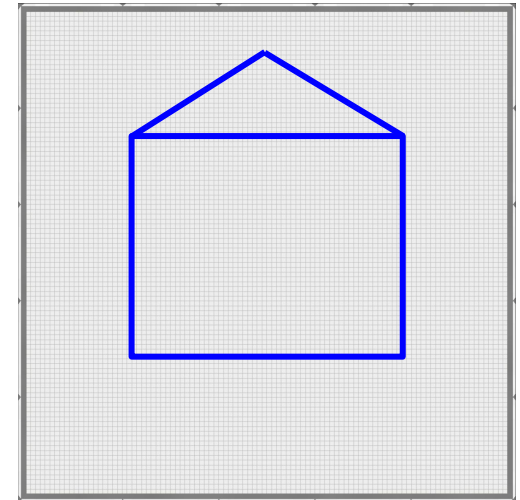
**Challenge:**

- Level 1: Program the VR Robot to draw a house on the Art Canvas using the Pen block. Use a square for the house and triangle for the roof. The shapes do not have to be perfect.
- Level 2: Program the VR Robot to add a garage to the side of the house. Use the Set pen color block to make the color of the garage different from the house.
- Level 3: Decorate your house by adding windows, a door, a chimney, or other decorations. Be Creative!

*Helpful Hints:*

- Each square in the Art Canvas measures 20mm by 20mm.
- Use the Set Pen color block from the Looks category to select a pen color when drawing your house.

set robot pen to color black ▾

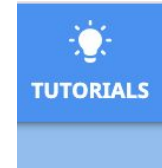


## Assessment:

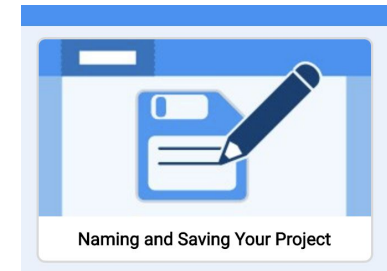
Save and download the 2 programs you make today and share them with me.  
I would love to see your progress.

Don't know how to name, save or download your files?

While in VexCode VR - go to tutorials ---->



At the top row of tutorials, the last one is How to Name & Save



Questions throughout  
the week?

Email me:

[lisa\\_douthit@idschools.org](mailto:lisa_douthit@idschools.org)



### Extend Your Learning:

Can Bots build houses?

You bet they can!

Look at the [FUTURE OF ROBOTICS IN the  
CONSTRUCTION INDUSTRY](#)





Questions/Main Ideas:

Summary/Reflection