



Automation & Robotics Virtual Learning

7th & 8th Virtual Robots

Vex VR - STEM LAB CODing a Vex Robot

May 21, 2020



PLTW: Automation & Robotics
Lesson: May 21, 2020

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

Warm-up

IDENTIFY WHAT YOU KNOW SO FAR:

What does this block do?



What is a Variable?

Describe what other drawing you tried to code on the Grid Map Playground.

Lesson/Background:

Have you ever had or remember the Spirograph?

The Spirograph is a toy that draws geometric designs. The idea was initially created by mathematician Bruno Abdank-Abakanowicz between 1881 and 1900 for drawing spirals. Later, a British engineer Denys Fisher create a toy version. He first exhibited the Spirograph in 1965 at the Nuremberg International Toy Fair and produced it in Britain. Kenner, Inc., acquired U.S. distribution rights, introducing it in the United States in 1966 as a creative toy for drawing "a million marvelous patterns." There have been many versions ever since and is currently sold by a toy company names Kahootz - [Check it out](#)

For today's lessons you will need:

TO Go to [VEXcode VR](#)

In today's practice you will:

Develop programs with sequences and simple loops, to express ideas or address a problem. Test and debug (identify and fix errors) a program or algorithm to ensure it runs as intended.

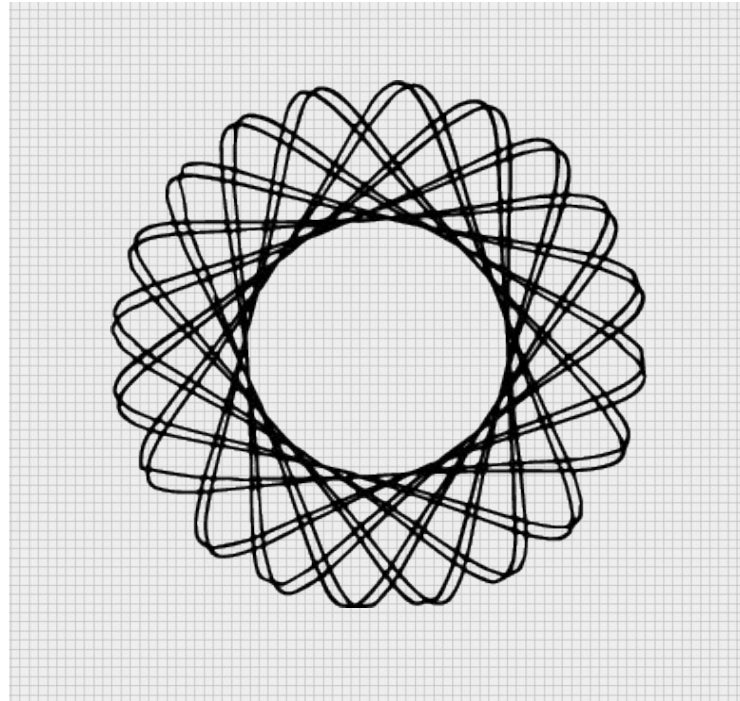
Create clearly named variables that represent different data types and perform operations on their values.

1966 Version of the Spirograph



Lesson/Background

This is today's Playground!



You will use your knowledge to create a Spirial Geometric Drawing

Practice/Challenge:

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

Variables & Loops

VR Spirograph!

Playground: Art Canvas

Challenges:

Level 1: Program the VR Robot to create a spiral, geometric drawing. Nest the Drivetrain blocks inside Repeat blocks to create the spiral effect.

Level 2: Add colors to your spiral geometric drawing. Use the Set Pen color block to change colors in your project.

Level 3: Create an algorithm that layers multiple spiral patterns to make a more elaborate design.

Helpful Hints:

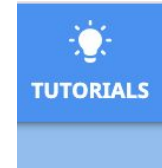
- Each square in the Art Canvas measures 20mm by 20mm.
- Try and test different degrees of the turns with the Turn for block from the Drivetrain category. Avoid round numbers to truly make a repetitive spiral drawing
- Be patient and do not be afraid to try different turns & distances.

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:

Keep exploring until you get a cool design!