Chapter - 16 Drawing Based on Bar Colors

Objective:

- **Learn to move the robot and change the color using Pen VEXcode VR.**
- **Program the robot to change the Pen color based on the colored bar it crosses.**

Skills to be attained

- **Enhance skills in block-based programming .**
- **Use of Pen tools for creative designs.**

Tools / Websites / Resources:

1. VEXcode VR Platform
2. **Computer or tablet with internet access.**
3. **Line Detector Playground in VEXcode VR.**

Teacher-Led Instructions:

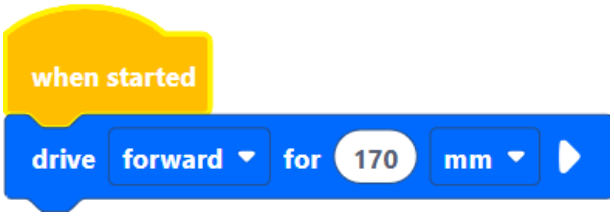
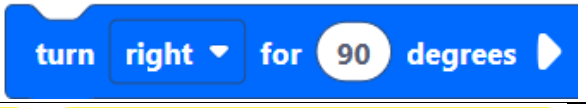
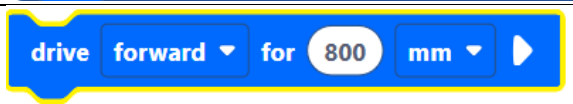
Activity Title: ***Drawing Based on Bar Colors***

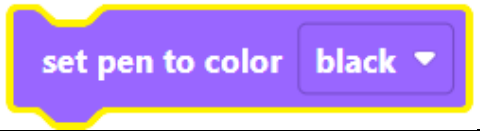
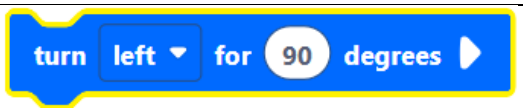
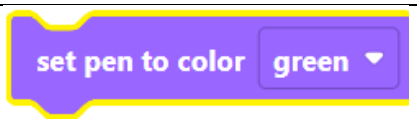
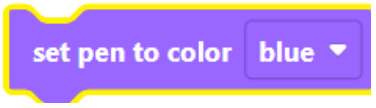
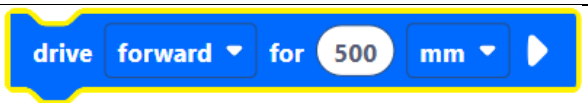
Description:

In this activity, the robot will move forward across a series of colored bars in the **Line Detector Playground**. Each time the robot crosses a colored bar, it will draw a line using the corresponding Pen color.

Instructions:

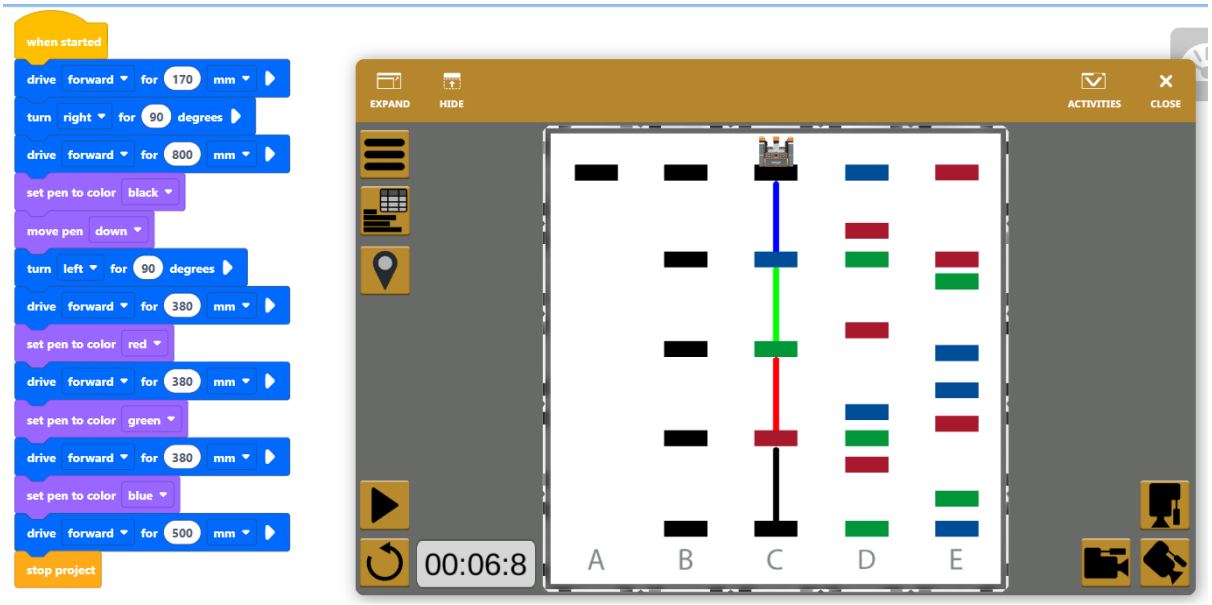
1. **Setup**:
   - Open VEXcode VR.
   - Select the **Line Detector Playground**.
   - Place the robot at the starting point of the line path.
2. **Programming Steps**:

SNO	Action	Block with value
1	Add **Drive forward for** 200 **mm** block from **Drivetrain category**. Change the value 200 to 170 mm	
2	From **Drivetrain** category Add a **Turn right for 90 degrees** block.	
3	Add **Drive forward for** 200 **mm** block from **Drivetrain category**. Change the value 200 to 800 mm.	

4	Go to Looks Catagorey Select the **Set Pen to color black** block	
5	Select **Move Pen down** from Looks category so the robot will draw a line as it moves.	
6	From **Drivetrain** category Add a **Turn right for 90 degrees** block and change Right to Left by clicking on Right in the block.	
7	Add **Drive forward for** 200 **mm** block from **Drivetrain category**. Change the value 200 to 380 mm.	
8	Go to Looks Category Select the **Set Pen to color black** block and change the black colour to **Red** by clicking on black,	
9	Add **Drive forward for** 200 **mm** block from **Drivetrain category**. Change the value 200 to 380 mm.	
10	Go to Looks Category Select the **Set Pen to color black** block and change the black colour to **Green** by clicking on black	
11	Add **Drive forward for** 200 **mm** block from **Drivetrain category**. Change the value 200 to 380 mm.	
12	Go to Looks Category Select the **Set Pen to color black** block and change the black colour to **Blue** by clicking on black	
13	Add **Drive forward for** 200 **mm** block from **Drivetrain category**. Change the value 200 to 500 mm.	
15	Drag the **stop project** from **Control** block and add at the end of all block to stop the project	

1. **Run the Program:**
   - The robot will draw a spiral pattern as it moves forward and turns, creating an expanding spiral on the canvas. Run by clicking 

Output


when started
drive forward for 170 mm
turn right for 90 degrees
drive forward for 800 mm
set pen to color black
move pen down
turn left for 90 degrees
drive forward for 380 mm
set pen to color red
drive forward for 380 mm
set pen to color green
drive forward for 380 mm
set pen to color blue
drive forward for 500 mm
stop project
EXPAND
HIDE
ACTIVITIES
CLOSE
00:06:8
A
B
C
D
E