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

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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 V5
Real World STEM for Competition
Ages 14+

VEX V5 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

- 215+ Countries Reached
- 14.6+ Million Coding Sessions
- 5.5+ Million Unique Users
- 6.1+ Million Hours of Coding
- 260+ Million Projects Ran
- 80+ Minutes Average User Engagement

VEXcode VR Reach
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 Library / VEXcode VR
- Robot Features
  - Understanding Robot Features in VEXcode VR
  - Using the Bumper Sensor in VEXcode VR
  - Using the Distance Sensor in VEXcode VR
  - Using the Encoder Sensor 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
- Quiz & Exam Answer Keys for Blocks and Python
- Email Home
- 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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