

VEX IQ



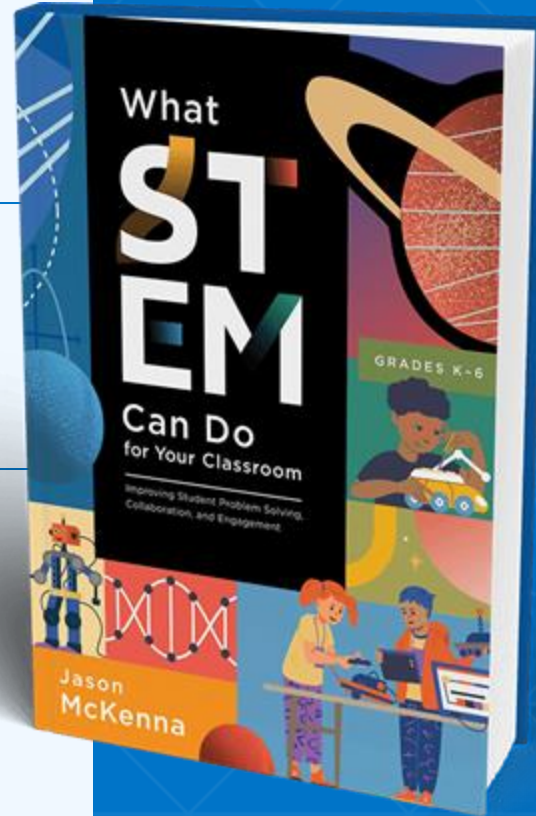
Jason McKenna

Director of Global Educational
Strategy, VEX Robotics

What STEM Can Do for Your Classroom:
*Improving Student Problem Solving,
Collaboration, and Engagement*



jmckenna.org
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Who Is VEX?



World's Largest Robotics Competition



The VEX Continuum



VEX 123

Coding Starts Early

Ages 4+

VEX GO

STEM Starts Early

Ages 8+

VEX IQ

Applied STEM Learning

Ages 11+

VEX EXP

Real World STEM
for Classrooms

Ages 14+

VEX VS

Real World STEM
for Competition

Ages 14+

VEX VS

WORKCELL

Workforce Readiness

Ages 14+



VEX CODE VR

Virtual Robot Coding

Ages 8+



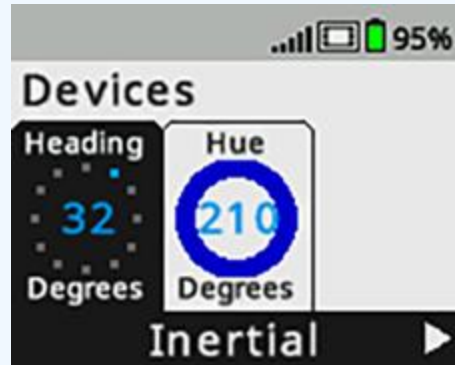
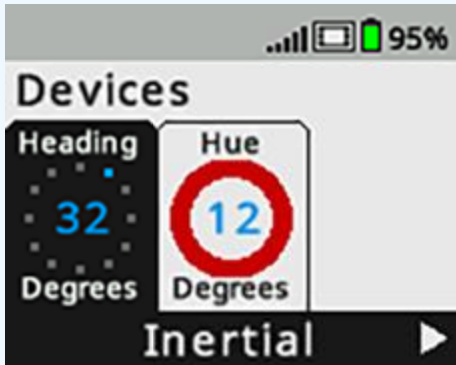
What is VEX IQ?

- Grades 6+
- Encourages creativity through easy-to-use construction system and approachable technology
- Snap-together robotics system designed to provide novice users the chance to find success quickly
- Able to constantly challenge more advanced users



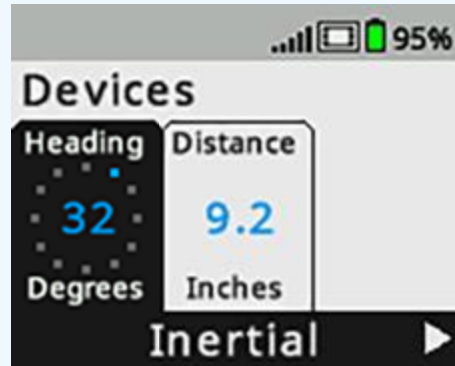
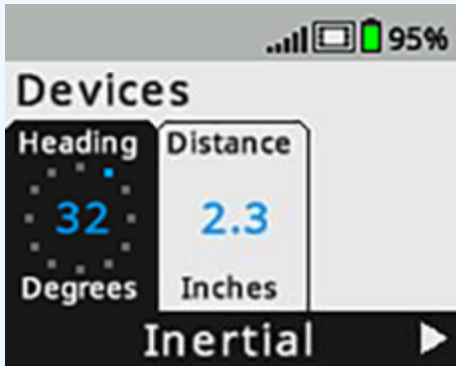
Optical Sensor

- Detect the color of an object
- Detect an object
- Detect the brightness level of ambient light
- Measure the numerical Hue Value of an object



Distance Sensor

- Detects if there is an object in front of it
- Measures the distance between itself and an object
- Determine the relative size of an object
- Reports the velocity of an object

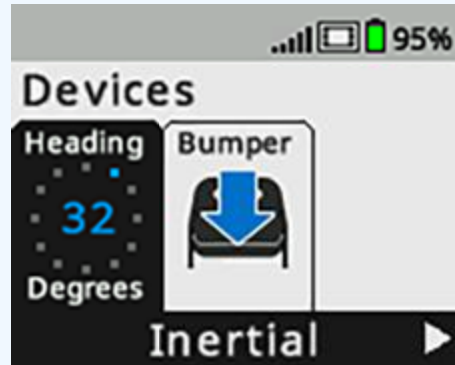
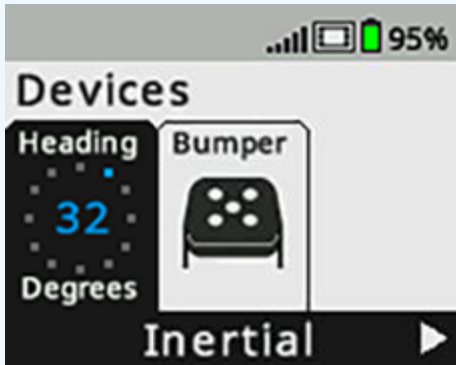


Bumper Switch

Tells the robot whether its bumper is pressed (sensor value of 1) or released (sensor value of 0).

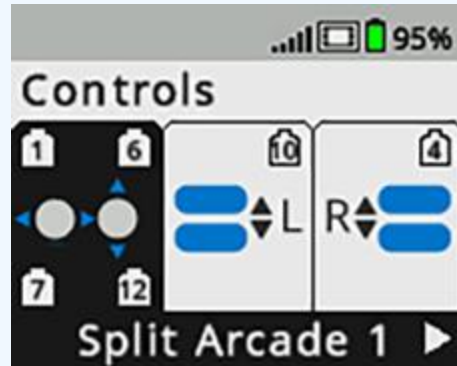
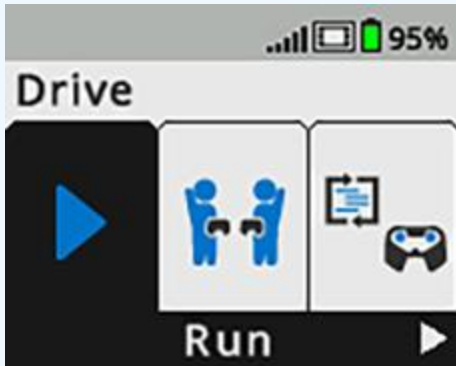
Example Uses:

- Detect if the robot bumped into an object
- Trigger robot action when pressed or released

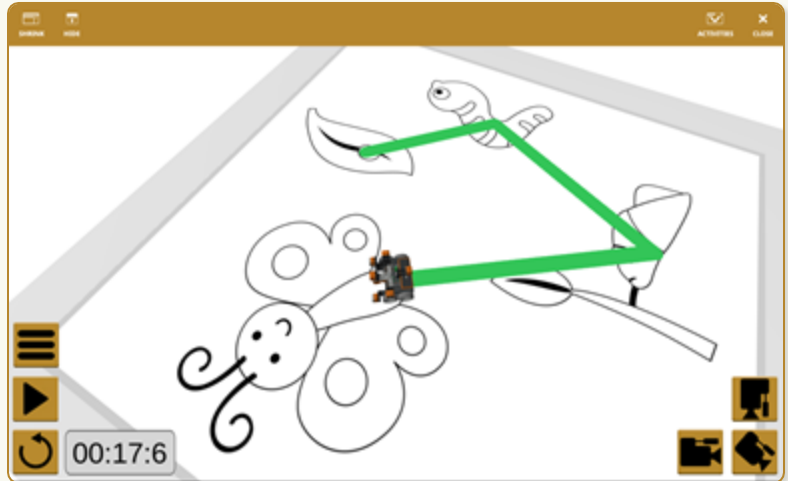


IQ Controller (2nd Generation)

- Wireless pairing to the Robot Brain
- Wirelessly download programs from VEXcode via USB-C
- Start and stop programs from the controller



What is VEXcode VR?



VEXcode VR Reach

Launched April 2020

14.6+ Million

Coding Sessions



6.1+ Million

Hours of Coding



80+ Minutes

Average User
Engagement



215+ Countries

Reached



5.5+ Million

Unique Users



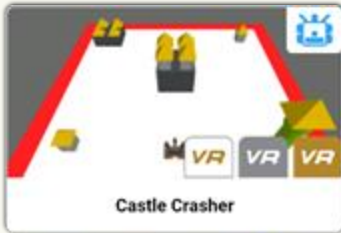
260+ Million

Projects Ran

Variety of Playgrounds



Art Canvas



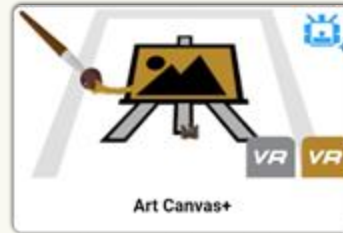
Castle Crasher



Grid Map



Wall Maze



Art Canvas+



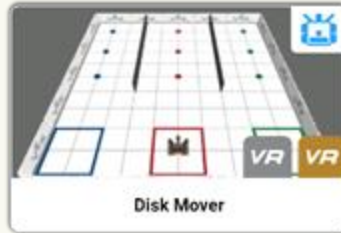
Castle Crasher+



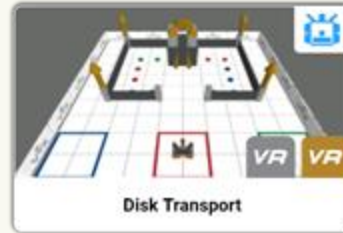
Coral Reef Cleanup



Disk Maze



Disk Mover



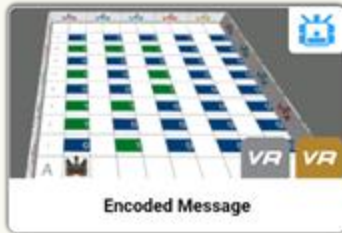
Disk Transport



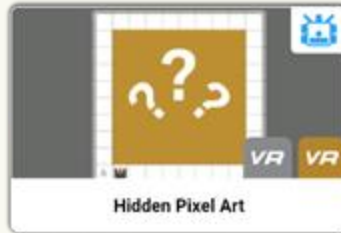
Dynamic Castle Crasher



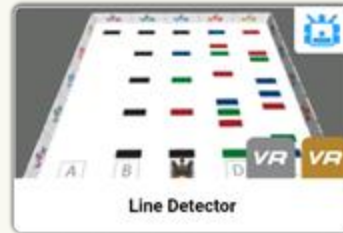
Dynamic Wall Maze



Encoded Message



Hidden Pixel Art



Line Detector



Number Grid Map



Shape Tracer

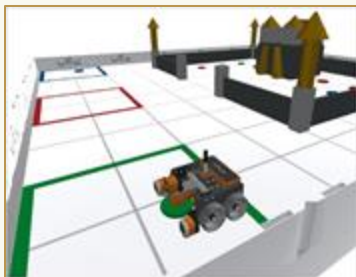


Wall Maze+



Planet HEXBUG

Online Computer Science Courses



Computer Science Activities + Resources

Access a library of activities and resources to implement VEXcode VR within an existing lesson or as a stand-alone fun activity.



Computer Science Level 1 - Blocks

Begin the journey into learning Computer Science with the VEXcode VR Computer Science Level 1 - Blocks course! Using VEXcode VR and engaging robotics-based activities, students will learn about project flow, loops, conditionals, algorithms.



Computer Science Level 1 - Python

Continue on your Computer Science journey with text-based coding in VEXcode VR Python! Using a VR Robot to solve various coding challenges, students will learn about project flow, loops, conditions, and algorithms in Python.



VEX CODE VR

VEX Library / VEXcode VR

Get Started **VR Features** VR Blocks VR Python Planet HEDBUG Educator Resources VR Enhanced VR Advanced

Robot Features

- Understanding Robot Features in VEXcode VR
- Using the Bumper Sensor in VEXcode VR
- Using the Distance Sensor in VEXcode VR
- Using the Electromagnet in VEXcode VR
- Using the Eye Sensor in VEXcode VR
- Using the Location Sensor in VEXcode VR

Playground Features

- Identifying Location Details in VEXcode VR
- Understanding the Coordinate System in VEXcode VR
- Understanding the Dashboard in VEXcode VR
- Using the Playground Features in VEXcode VR
- Using the Playground Timer in VEXcode VR
- Using the Playground Window in VEXcode VR

Load and Save

- Loading and Saving a VEXcode VR Project on a Chromebook
- Loading and Saving a VEXcode VR Project on an Android
- Loading and Saving a VEXcode VR Project on an iPad
- Loading and Saving a VEXcode VR Project on macOS
- Loading and Saving a VEXcode VR Project on Windows
- Loading, Renaming, and Saving a VEXcode VR Project

Troubleshooting

- Troubleshooting Playground Loading Issues in VEXcode VR
- Troubleshooting Playground Selection in Safari-based Web Browsers

VEXcode VR Activities

- Accessing and Modifying VEXcode VR Activities

Project Help

- Auto Backup Feature in VEXcode VR
- Viewing Tutorial Videos in VEXcode VR

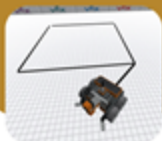
Activities

Castle Color Match



Program the VR Robot to pick up and place disks around the Castle!

Draw a House



Showcase your artistic skills by programming the VR Robot to draw a house.

Dynamic Wall Maze



Create an algorithm to navigate the VR Robot through multiple wall mazes in this constantly changing challenge.

Color Counting Algorithms



Program the VR Robot to detect the color and location of lines.

Coral Reef Cleanup



Help clean the Mangrove Reef by collecting as much trash as you can before the solar-powered batteries on your robot run down.

Disk Mover



Use the electromagnet to pick up and place colored disks into different colored goals to complete challenges.

Sensing Colors



Program the VR Robot to draw and detect different colored lines.

Mondrian Patterns



Program your VR Robot to create a work of modern art inspired by Mondrian.

Counting Lines



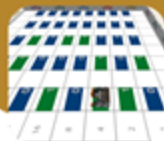
Program the VR Robot to track the number of black lines detected using variables.

Cross Every Number



Program the VR Robot to cross off each number from 1-100.

Encoded Message



Use sensors on the VR Robot and Lists (arrays) to decode the message represented by binary ASCII characters.

Robot Vacuum



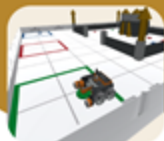
Program the VR Robot to move like a robotic vacuum.

Word Search



Solve a word search puzzle by highlighting words with your VR Robot.

Castle Color Match



Program the VR Robot to pick up and place disks around the Castle!

Crash the Castle



Create an algorithm to knock over different Castle layouts using the VR Robot in this constantly changing challenge.

On Target



Hit the bullseye by drawing angles with your robot!

Teacher Portal

Computer Science Level 1 Resources



Pacing Guide and
Standards Mapping



Email Home



Quiz & Exam Answer Keys
for Blocks and Python



Challenge Solutions
for Blocks and Python

VEXcode VR Activity Resources



Pacing Guide
and Standards
Mapping



Email Home



Activity
Answers

Questions?

Contact Me

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