## Overview, Schedule, Camp Descriptions and FAQs

At NOVA SySTEMic, we have the most exciting and educational summer STEM camps in Northern Virginia! Led by STEM teachers and college students enrolled in STEM programs, our STEM Camp program introduces Science, Technology, Engineering, and Math to thousands of grade-school students.

Camps are focused on hands-on, project-based learning that provides students with excellent opportunities to begin exploring STEM fields and to chart a course for future STEM education and workforce opportunities.

Registration for summer camps will open on January 17, 2019. If you have any questions that aren't covered in this document please email systemic@nvcc.edu or call us at 703.530.3505.

## Highlights

- One-week camps are only $315.
- Camps are offered at many of our NOVA Campuses, at schools in Falls Church City, Fairfax, Loudoun, Prince William counties and Alexandria.
- Camps run from 9:00 a.m. - 4:00 p.m.
  - **NEW**: Childcare available 7:45 a.m. - 9:00 a.m. and 4:00 p.m. - 5:30 p.m.
  - $25 per week for either, $50 per week for both.
- Discounts: Multi-Child ($50), Multi-Camp ($50), NOVA/Micron/Oath Employees ($25)

On our camp website we have links to the registration site for new or returning users. Please visit http://www.nvcc.edu/systemic/camps.html.

# Schedule of Camps 2019

We are still securing a few locations in Fairfax this year, due to policy changes we won't know the exact locations until the middle of March. We will provide an updated schedule as soon as possible.

| 2019 STEM CAMP | LOUDOUN | | | | PRINCE WILLIAM | | | | FAIRFAX | | | ALEXANDRIA | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Stone Hill Middle School | Broad Run High School | Oath Dulles Campus | NOVA Loudoun Campus | NOVA Woodbridge Campus | Patriot High School | Micron | NOVA Manassas Battleview | Marshall High School | Westfield High School | NOVA Annandale Campus | NOVA Alexandria Campus | George Mason High School |
| Coding Elementary School (3rd to 5th grade) | | Jul 8 - 12 9am - 4pm | | Aug 12 - 16 9am - 4pm | Jun 24 - 28 9am - 4pm | | | | | Jul 22 - 26 9am - 4pm | | | Aug 5 - 9 9am - 4pm |
| STEM Elementary School (4th to 5th grade) | Jun 17 - 21 9am - 4pm | | Jul 22 - 26 9am - 4pm | | | | | Aug 12 - 16 9am - 4pm | Jun 24 - 28 9am - 4pm | | | Jul 8 - 12 9am - 4pm | |
| VEX IQ Robotics (4th to 8th grade) | Jun 24 - 28 9am - 4pm | | | | | Jul 29 - Aug 2 9am - 4pm | | | | | Aug 12 - 16 9am - 4pm | Jul 15 - 19 9am - 4pm | |
| VEX IQ Challenge (5th to 8th grade) | Jun 17 - 21 9am - 4pm | Jul 15 - 19 9am - 4pm | | | | | | Aug 12 - 16 9am - 4pm | | Jul 29 - Aug 2 9am - 4pm | | Jun 24 - 28 9am - 4pm | |
| STEM Middle School (6th to 8th grade) | Jun 17 - 21 9am - 4pm | Jul 15 - 19 9am - 4pm | | | | | | Aug 12 - 16 9am - 4pm | | Jul 29 - Aug 2 9am - 4pm | | Jun 24 - 28 9am - 4pm | |
| VEX 1 Robotics (6th to 10th grade) | | Jul 8 - 12 9am - 4pm | Jul 22 - 26 9am - 4pm | Aug 12 - 16 9am - 4pm | Jun 24 - 28 9am - 4pm | | Aug 12 - 16 9am - 4pm | | Jun 24 - 28 9am - 4pm | Jul 22 - 26 9am - 4pm | | Jul 8 - 12 9am - 4pm | Aug 5 - 9 9am - 4pm |
| VEX 2 Robotics (7th to 10th grade) | | Jul 8 - 19 9am - 4pm | | | | | | Aug 5 - 16 9am - 4pm | | | | | |
| Arduino (7th to 10th grade) | Jun 24 - 28 9am - 4pm | | Jul 22 - 26 9am - 4pm | | | Jul 29 - Aug 2 9am - 4pm | | | | | Aug 12 - 16 9am - 4pm | Jul 15 - 19 9am - 4pm | |
| Rocketry (7th to 12th grade) | Jun 17 - 21 9am - 4pm | Jul 15 - 19 9am - 4pm | | | | | | Aug 12 - 16 9am - 4pm | | Jul 29 - Aug 2 9am - 4pm | | | |
| STEM High School (9th to 12th grade) | | | Jul 22 - 26 9am - 4pm | | | | | Aug 12 - 16 9am - 4pm | Jun 24 - 28 9am - 4pm | | | Jul 8 - 12 9am - 4pm | |
| Cybersecurity 1 (9th to 12th grade) | Jun 24 - 28 9am - 4pm | Jul 8 - 12 9am - 4pm | | Aug 12 - 16 9am - 4pm | Jun 24 - 28 9am - 4pm | Jul 29 - Aug 2 9am - 4pm | | | | Jul 22 - 26 9am - 4pm | Aug 12 - 16 9am - 4pm | Jul 15 - 19 9am - 4pm | Aug 5 - 9 9am - 4pm |
| Cybersecurity - Basic (9th to 12th grade) | | | | | | | | | Jun 24 - 28 9am - 3pm | | | | |
| Cybersecurity - Advanced (9th to 12th grade) | | | | | | | | | Jun 24 - 28 9am - 3pm | | | | |

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# Frequently Asked Questions

## Which camp should my child take?

The goal of our camps is to introduce students to a new area of STEM or to expand on a skill or interest they currently have. We advise parents to choose a camp the student is interested in learning about. The Grade Level Chart below will help you find a camp suitable for your child. Only a few camps have a prerequisite.

### 3 — RISING GRADE
- • CODING

### 4
- CODING
- • STEM ES
- • VEX IQ

### 5
- CODING
- STEM ES
- VEX IQ
- * VEX IQ CHALLENGE

### 6
- VEX IQ
- * VEX IQ CHALLENGE
- • STEM MS
- • VEX 1 ROBOTICS

### 7
- VEX IQ
- * VEX IQ CHALLENGE
- STEM MS
- VEX 1 ROBOTICS
- * VEX 2 ROBOTICS
- • ARDUINO
- • ROCKETRY

### 8
- VEX IQ
- * VEX IQ CHALLENGE
- STEM MS
- VEX 1 ROBOTICS
- * VEX 2 ROBOTICS
- ARDUINO
- ROCKETRY

### 9
- VEX 1 ROBOTICS
- * VEX 2 ROBOTICS
- ARDUINO
- ROCKETRY
- • CYBERSECURITY 1
- * CYBERSECURITY 2
- • STEM HS

### 10
- VEX 1 ROBOTICS
- * VEX 2 ROBOTICS
- ARDUINO
- ROCKETRY
- CYBERSECURITY 1
- * CYBERSECURITY 2
- STEM HS

### 11
- ROCKETRY
- CYBERSECURITY 1
- * CYBERSECURITY 2
- STEM HS

### 12
- ROCKETRY
- CYBERSECURITY 1
- * CYBERSECURITY 2
- STEM HS

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**STEMCAMP19**
Grade Level Chart
Camps available by grade level

- • Earliest grade particular camp begins
- * Requires a pre-requisite

## Where are your camps located?

We offer camps in Prince William County, Loudoun County, Fairfax County, Arlington/Alexandria/Falls Church.

## How do I sign up or review my registration?

On our camp website we have links to the registration site for new or returning users. Please visit http://www.nvcc.edu/systemic/camps.html

# Frequently Asked Questions

### What are your camp hours?
Camp hours are 9:00 a.m. to 4:00 p.m.

### Who should I contact with questions?
Please contact a regional coordinator or the main office
systemic@nvcc.edu

### Do you have a waitlist?
Yes. Please add your child to the waitlist on the registration website if you would like to enroll in a camp that is full. Some camps have long waitlists with 60+ students and others have 1 or 2. We do our best to find every student an opportunity. No deposit is required to join the waitlist.

### Do you offer before and after care?
Yes, we do.  We have before care starting at 7:45am for $25/week, and after care ending at 5:30pm for another $25/week. Students in before or after care should bring a book to read. When possible we will have a few self-directed activities available for students to use, but no instruction is provided.

### Is STEM camps a suitable environment for kids with special needs?
Yes and No. We utilize certified teachers who have experience making accommodations for students; however, many of our summer camps are fast-paced, occur in a loud hands-on environment and require group work and high social interaction. You know your child best and some camps may work well and others may not. Please contact us at systemic@nvcc.edu to discuss.

### When is the parent showcase?
Parent showcase takes place the last Friday of camp.  Our goal is to give time for the students to show their parents what they learned at camp. The students are needed for the rest of the day to break down and resort the equipment which takes time. Lunch will be provided for campers only.  An email will be sent out with more information regarding the time of the event depending on the camp.  After the presentation, parents may leave and return at 4:00pm for pick-up.

### What if I need to change a camp registration, date or location?
Please contact your regional coordinator or email systemic@nvcc.edu. We will do our best to get your student in a camp that meets your schedule.

### What is your student-to-staff ratio?
Depending on the camp, typically we achieve a ratio of 1 teacher per 10 students.
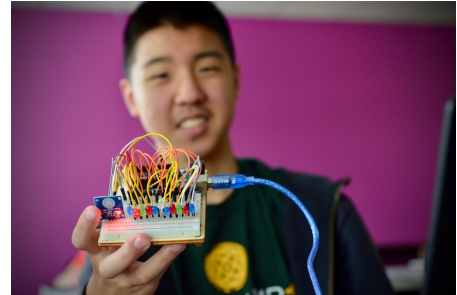
## Can you make an age or experience exception?

We strongly discourage making exceptions. Students are grouped with peers in such a way to optimize their camp experience. Students without the necessary maturity or experience for a higher or more advanced camp tend to struggle to enjoy it.

## Do you use Mac or Windows at STEM camp?

We use laptops with Windows operating system for most camps but some use iPads.

## Are meals provided?

Students bring their own lunch and snacks every day. On the last day of camp we provide lunch.

## How do you support students with food allergies/special dietary needs at camp?

During the registration process there is an option to designate a student as having allergies or special dietary needs and we will accordingly provide a special lunch on the last day of camp for that student.

## How would my 6th grader work with a 12th grader? Would they be paired together?

We pair according to age group as much as possible.

## Do you provide transportation to the camps?

No, unfortunately not. It is the responsibility of the parent/guardian to arrange for transportation to and from camp.

## When are parents allowed to be in the classroom?

We understand parents may want to visit the classroom that their students will be at on the first day. While we encourage parents to drop-off and pick-up curbside, you are able to park and walk your child to class. Each camp will have a parent showcase on the last day where parents may visit the camp to see what students accomplished throughout the week. Please see the camp description to find specific showcase times. Parents are not permitted to be in the class during regular camp hours.

## What is the policy on electronic devices?

Devices are approved by the instructor for emergency purposes or documentation use. Students may use their phones during lunch, planned breaks and before or after camps at their discretion. Students are responsible for their own devices.

## What if my child has an appointment during camp?

Please contact the coordinator and/or the camp director. If you need assistance finding out who this is please contact systemic@nvcc.edu

## Can my child miss the first day of camp?

We strongly discourage it, because that is when partners are formed and the fundamentals of camp are set. Ultimately we do allow students to miss a day if there is no alternative.
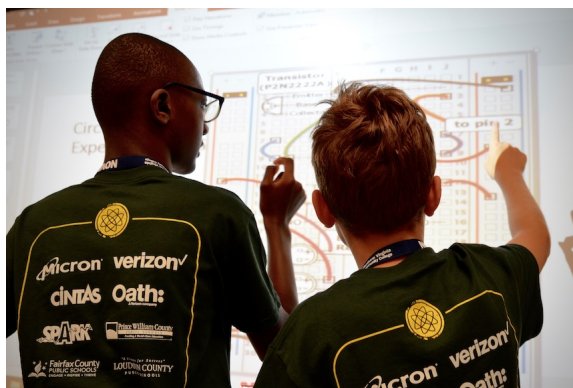
## What is your cancellation policy?

Camp fees are refundable up until May 31 minus the $50 registration fee. Cancellations after May 31 may be granted a partial refund if their spot can be filled before camp starts. There are no refunds for cancellations within 7 days of the start of camp. We do our best to place students in a new camp in case of illness or other family emergency.

Our registration system, Active, also offers optional cancellation insurance which can be purchased during check out. Cancellations for covered reasons will be honored through this cancellation insurance.

## My child is not happy with his/her partner, can he/she change partners?

We encourage teams or groups to try and work it out with the instructor's assistance. Part of the benefit of hands-on project based learning is developing collaboration and communication skills. Some students struggle in this area and it can be difficult, please contact your coordinator and/or camp director.

## Can my child volunteer for camp as an instructor?

Absolutely!  We are looking for volunteers that are 14 and older.  Please contact your regional coordinator for more information.

## What is the cost of your summer camp?

Most one week camps are $315 per week except for our two week VEX 2 camp that cost $450 for the whole camp. We also help a few other organizations run camps occasionally and those prices may vary.

## What is your Tax ID #?

Our fiscal agent for camps is the Northern Virginia Community College. TAX ID # 54-1268263; mailing address associated is 3924 Pender Drive, Suite 170, Fairfax, VA 22030

## Do you offer financial aid or scholarships?

We strive to make our camps affordable and accessible to as many students as possible in NOVA's service area. If you need assistance in getting your child enrolled in camp please contact us at systemic@nvcc.edu or the main office at: 703-530-3505.

## Do you have any discounts/coupons?

We offer several discounts described below. To receive the automatic discounts, all registrations must be included in a single transaction.

- Multi-Sibling, an automatic $50 discount is applied at check out.
- Multi- Camp, an automatic $50 discount is applied at check out.
- $25 Discount for employees of Micron/Oath/NOVA. Please contact systemic@nvcc.edu if you need assistance with these.

# Summer Camp Descriptions

## Coding Elementary School (rising 3<sup>rd</sup> to 5<sup>th</sup> grade)

In this one week camp participants will work with iPads to engage in a variety of coding projects that include using OSMO, SPHERO and LEGO EV3. Each day students will participate in a challenge with each technology. Participants will have planned breaks each day for extensions and practice time.

Sample Activities:

- OSMO – Words Challenge, Numbers Challenge, Tangrams & Coding with Awbie
- SPHERO – Bowling Challenge, Ollie Drawing, Maze, Gold, Battlebot & Slalom Challenges
- LEGO EV3 – Build and program, Maze Challenge, Sumobot & Catapult Challenges.

Format: Primarily Individual with some group interactions

Showcase: Friday 2:30 pm, students will have the opportunity to show parents each technology and the different projects they completed.

## STEM ES (rising 4<sup>th</sup> to 5<sup>th</sup> grade)

In this week long camp students will explore coding, computer aided design (CAD), and play math games. Each day students will spend about 2 hours on each activity. Participants will have planned breaks each day for extensions and practice time.

Sample Activities:

- CAD with BlocksCAD – Designing a part, Skills: Rotation, Operations, Loops & Variables
- Coding with Scratch – First Program, Dance Activity, Creature Construction, Creating a Game
- Math Games: Circumference of the Earth, Graphing, Jeopardy, Play Doh Solar System

Format: Primarily Individual with some group interactions

Showcase: Friday 2:30 pm, students will have the opportunity to show parents each technology and the different projects they completed.

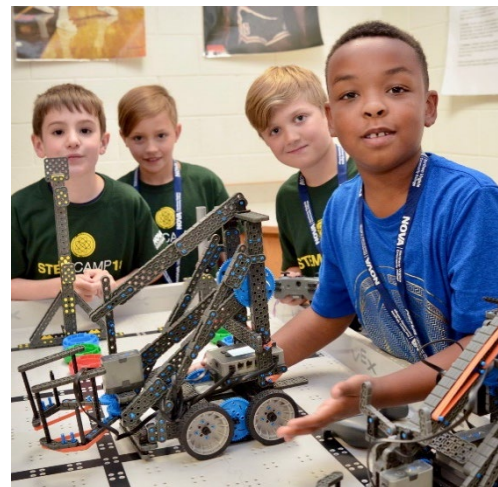## VEX IQ Robotics (rising 4<sup>th</sup> to 8<sup>th</sup> grade)

In this one week camp students will build a VEX IQ Robot in pairs. They will compete in a maze challenge and with a modified version of the yearly VEX IQ Challenge game. Students will learn to program the robot in robotC to operate autonomously with sensors and they will drive as a team while competing against other campers.

Sample Activities:

- Build and Program a VEX IQ robot
- Autonomously solve a maze
- Compete to score points in the VEX IQ Challenge game

Format: Students work in Pairs, complete challenges and compete with other groups

Showcase: Friday 9:30 to 11:00 am, students demonstrate solving the maze and have a small camp competition. Parents then return to pick up students at 4 pm.

# VEX IQ Challenge: Ringmaster (rising 5<sup>th</sup> to 8<sup>th</sup> grade)

## *Prerequisite: Completed VEX IQ Robotics Camp or Equivalent Experience on a team.*

In this 1 week camp, participants will build STRETCH, a VEX IQ robot, in pairs to compete in Ringmaster. Students will learn how to compete in the VEX IQ yearly challenge, make an engineering notebook to document team decisions on robot design, develop a game strategy and create an autonomous program to play the game. This camp is perfect for students who want to compete in the VEX IQ Challenge.



Sample Activities:

- Build and Program a VEX IQ robot.
- Develop a strategic approach to a game or challenge.
- Learn to document modifications to code and a base robot.

Format: Students work in Pairs, complete challenges and compete with other groups

Showcase: Friday 9:30 to 11:30 am, students demonstrate solving the maze and have a small camp competition. Parents then return to pick up students at 4 pm.
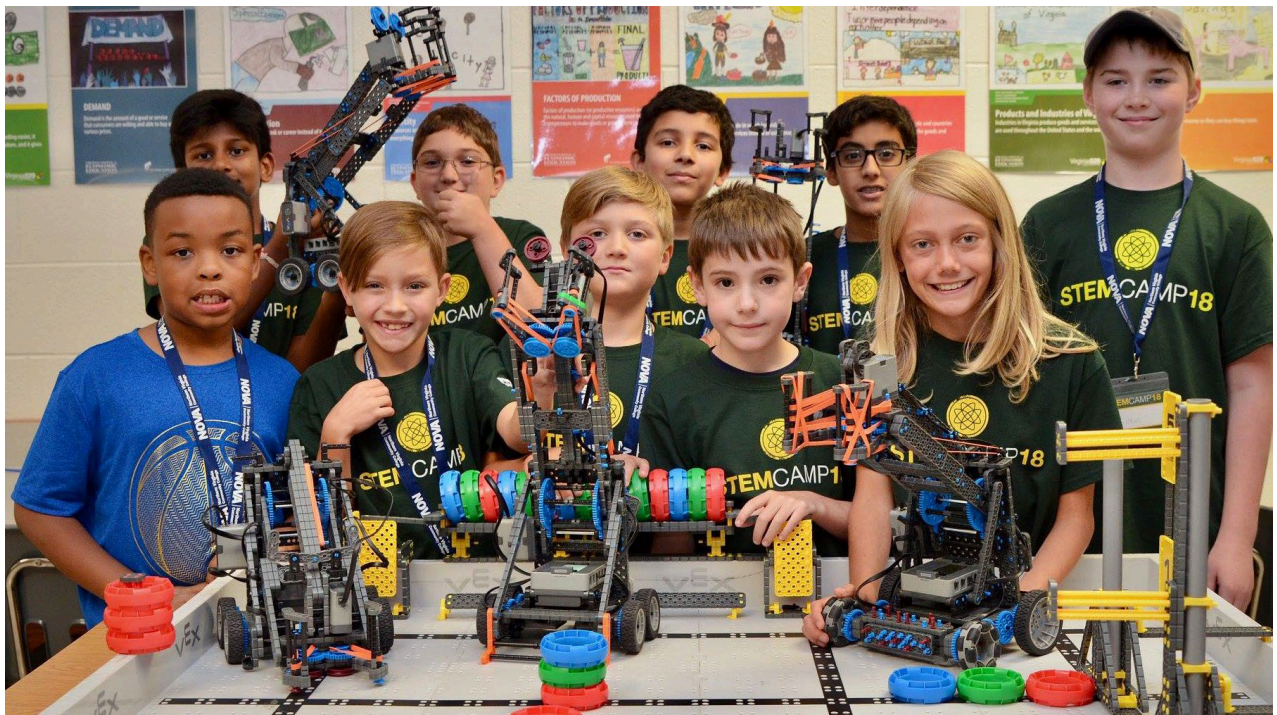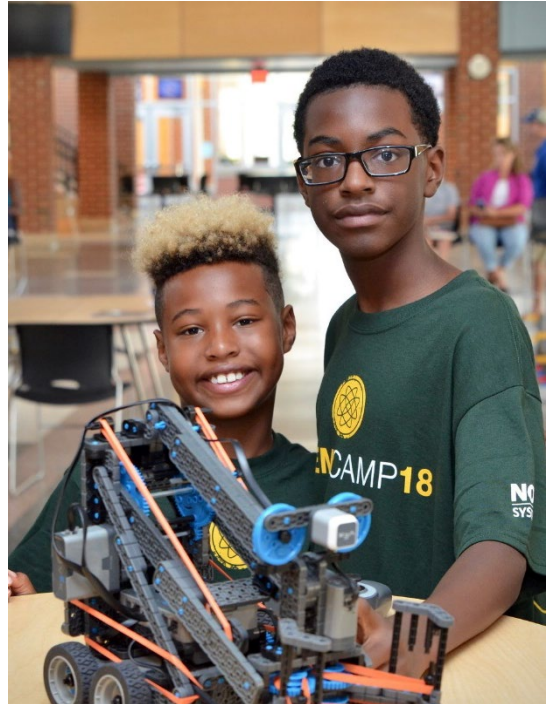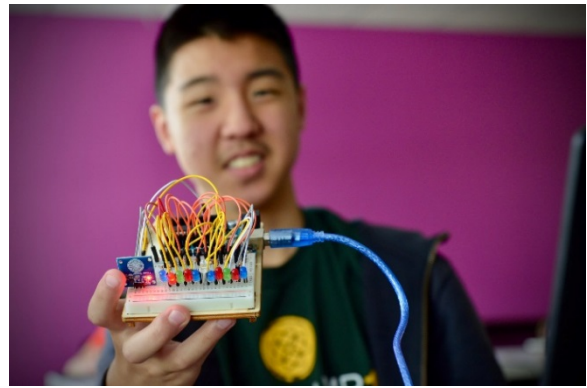
## STEM MS (rising 6th to 8th grade)

In this week long camp students will learn how to code, create circuits and projects using an Arduino, Raspberry Pi and a Virtual World. Participants will solve challenges using a virtual robot and program in RobotC and make simple circuits using Arduino or Raspberry Pi boards. In addition, students will be able to use their logical thinking skills to solve some problem-based activities.

Sample Activities:

- Program a robot in a virtual World: Variables & Functions.
- Build and code an alarm with LEDs and sound.
- Build a small computer with a Raspberry Pi.

Format: Individual

Showcase: Friday 2:00 pm, students demonstrate the Arduino and Raspberry Pi projects and their virtual robot.

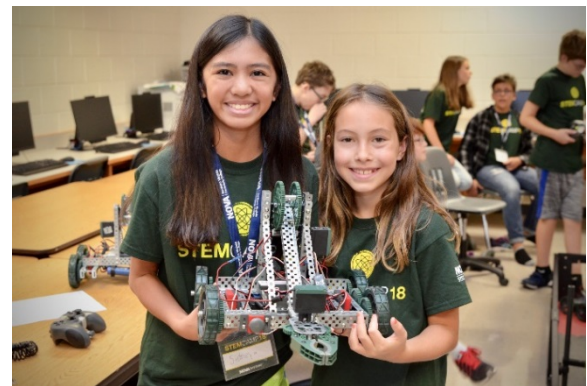## VEX 1 Robotics (rising 6th to 10th grade)

This one week camp introduces students to the VEX Robotics Design System where students will build and program a robot to solve a challenge on a 12' x 12' field. The challenge includes solving a maze autonomously and integrates part of the game from the yearly VEX Robotics Competition. In 2019 we intend on using the newer V5 system. We pair older students together.

Sample Activities:

- Build and Code a V5 or Cortex based robot.
- Solving a Maze: Integrate Sensor feedback into your code.
- Team Competition at end of the camp.

Format: Pairs, competing against other camp teams.

Showcase: Friday 9:30 am to 11:30 am, students demonstrate the maze challenge and compete against other teams. Parents then return to pick up students at 4 pm.

# VEX 2 Robotics (rising 7<sup>th</sup> to 10<sup>th</sup> grade)

## *Prerequisite: Completed VEX 1 Robotics Camp or Equivalent Experience on a team.*

In this two week long camp rising 7th through 10th grade students will work in groups of 2 - 4 to design, build, and program a VEX robot to compete in the current VEX Robotics Competition. We intend on using the V5 system. Students will focus on learning new skills in approaching the strategic design, build and programming of a robot. Additionally, teams will focus on the documentation of the design process. This camp is ideal for students who have 1-2 years of experience with VEX.

Sample Activities:



- Build and Program a VEX  robot.
- Develop a strategic approach to a game or challenge.
- Learn to document modifications to code and a base robot.

Format: Students work in groups of 2-4 students, complete challenges and compete against other teams.

Showcase: Friday 9:00 to 11:30 am, students will complete a small camp competition. Parents then return to pick up students at 4 pm.
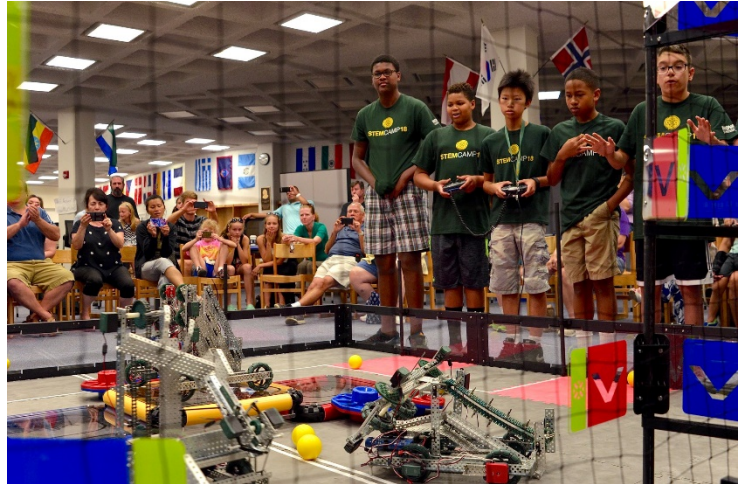
# Arduino (rising 7<sup>th</sup> to 10<sup>th</sup> grade)

In this one week camp students will work with electronics to create projects using software engineering and the Arduino microcontroller. Participants will learn how to integrate and control electronics such as LEDs, motors and sensors to complete projects and challenges. A variety of coding structure will be taught to control and refine the function of each project. No previous experience required.

Sample Activities:



- Build and program a custom display with a custom message.
- Wire and control LEDs to turn on and off in a pattern.
- Wire and control a motor/servo with a sensor.

Format: Students work in groups of 2-4 students, complete challenges and compete against other teams.

Showcase: Friday 2:00 pm, students will demonstrate a variety of the camp projects.
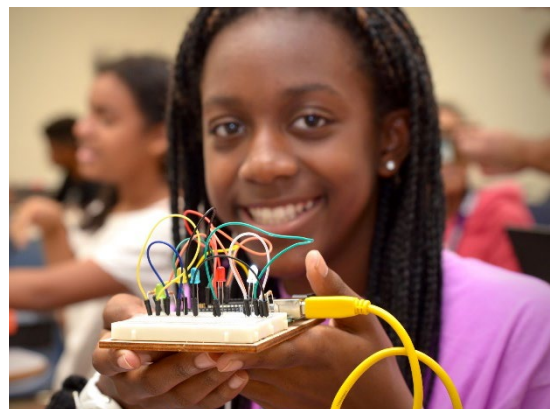
# Rocketry (rising 7th to 12th grade)

This one week camp introduces students to rocketry. During the camp students will build rockets to complete challenges and simulate flight. These activities teach the basics of rocketry, the science behind how they work, and rocketry safety. The students will have a field trip on the last day of camp to a launch site to safely launch their custom designed rockets.



Sample Activities:

- Build a 2 foot rocket to complete a flight altitude challenge.
- Use Rocket Simulation software to model flight.
- Field trip to launch site.

Format: Individual Challenges.

Showcase: Friday field trip to launch site in The Plains, VA from 10am – 2pm. Parents may attend by driving separately.



# Cybersecurity 1 (rising 9th to 12th grade)

This one week course is for high school students that are interested in furthering their knowledge of human security, computer hacking, digital safeguarding of applications, secure communication, and learning more about everyday use mobile devices. The main focus will be on arming the student with safe and secure ways of learning computers, major and minor applications, and understanding of legal consequences.

Sample Activities:



- Perform security self-assessments and an Inventory assets.
- Secure computer and mobile applications safely.
- Develop an understanding of software virtualization.

Format: Individual Challenges with group interactions

Showcase: Friday 3 pm for parents to see what students have learned.

## Cybersecurity Basic & Advanced (rising 9th to 12th grade)

**Requirement:** *Students must bring their own laptop with the minimum specifications: an i5 or comparable AMD processor (NO Macs/Apple based laptops), 6 GB of RAM and 20 GB free hard drive space available.*

**Basic camp:** This one week camp will introduce students to the world of cybersecurity. This camp is designed to provide students with knowledge and hands-on experience in cybersecurity and introduce them to the many career opportunities in the growing field. The camp will increase students' knowledge of networking and computer security including defense strategies, all through tutorials, hands-on activities and will culminate with a mock competition at the end of the week.

**Advanced camp:** This one week camp is a fast paced advanced camp in Cybersecurity. This camp is designed to provide students with knowledge in topics such as defensive and offensive strategies, practices and tools, advanced networking concepts, virtual and cloud security, malware, as well as internet-of-things security.

Distinctions:

- Run by Faculty and Students at Marshall Academy.

Format: Individual

## STEM HS (rising 9th to 12th grade)

This one week course is for high school students that are interested in creating or making using 3D printing, electronics, plastics, laser engraving. Students will learn how to use Adobe Illustrator and Autodesk Inventor to create high tech crafts and projects.

Sample Activities:

- Create a custom shirt.
- Design and print a custom sticker.
- Develop a logo and 3D or engrave it.

Format: Individual projects with group interactions.

Showcase: Friday 3 pm for parents to see what students have learned.