

Planetary Geologist



Suggested Role Responsibilities

Builder

- Build steps 1-8 of the Code Base 2.0
- Help build step 18 of the Code Base 2.0
- Build steps 19-21 of the Code Base 2.0
- Build steps 1-6 and 12-14 of the Code Base 2.0 - Eye + Electromagnet
- Connect the Brain to VEXcode GO and build the [My Block] in Engage
- Open, name and save the project in Play Part 1
- Start and stop the project in Play Part 1
- Build the project in Play Part 2
- Handle the Code Base and Disk during testing

Journalist

- Gather materials from the checklist
- Build steps 9-17 of the Code Base 2.0
- Help build step 18 of the Code Base 2.0
- Build steps 22-23 of the Code Base 2.0
- Build steps 7-11 and 15-16 of the Code Base 2.0 - Eye + Electromagnet
- Check the [My Block] in Engage
- Build the project in Play Part 1
- Handle the Code Base and Disk during testing
- Open, name and save the project in Play Part 2
- Start and stop the project in Play Part 2



Open VEXcode GO

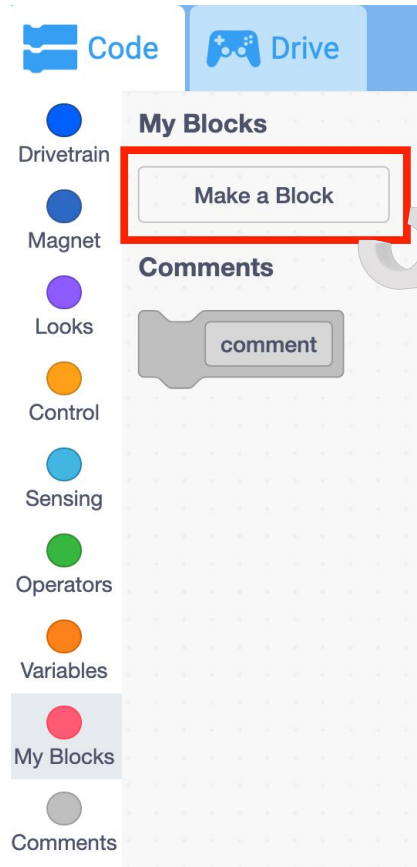
The screenshot displays the VEXcode GO software interface. At the top, there is a blue header bar with the 'GO' logo, a globe icon, and a 'File' menu. Below this, there are tabs for 'TUTORIALS' and 'BUILDS', and a central area labeled 'VEXcode Project'. On the right side of the header, there are control buttons: 'BRAIN', 'START', 'STEP', 'STOP', 'SHARE', and 'FEEDBACK'. Below the header, there are two main tabs: 'Code' and 'Drive'. The 'Code' tab is active, showing a block-based programming environment. On the left, there is a sidebar with various block categories: Drivetrain, Magnet, Looks, Control, Sensing, Operators, Variables, My Blocks, and Comments. The main workspace contains a sequence of blocks: a yellow 'when started' block, followed by a 'drive forward' block, a 'drive forward for 100 mm' block, a 'turn right' block, a 'turn right for 90 degrees' block, a 'turn to heading 90 degrees' block, a 'turn to rotation 90 degrees' block, a 'stop driving' block, and two 'set velocity' blocks (one for drive velocity at 50% and one for turn velocity at 50%). On the right side of the workspace, there is a 3D model of a white and orange robot, and a vertical toolbar with icons for zooming in, zooming out, and a reset icon.

Identify the Sort Disk pattern



```
when started
  Collect Disk
  drive forward for 400 mm
  energize magnet to boost
  turn right for 180 degrees
  drive forward for 400 mm
  turn left for 90 degrees
  Sort Disk
  if eye detects red ? then
    drive forward for 100 mm
    energize magnet to drop
    drive reverse for 100 mm
    turn left for 90 degrees
  if eye detects blue ? then
    drive forward for 350 mm
    energize magnet to drop
    drive reverse for 350 mm
    turn left for 90 degrees
  if eye detects green ? then
    drive forward for 250 mm
    energize magnet to drop
    drive reverse for 250 mm
    turn left for 90 degrees
```

Select Make a Block



Customize your [My Block]

Make a Block

The interface shows a robot character holding a pink 'Sort Disk' block on a grid. Below the grid are three options: 'Add an input number', 'Add a Boolean', and 'Add a label'. At the bottom right are 'Cancel' and 'OK' buttons.

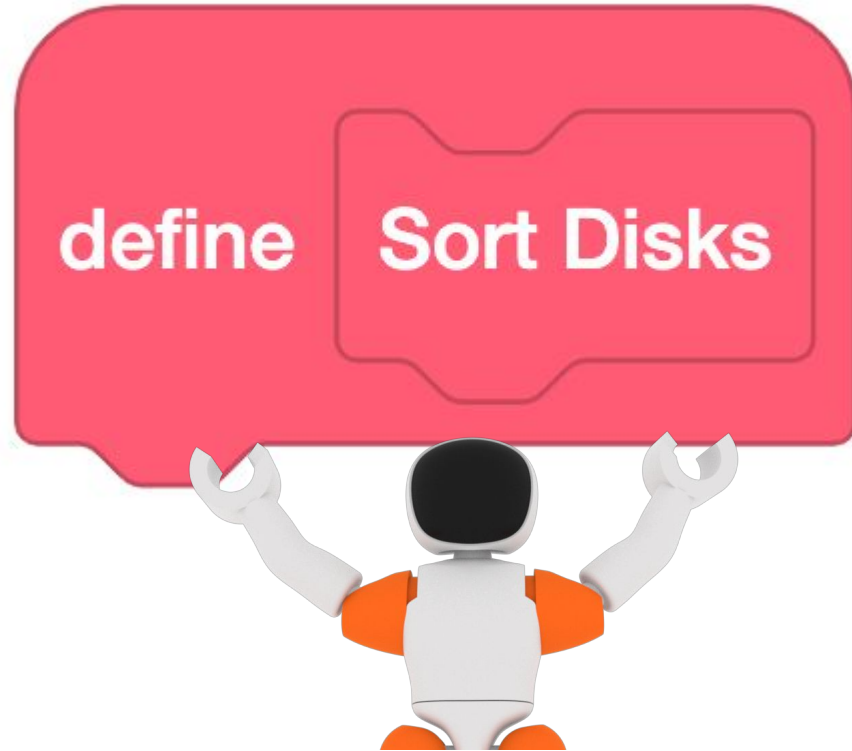
Add an input number

Add a Boolean

text
Add a label

Cancel OK

[Define] block



Drag the Sort Disk sequence to the [Define] block

```
when started
  Collect Disk
  drive forward for 400 mm
  energize magnet to boost
  turn right for 180 degrees
  drive forward for 400 mm

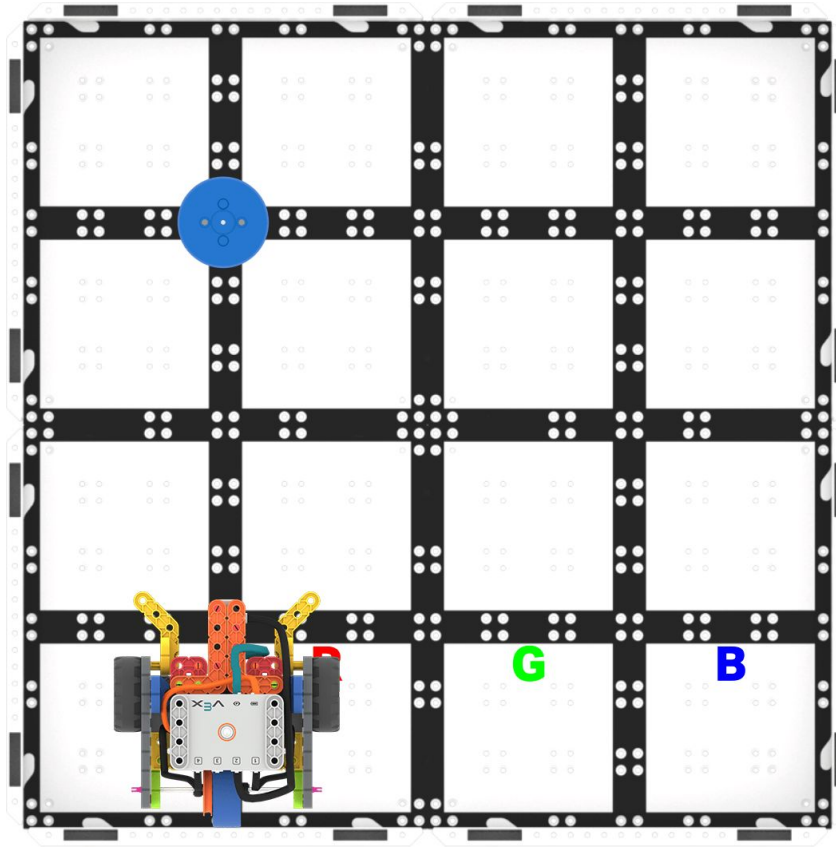
define Sort Disks
  Sort Disk
  if eye detects red ? then
    drive forward for 100 mm
    energize magnet to drop
    drive reverse for 100 mm
    turn left for 90 degrees
  if eye detects blue ? then
    drive forward for 350 mm
    energize magnet to drop
    drive reverse for 350 mm
    turn left for 90 degrees
  if eye detects green ? then
    drive forward for 250 mm
    energize magnet to drop
    drive reverse for 250 mm
    turn left for 90 degrees
```



Add the [My Block] to your project

The screenshot displays the VEX GO programming environment. On the left, a sidebar lists various block categories: Drivetrain, Magnet, Looks, Comments, Control, Sensing, Operators, Variables, My Blocks, and Comments. The 'My Blocks' category is highlighted, and a red box around the 'Sort Disks' block in this category has a red arrow pointing to the main workspace. In the workspace, a sequence of blocks is shown: 'when started', 'Collect Disk', 'drive forward for 400 mm', 'energize magnet to boost', 'turn right for 180 degrees', 'drive forward for 400 mm', and 'Sort Disks'. A 3D robot model is positioned in the center, holding the 'Sort Disks' block. To the right, a 'define Sort Disks' block is expanded, showing three conditional blocks: 'if eye detects red?', 'if eye detects blue?', and 'if eye detects green?'. Each conditional block contains a sequence of 'drive', 'energize magnet to drop', 'drive reverse', and 'turn' blocks.

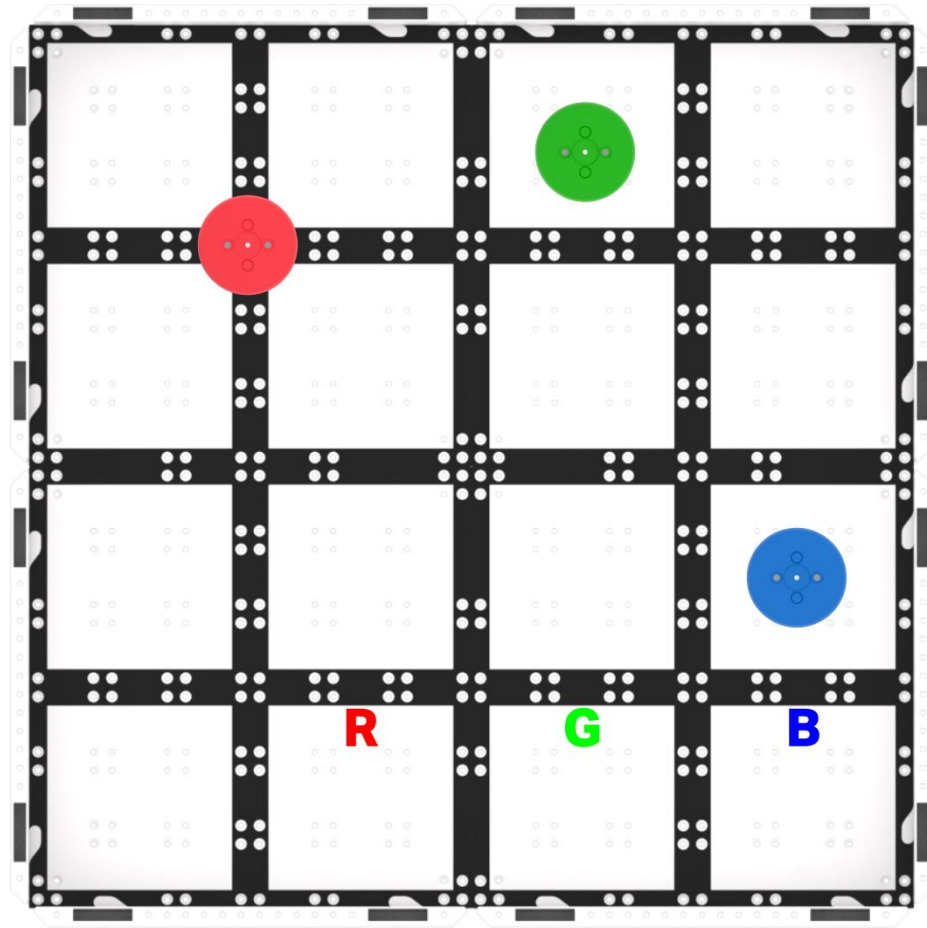
Setup to test your project



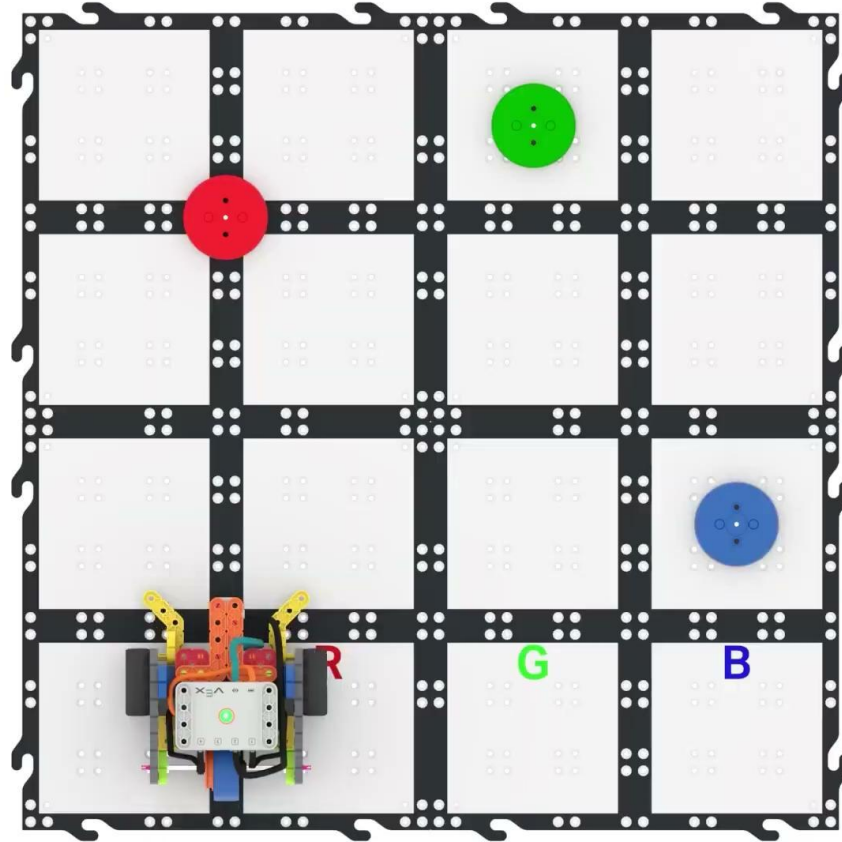
Code Base 2.0 - Eye + Electromagnet



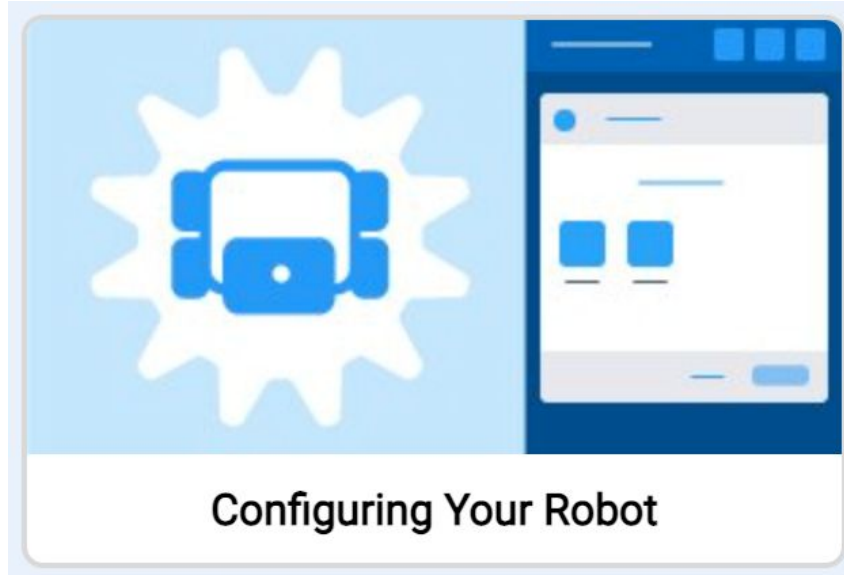
Field Setup



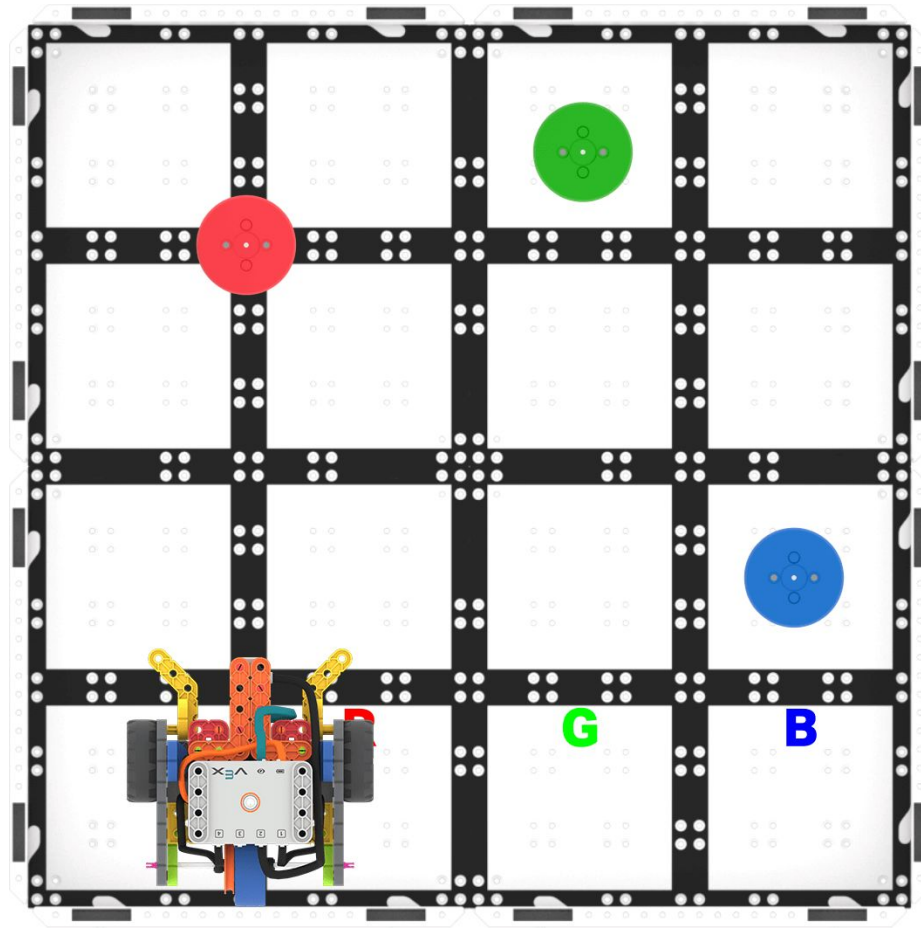
Code Base Collecting and Sorting All Disks



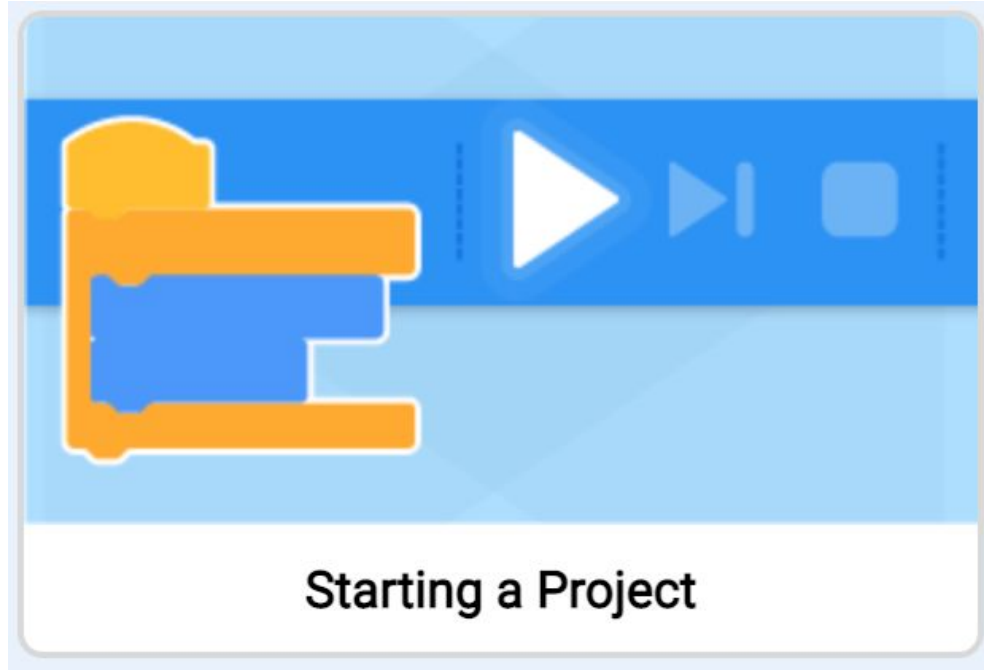
Configuring your Robot tutorial in VEXcode GO



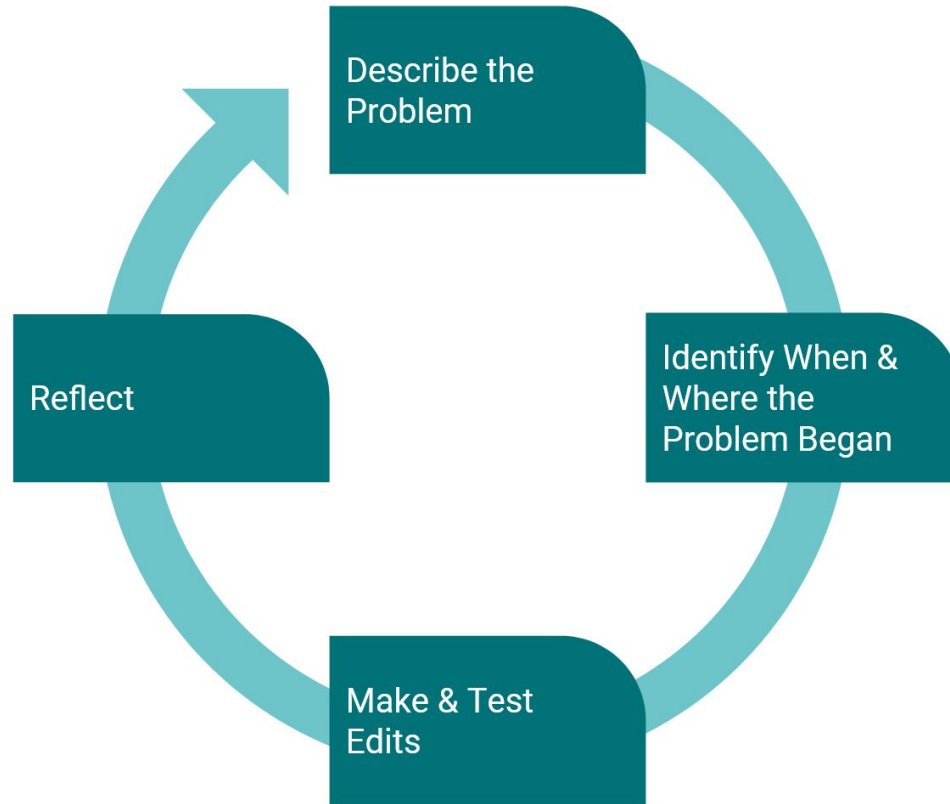
Set up to test



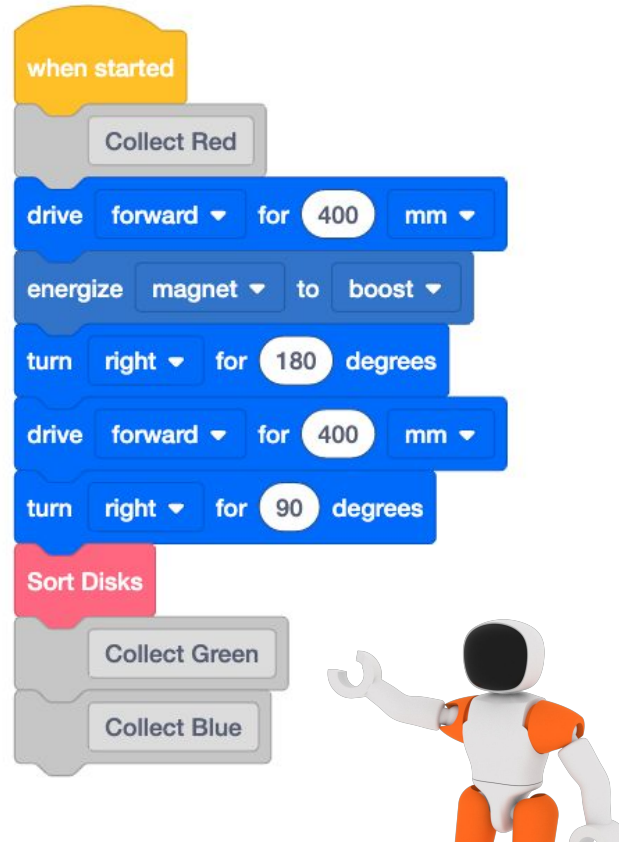
Start a Project tutorial in VEXcode GO



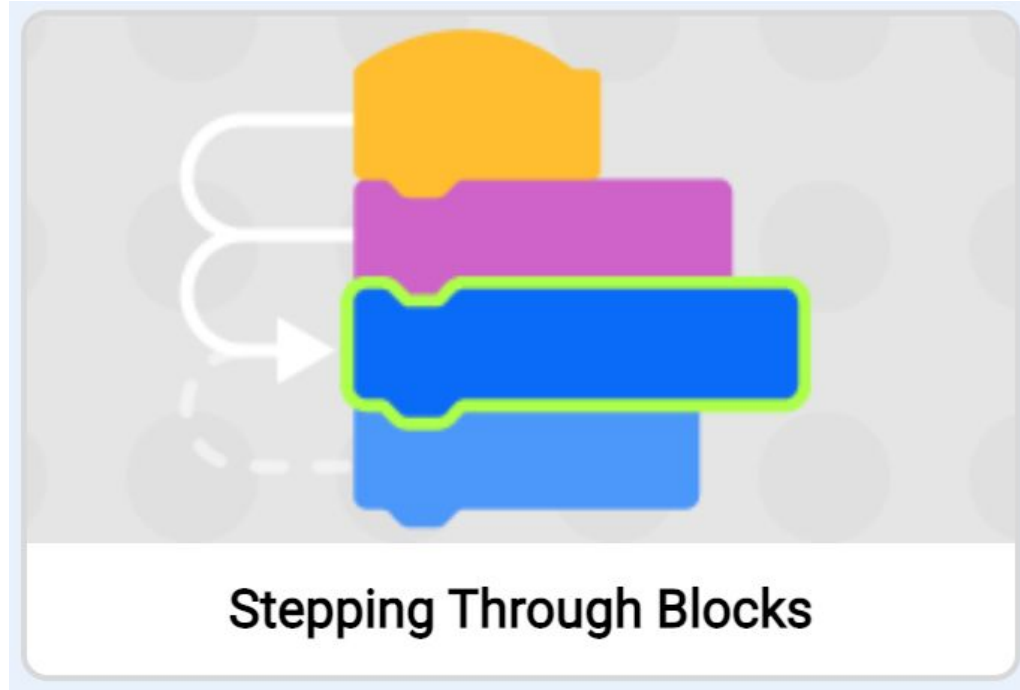
Student Problem-Solving Cycle



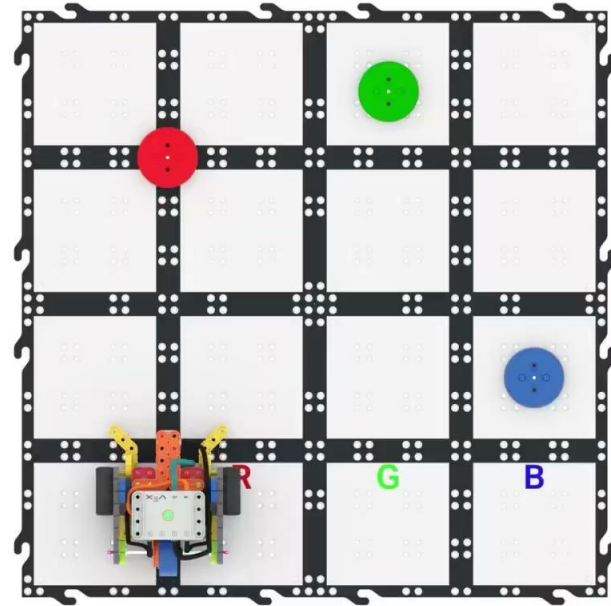
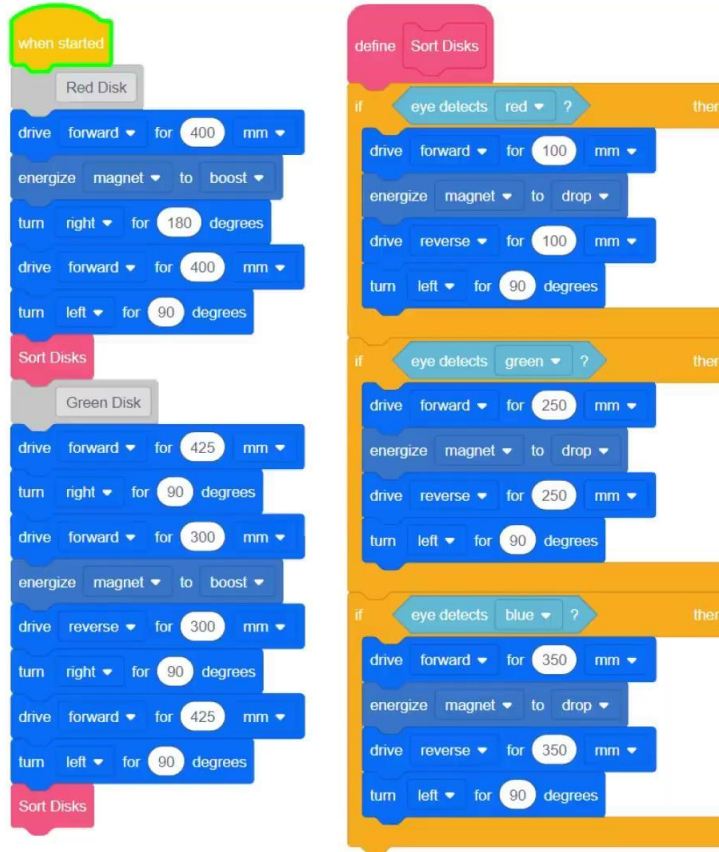
Use [Comment] blocks to plan your project



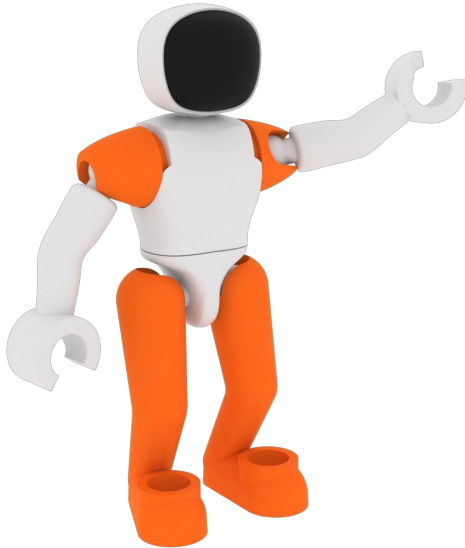
Stepping Through Blocks Tutorial in VEXcode GO



Project flow with the [My Block]



Possible Solution



```
when started
  Red Disk
  drive forward for 400 mm
  energize magnet to boost
  turn right for 180 degrees
  drive forward for 400 mm
  turn left for 90 degrees
  Sort Disks
  Green Disk
  drive forward for 425 mm
  turn right for 90 degrees
  drive forward for 300 mm
  energize magnet to boost
  drive reverse for 300 mm
  turn right for 90 degrees
  drive forward for 425 mm
  turn left for 90 degrees
  Sort Disks
  Blue Disk
  drive forward for 150 mm
  turn right for 90 degrees
  drive forward for 400 mm
  energize magnet to boost
  drive reverse for 400 mm
  turn right for 90 degrees
  drive forward for 150 mm
  turn left for 90 degrees
  Sort Disks

define Sort Disks
  if eye detects red ? then
    drive forward for 100 mm
    energize magnet to drop
    drive reverse for 100 mm
    turn left for 90 degrees
  if eye detects green ? then
    drive forward for 250 mm
    energize magnet to drop
    drive reverse for 250 mm
    turn left for 90 degrees
  if eye detects blue ? then
    drive forward for 350 mm
    energize magnet to drop
    drive reverse for 350 mm
    turn left for 90 degrees
```