VEX IQ Curriculum Syllabus

Grade Level: 2-8 (units and lessons specify specific grade level targets)

Curriculum Duration: Flexible, depending on school and classroom needs.
50-80 hours of instruction if all 12 units are taught.

Curriculum Content Access: http://www.vexiq.com/curriculum

Curriculum Description & Options:

With the growing societal need to enhance science, technology, engineering, and mathematics (STEM) instruction in classrooms and beyond, there is a call for integrated learning programs that allow teachers to engage students meaningfully in STEM, especially at the elementary and middle school levels. With that in mind, we have developed the VEX IQ Curriculum as a companion to the VEX IQ platform for elementary and middle school students. **This curriculum offers 12 flexible units of instruction that can be used in sequence, in chunks, or as standalone lessons. Whatever your elementary and middle school STEM education needs may be, the VEX IQ Curriculum is a learning tool that will excite and inspire your students.** For information on the programming options available, consult www.vexiq.com/programming.

Curriculum Resources Provided:

Curriculum Lesson Content – 12 units and associated resources
Teacher Materials – lesson plans and assessment tools
Standards Matching – STL, NGSS, and Common Core
Resources – user guides, assembly instructions, helpful tips, classroom printables

Curriculum Materials (see individual units for more details):

Unit Webpages
Colored Paper Cards
VEX IQ Kits, Controller, & Sensors
Unit Printable Handouts & Assessments
Idea Book Pages / Engineering Notebooks
VEX IQ Programming Software
Paper & Pencils
Protractor
Internet Access / Resources
Teacher Resources & Standards Matching
Cubes or other Objects to Manipulate (see units for details)
VEX IQ User Guides & Kit Documentation

Curriculum Outline:

Unit A: It's Your Future – Learn about STEM, engineering, and robotics
Unit B: Let's Get Started – Learn about VEX IQ, the Controller, and the Robot Brain
Unit C: Your First Robot – Build and test Clawbot IQ
Unit D: Simple Machines & Motion – Explore Levers, Pulleys, Pendulums, & more
Unit E: Chain Reaction Challenge – Design fun devices using Simple Machines
Unit F: Key Concepts – Explore and apply science and math that engineers use
Unit G: Mechanisms – Motors, Gear Ratio, Drivetrains, Object Manipulation & more
Unit H: Highrise Challenge – Build a challenge-ready teleoperated robot
Unit I: Smart Machines – Learn how sensors work and the basics of programming
Unit J: Chain Reaction Programming Challenge – Apply sensor and programming knowledge to automate fun devices
Unit K: Smarter Machines – Expand your knowledge of sensors and programming
Unit L: Highrise Programming Challenge – Build a challenge-ready autonomous robot

Sample Curriculum Paths:

A Complete VEX IQ Course of Study (50-80 Hours):
All 12 Units of Instruction

Unpowered Excitement (10-15 Hours):
Units A, B, D, E

Learning Through The Competition Experience (19-24.5 Hours):
Units B, C, H, L

STEM Essentials for Competition Robotics (27-35 Hours):
Units B, C, F, G, H, I, L

Focus on Mechanical Design (15.5-18 Hours):
Units B, C, F, G, H

Focus on Programming & Autonomy (23-45.5 Hours):
Units B, I, J, K, L

à la carte (time determined by teacher selection):
Pick and choose units & lessons to meet individual classroom needs.