Automation & Robotics Virtual Learning

7th & 8th Virtual Robots

Vex VR - STEM LAB Coding a Vex Robot
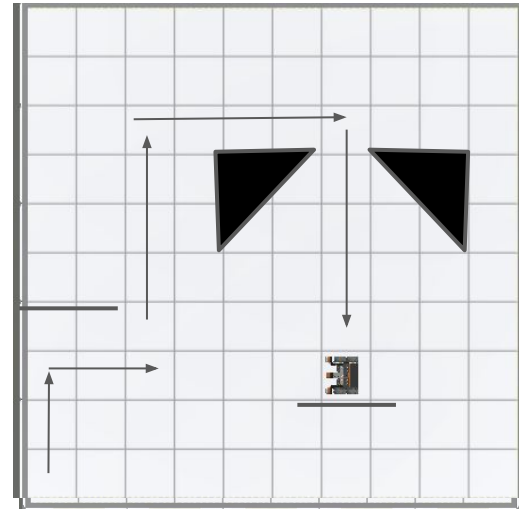
May 14, 2020

PLTW: Automation & Robotics
Lesson: May 14, 2020

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

Warm-up

Check over your focused notes.
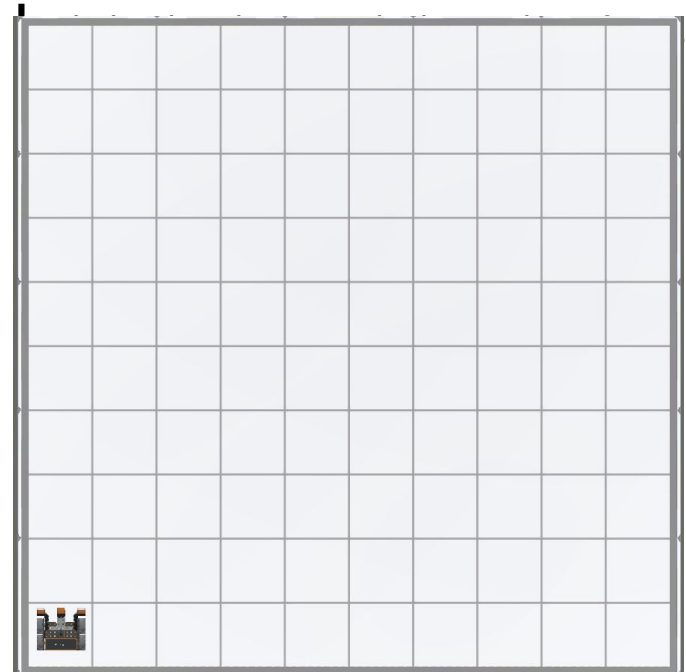Review the answers to yesterday's questions.

What did yesterday's code do?

What will this code do on playground? ──────▶ Draw its path below

```
when started
turn   right ▼   for  45  degrees ▶
drive  forward ▼  for  2400  mm ▼   ▶
turn   right ▼   for  90  degrees ▶
drive  forward ▼  for  1000  mm ▼   ▶
```
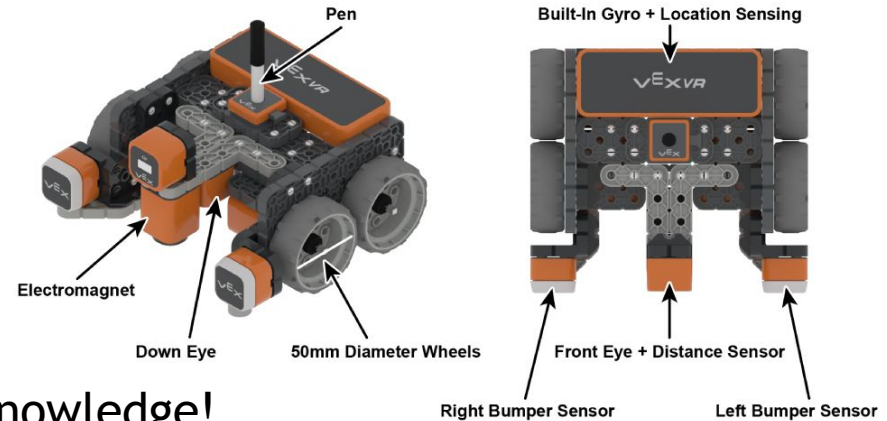
What happens to the bot after running the code?

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.
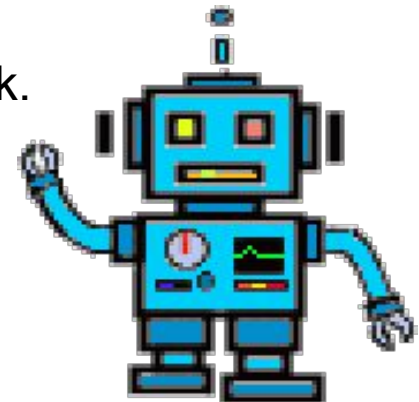
For today's lessons you will need:
Your focused notes and a new one if the other one is full **--->** HERE
Go to VEXcode VR
Type in the code from the warm up. Were you correct in the path you drew on the Warm up slide? Record your success or correction you needed to make on your focused notes.
Add any new commands, tips or ideas you have from today's work.

NOW Let's have a ROBOT DANCE PARTY!

Movement

Robot Dance Party

Playground: Grid Map
Challenges:
Level 1: Program the VR Robot to turn, move forward, move backward, and spin.
Play a song from your music collection, and have the VR Robot dance along.
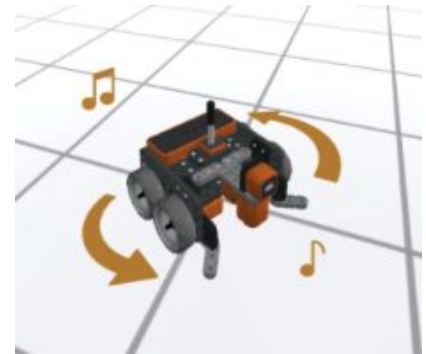**Level 2:** Program the VR Robot to do the following dance. Include a pause between each dance move. Try your dance in real life as the VR Robot runs the project!
Spin 3 Times.

Step to the Right.
Step to the Left.
Freestyle! (add 2 additional moves of your choice)

Level 3: Program a dance routine for your VR Robot. Include at least 3 turns and 3 drive commands. Use loops to repeat a section of the dance. Play a song from your music collection and have your VR Robot dance along with the music.

Helpful Hints:
Use the Turn for block from the Drivetrain category to program large and small turns.
Use the Repeat block from the Control category to loop, or repeat **a sequence.**

# vEx.CODE VR

Sensors

Draw a Triangle with Gyro

**Playground: Art Canvas**

Challenge:

- **Level 1**: Use the Gyro Sensor and the Pen to draw a triangle.
- **Level 2:** Use the Gyro Sensor and the Pen to draw a right triangle (one angle of the triangle must be 90°).
- **Level 3:** Use the Gyro Sensor and the Pen to draw a right triangle (one angle of the triangle must be 90° with a secondary angle at 60°).

Helpful Hints:

- Use the Set drive heading block from the Drivetrain category to turn the VR Robot to the correct direction.

  set drive heading to **0** degrees
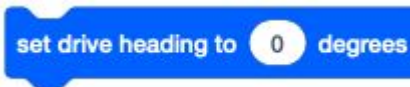
- Use the Set Pen position block from the Looks category to program the VR Robot to draw.

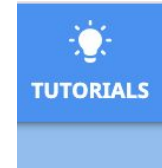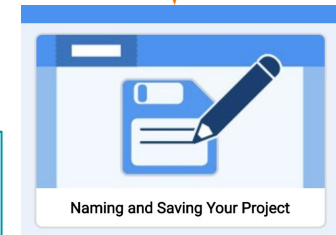 move robot pen **down ▾**
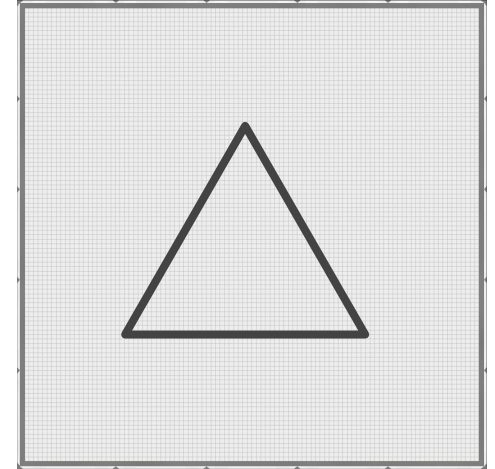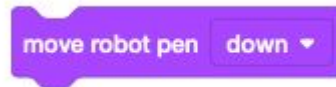
VEX CODE VR

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 ---> TUTORIALS

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

Naming and Saving Your Project

Questions throughout the week?
Email me:
lisa_douthit@isdschools.org

Extend Your Learning:
Robots can do way more than dance and have fun.
Check out Boston Dynamic's SPOT

You may have seen Security Bots like these in Movies or on TV but they are REAL and sometimes kind of scary!

Topic/Unit: Understand VEX EDR Coding	Name:
	Class/Period:
	Date:

I can learn to about code and the coding environment for a VEX EDR robot using VEXcode

Questions/Main Ideas:

Summary/Reflection