

VEXcode VR Lab Schedule

Unit E: VEXcode VR Programming-Moving Disks with “Energize Magnet” and Nested Loop Blocks

Some New Blocks:

1. “energize magnet” block
2. “break” block
3. “timer” block
4. Drivetrain Sensing Blocks
 - a. Driver is done?
 - b. Drive is moving?
 - c. Drive heading
 - d. Drive rotation
5. “comment” block

(Continue on the page.)

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Moving Disks with “energize magnet”:

Program the robot to pick up and drop disks on the Disk Mover Playground. See the program below.

The image displays a VEXcode VR program on the left and the Disk Mover Playground interface on the right.

Program Logic:

- when started
- set drive velocity to 40 %
- repeat until DownEye is near object?
 - drive forward
- stop driving
- energize Magnet to boost
- repeat until position Y in mm < -900
 - drive reverse
- stop driving
- energize Magnet to drop
- stop project

Disk Mover Playground Interface:

The interface shows a table with the following data:

Heading	Rotation	Front Eye	Down Eye	Location	Location Angle
0°	0°	Object: False Color: None	Object: False Color: None	X: -800 mm Y: -800 mm	0°

Below the table is a grid representing the playground. The robot is positioned at the bottom left. Three colored squares (blue, red, green) are visible on the grid, corresponding to the locations of the disks. The robot's current position is marked by a blue square at the bottom left.

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Nested Loops:

Program the robot to draw three squares using nested loops (a loop block within another loop block). See the program below.

The image displays the VEXcode VR interface, which is divided into two main sections: a code editor on the left and a simulation environment on the right.

Code Editor (Left):

- when started** block:

 - move robot pen** block: down
 - set robot pen to color** block: red
 - repeat** block: 3

 - repeat** block: 4

 - drive forward** block: for 400 mm
 - turn right** block: for 90 degrees

 - move robot pen** block: up
 - turn right** block: for 90 degrees
 - drive forward** block: for 600 mm
 - turn left** block: for 90 degrees
 - move robot pen** block: down

- stop project** block

Simulation Environment (Right):

- Grid Map** dropdown menu.
- Select Playground** button.
- Table:**

Heading	Rotation	Front Eye	Down Eye	Location	Location Angle
0°	1080°	Object: False Color: None	Object: False Color: None	X: 900 mm Y: -900 mm	0°

The simulation environment also features a grid map with three red squares drawn on it, representing the output of the program. A play button and a timer (00:46:6) are visible at the bottom of the simulation area.