

**Project Lead the Way (PLTW)**

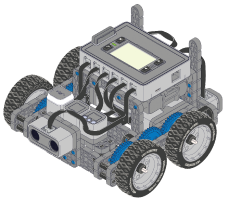
**Course Title:** Project Lead the Way Gateway: Automation and Robotics **Teacher**: Mrs. Fambro

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**Planning periods:** 3rd period

***School Implementation****: Falcon Five: Positive Behavior School Implementation (PBIS)*

# **Course Overview: Project Lead the Way Gateway- Automation and Robotics Vex-IG:** VEX IQ Curriculum



We are adapting the Vex-IQ curriculum. We will also be using the PLTW Automation and Robotics. Students trace the history, development, and influence of automation and robotics as they learn about mechanical systems, energy transfer, machine automation, and computer control systems. 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. The curriculum offers twelve flexible units of instruction that can be used in sequence, in chunks, or as standalone lessons.

**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**

**Field Trip.:** There will be one STEM field trips this semester: Robotics Academy in Roswell, GA. Spaces will be limited first come, first serve due to limited spaces available. Students will be given permission slips at the designated time.

**Assessment:** Formative assessments are ongoing throughout the semester which will include tests/quizzes, exit slips, class discussions, and observations. The summative assessment consists of students building a challenge-ready autonomous robot.

**Required materials**: pencil, pen, graph paper composition notebook

**Textbooks and Resources:** Textbooks are not required for this course. Videos and PLTW course modules are the resources used in this course.

**Grading/Assessment:**

Formative (Activities/Quizzes) 40%

Summative (Projects/Tests) 60%

**Parent Notification**: Please join Edmodo to keep up with classroom reminder. Information will also be uploaded onto the school blog.

**Attendance/Tardiness**: Students will sign the tardy sheet on the clipboard upon entering the classroom and give the teacher the tardy slip.

**Make up Policy:** Students may make up work missed during excused absences from school. Students must make up work equivalent to the number of days absent. For example: If a student is absent for three (3) days; then he/she will three (3) days to turn in the missed assignments. This period begins the day the student returns to school and includes weekends. It is the responsibility of the student or his/her parent to arrange with the teacher for this makeup work. A teacher may require the student to make up the work outside of regular school hours. In which case, notice will be required to allow the student to arrange necessary transportation. Absences due to family trips are not excused. However, students will be allowed to make up the work if arrangements are made with the teacher in advance and the student has not been absent excessively. Teachers may set the guidelines for turning in this makeup work.

**Classroom Falcon FIVE:**

1. Be Respectful

2. Be Responsible

3. Be Present

4. Be Positive

5. Be a Scholar

**Homework Policy:**

\*Any unfinished class assignments or make up assignments will be given as homework.

**We have read the course syllabus for Subject Area (Automation and Robotics) and understand the expectations and policies.**

Student Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Student Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Parent/Guardian** Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Date:\_\_\_\_\_\_\_\_\_\_\_\_\_

**Parent/Guardian** Signature:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Cell Phone number: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Email: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_