



Automation & Robotics Virtual Learning

7th & 8th Virtual Robots

Vex VR - STEM LAB Coding a Vex Robot

May 12, 2020



PLTW: Automation & Robotics
Lesson: May 12, 2020

Objective/Learning Target:

Learn & practice movement, set pen & loop in VEXcode VR

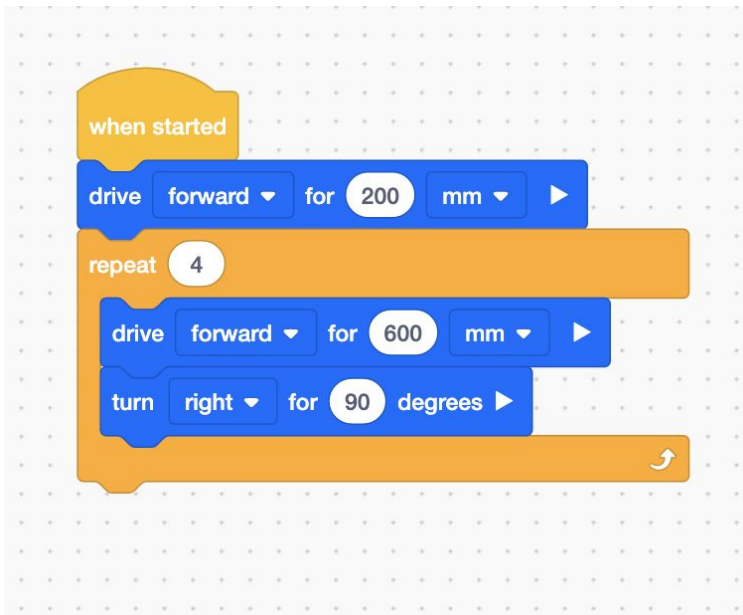
Warm-up

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

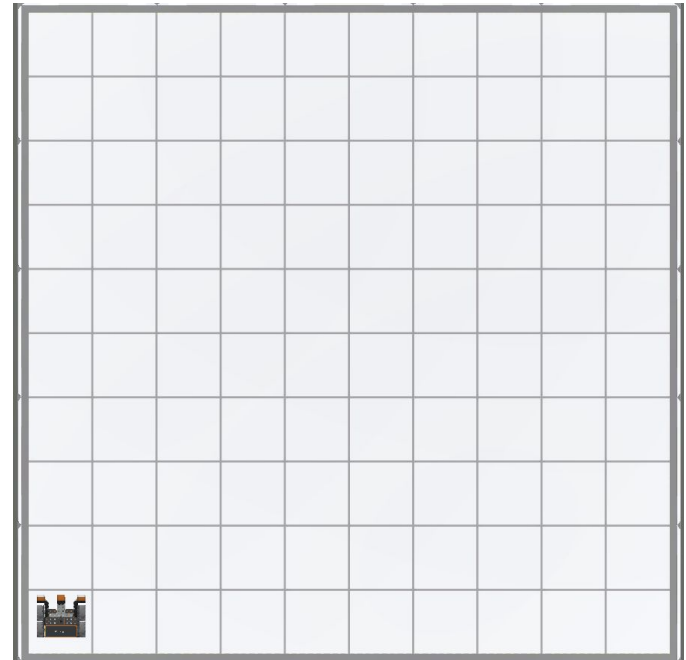
How far is it in mm to make the bot move one block?

What will this code do on playground?

→ Draw its path below



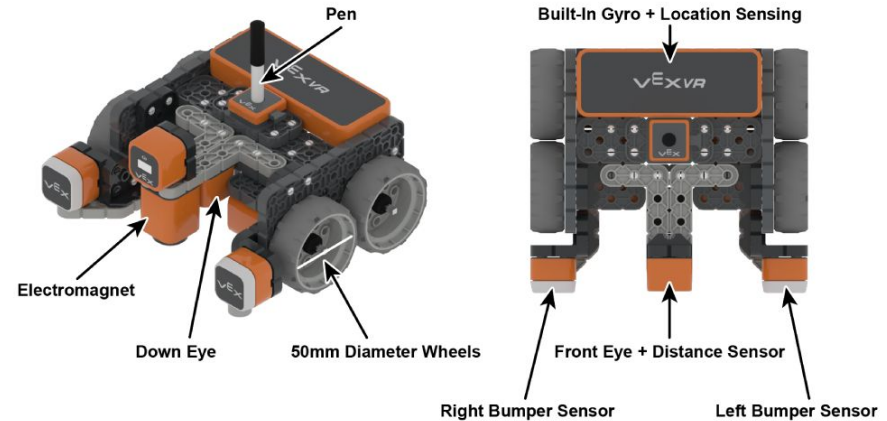
```
when started
drive forward for 200 mm
repeat 4
  drive forward for 600 mm
  turn right for 90 degrees
```



Lesson/Background:

Remember your Virtual Bot can...

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



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.

To get started we are going to be all about the basketball
& YOUR AGE...



Practice/Challenge:

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

Movement

Basketball Drills

Playground: Grid Map

Challenge:

Level 1: Program the VR Robot to drive forward 1 grid square. Next, program the VR robot to drive reverse to the beginning point. Continue this pattern for 2 grid squares, then 4 grid squares.

Level 2: Program the VR Robot to drive forward 1 grid square, stop, and return back 1 grid square to where the VR Robot started **without** using the reverse block. The VR Robot will need to turn around to drive back to the first position. Continue this pattern for 2 grid squares, then 4 grid squares.

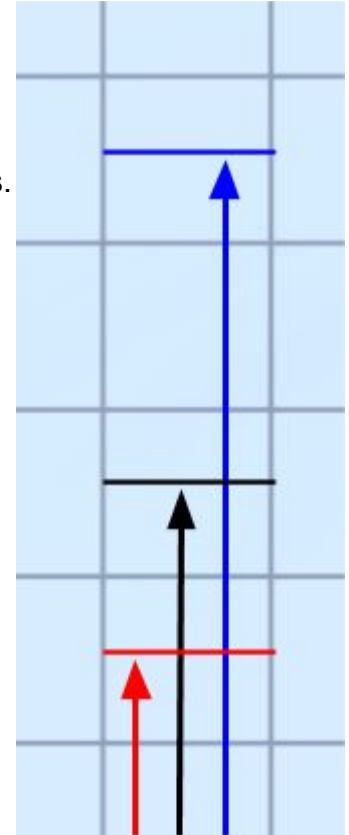
Level 3: Build an algorithm (a process or set of rules) to move through all 1 to 8 grid squares in sequential order. The VR Robot should move to 1, go back to start, move to 2, go back to start. Continue this pattern for all 8 grid squares.

Helpful Hints:

- Each square in the Grid Map measures 200mm by 200mm.
- Want to make your project shorter? Try using the *Repeat* block from the Control category.



Remember this from
the Warm UP?



Practice/Challenge:

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

Movement

Find Your Age

Playground: Numbered Grid Map

Challenge:

Level 1: Program the VR Robot to drive to your age as of today.

Level 2: Program the VR Robot to drive to your age as of today. Then have the VR Robot drive to your age in the year 2035.

Level 3: Program the VR Robot to drive and mark your birthday.

- Use a blue pen to mark what day you were born.
- Use a red pen to mark what month you were born.
- Use a green pen to mark what year you were born.

Helpful Hints:

- Each square in the Numbered Grid Map measures 200mm by 200mm.
- Use the *Set Pen color* block from the Looks category to select a pen color when marking numbers.

91	92	93	94	95	96	97	98	99	100
81	82	83	84	85	86	87	88	89	90
71	72	73	74	75	76	77	78	79	80
61	62	63	64	65	66	67	68	69	70
51	52	53	54	55	56	57	58	59	60
41	42	43	44	45	46	47	48	49	50
31	32	33	34	35	36	37	38	39	40
21	22	23	24	25	26	27	28	29	30
11	12	13	14	15	16	17	18	19	20
1	2	3	4	5	6	7	8	9	10

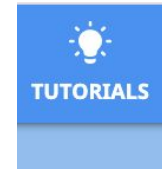
set robot pen to color black ▾

Assessment:

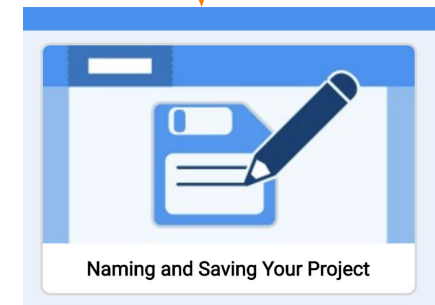
Save and download the 2 programs you make today and share them with me.
I would love to see your progress.

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



Extend Your Learning:

What else can you do with the code you
Have learned? Save and share!

Learn more about the growing use and future of [Robots & Sports](#)

Questions/Main Ideas:

Summary/Reflection