



# Automation & Robotics Virtual Learning

## 7th & 8th Virtual Robots

Vex VR - STEM LAB CODing a Vex Robot

May 15, 2020



PLTW: Automation & Robotics  
Lesson: May 15, 2020

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

# Warm-up

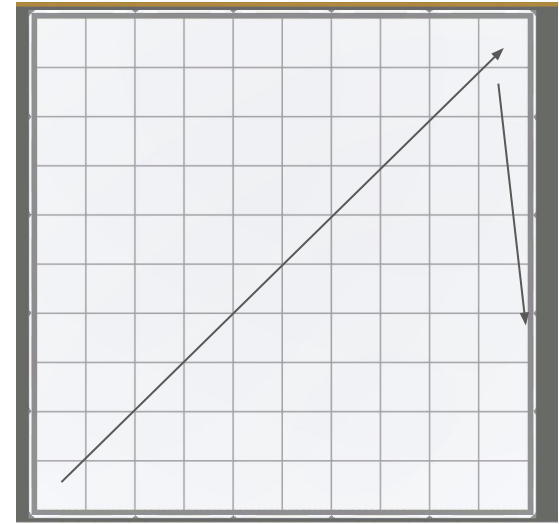
Check over your focused notes.

Review the answers to yesterday's questions.

What happens to the bot after running the code?

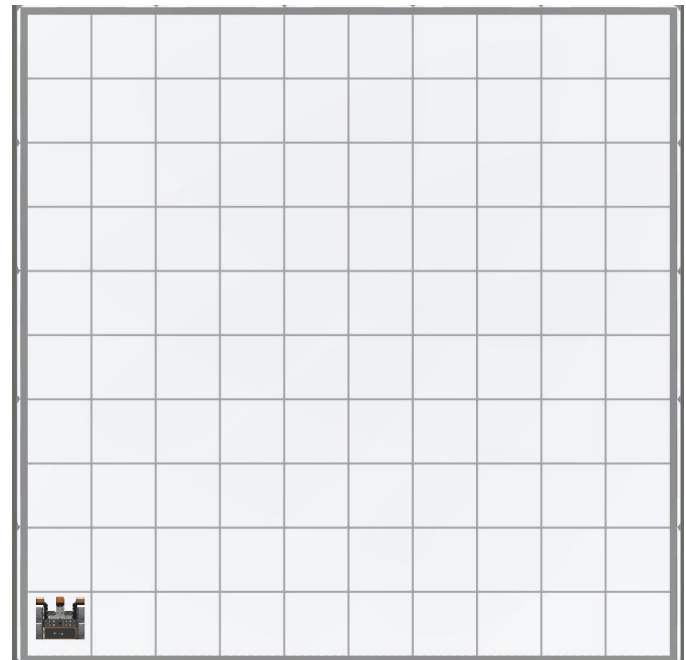
It ran the wall and ultimately off the course.

What did yesterday's code do? 



Make your own puzzle code do on playground?  Draw its path below

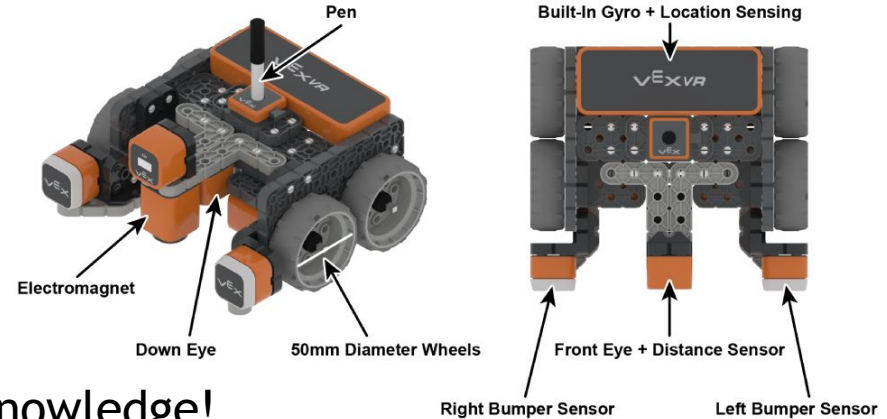
Write the code or put a screenshot in your notes or below.



## 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.**

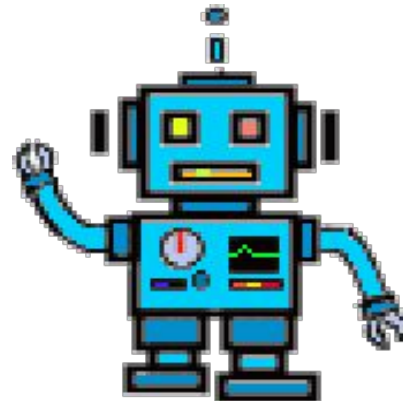
**For today's lessons you will need:**

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 correction you needed to make on your focused notes.

Speaking of robots...Can this guy clean?



## Lesson/Background

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

### Robots can do many things...

One of the most popular and growing use of robotics is in cleaning.  
Read this article and list 3 tasks that robots solve for cleaning

\_\_\_\_\_

Floor cleaning robots are becoming more and more common and are beginning to break out into more than just vacuum cleaners that roam your house. The Roomba is still the most popular having been around longer than newcomers on the block.

Still there are several others that are up and coming.

[Check them all out here!](#) You will see they are still very expensive as well.

Today you will use what you have learned so far & the use of sensors to program a robotic vacuum.

# Practice/Challenge:

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

## Sensors

### Robotic Vacuum

**Playground: Art Canvas**

**Challenges:**

**Level 1:** Program the VR Robot to move like a robotic vacuum. Use the Distance sensing blocks to program the VR Robot to turn or drive in reverse when it senses the walls of the Playground. It should move around and sense all four walls of the Playground.

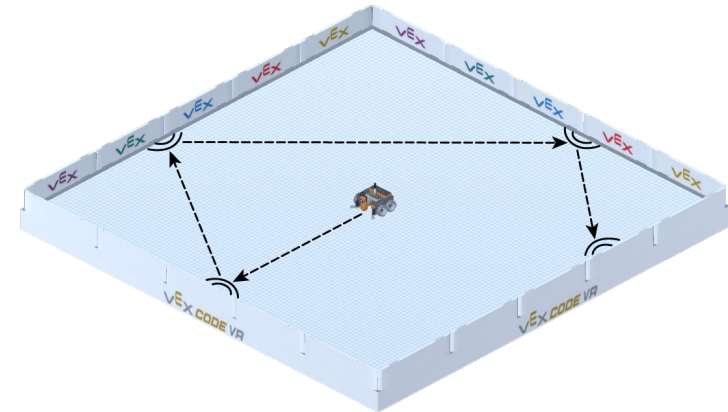
**Level 2:** Program the VR Robot to move using a variable to set the threshold for the distance sensor. Use the Set variable block.

**Level 3:** Try to vacuum the whole table! Use Random blocks to change how much the VR Robot turns when it senses a wall. See if you can program it to move over the entire table. Trace your path using the Pen, and watch it go!

**Helpful Hints:**

Each square in the Art Canvas measures 20mm by 20mm.

Use the Less than block from the Operators category to program the threshold for the distance sensor.

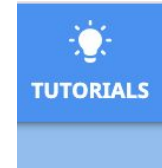


## Assessment:

Save and download the program you make today and share it 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



**Extend Your Learning:**  
MORE BOTS...Can you believe what these do?  
Check out these unusual bots.  
[CLICK HERE](#)





Questions/Main Ideas:

Summary/Reflection