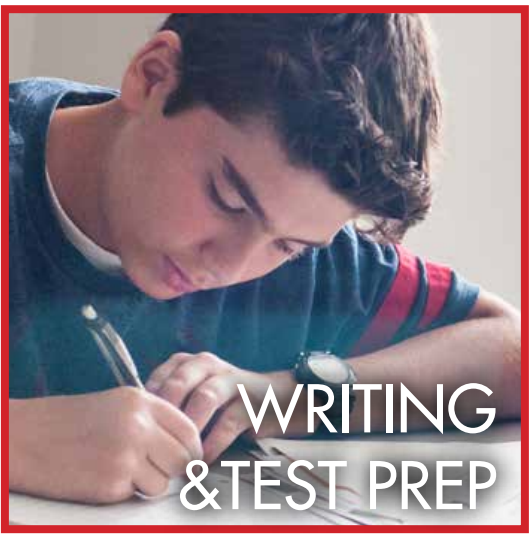
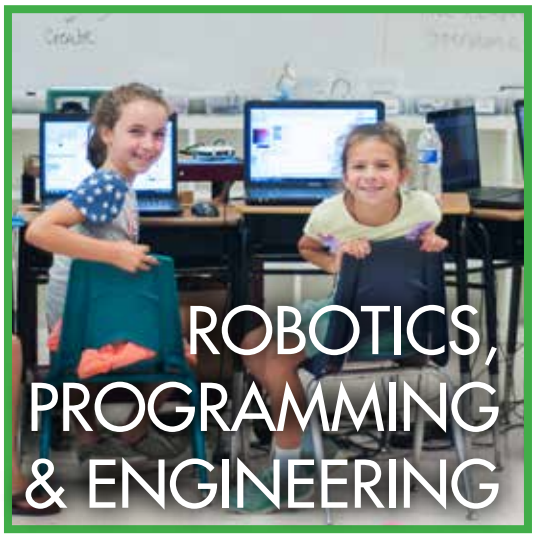
2018 SUMMER

FAIRFAX COLLEGIATE
Have Fun And Learn
1993

FOR RISING GRADES 3-9





10 NO. VA LOCATIONS

FAIRFAX COLLEGIATE SUMMER 2018

This summer your child can have fun *and* learn!

Since 1993, the Fairfax Collegiate Summer Program has provided challenging and engaging courses in writing, reading, math, science, test prep, public speaking, engineering, robotics, programming, Minecraft, art, design, and filmmaking.

Small classes take place in a relaxed and informal atmosphere at our ten locations throughout Northern Virginia. Courses are built around creative activities that are captivating and entertaining, as well as informative.

Summer Program instructors include undergraduate and graduate students at leading universities, as well as area public and private school teachers. They take into account each student's interests and needs, and students are able to get help from an instructor at any time. Breaks include soccer, basketball, and other sports.

Over 4,000 students attended Fairfax Collegiate programs last year. Register today to reserve your child's opportunity for academic and creative growth at Fairfax Collegiate!

ACADEMICS, ARTS, TECHNOLOGY—A NEW UNITY!

Alexandria Campus
Beth El Hebrew Congregation
3830 Seminary Rd.

Annandale Campus
St. Michael Catholic School
7401 St. Michael's Ln.

Ashburn Campus
St. Theresa Catholic School
21370 St. Theresa Ln.

Chantilly Campus
St. Timothy Catholic School
13809 Poplar Tree Rd.

Dulles Campus
St. Veronica Catholic School
3460 Centreville Rd.

Fairfax Campus
Gesher Jewish Day School
4800 Mattie Moore Ct.

McLean Campus
Redeemer Lutheran Church
1545 Chain Bridge Rd.

Reston Campus
Northern Virginia Hebrew Congregation
1441 Wiehle Ave.

Tysons Campus
BASIS Independent McLean
8000 Jones Branch Dr.

Vienna Campus
Green Hedges School
415 Windover Ave.

PROGRAM OVERVIEW

SUMMER SESSION PRICING

Session	Start Date	End Date	Duration	Half Day	Full Day
Session 1	June 18	June 29	10 days	$435	$690
Session 2	July 2	July 13	9 days*	$390	$620
Session 3	July 16	July 27	10 days	$435	$690
Session 4	July 30	August 10	10 days	$435	$690
Session 5	August 13	August 24	10 days	$460	$740

*No class July 4

Early Registration Discount:
Save 5% when you register and pay in full by March 15

Siblings/Multiple Sessions:
Save 5% when you register siblings or for multiple sessions

Program Times

Morning 8:30 a.m. to 12:00 p.m.
Afternoon 12:30 p.m. to 4:00 p.m.
Full Day 8:30 a.m. to 4:00 p.m.

Extended Care Hours

Morning 7:30 a.m. to 8:15 a.m.
Afternoon 4:15 p.m. to 6:00 p.m.

Extended Care Fee

Morning $85 per 10 day session
Afternoon $85 per 10 day session

Office

722 Grant St., Suite J
Herndon, VA 20170
Tel: 703 481-3080
Fax: 703 481-3081

SUMMER PROGRAM REGISTRATION

Plan your child's schedule and register online at *www.FairfaxCollegiate.com*

Grade Levels and Placement

Course grade levels are *rising grade levels*, the grade levels students will enter in the Fall of 2018. Please contact us before enrolling a child in a course designated for older or younger students.

Registration Deadlines

We enroll students until classes are full. Many classes are full by late April. We maintain waiting lists for full classes.

Payment Options

A non-refundable deposit of $100 per session (applied to the total cost of the program) is due at registration. The balance is due May 1, 2018. There is a 5% discount for full payment by March 15.

Registration Changes

Registration changes may be made at no charge if the total number of classes remains the same or increases.

Cancellation Policy

For cancellations before May 1, Fairfax Collegiate will refund program fees less the non-refundable deposit of $100 per session. After May 1, we will provide a credit for program fees paid for use by a family member in a future program.

Emergency Contact Form

There is a one-page *Emergency Contact and Permission Form*. There is no required health form.

Complete Participation Terms

Please visit *www.FairfaxCollegiate.com/summer/participation-terms*.

WRITING AND READING

Writing Fundamentals
Grades 3-4

Students write and revise sentences, paragraphs, and short essays.

This course emphasizes word choice, spelling, sentence structure, paragraph organization, and proofreading.

Instructors provide detailed suggestions for improving spelling and grammar as well as ideas and organization.

Writing & Revising
Grades 3-4

Students write, revise, and discuss personal narratives, essays, short stories, and poems.

Topics include writing organized paragraphs, constructing persuasive written arguments, providing constructive criticism, and revising drafts. Instructors provide detailed written and verbal feedback on student work.

The final project is a class literary anthology.

Story Writing
Grades 3-4

In this creative writing course, students learn to craft their own stories. They practice the writing process and explore components of an effective story. Topics include compelling characters, memorable settings, plot outlines, and point-of-view.

Students workshop their stories in class and receive detailed feedback from instructors. For the final project, students create their own short stories.

Reading Reinforcement
Grades 3-4

This course emphasizes reading as well as writing.

Students read, discuss, and respond to diverse readings including poems, fables, stories, essays, and journalism.

Assignments include summaries, reading comprehension exercises, and interpretations.

Writing Skills & Grammar
Grades 5-6

This writing course focuses on organization, paragraph construction, grammar, spelling, and mechanics.

Topics include brainstorming, outlining, thesis statements, sentence structure, transitions, essay organization, active voice, word choice, and common errors.

Writing for Middle School
Grades 5-6

This course focuses on the five-paragraph essay, the mainstay of writing across the middle school curriculum.

Students learn how to use thesis statements and supporting sentences to structure paragraphs, and how to use paragraphs to structure essays.

The course emphasizes revision based on instructors' detailed corrections and suggestions. Students write and revise daily five-paragraph essays.

The Writing Process
Grades 5-6

Students prewrite, draft, revise, edit, and share fiction, nonfiction, and poetry.

Instructors guide students through each step of the writing process and provide detailed feedback. Students improve their ideas, organization, spelling, and mechanics.

For a final project, students create a class anthology of essays and stories.

Creative Writing
Grades 5-6

Students read, write, and discuss personal narratives, short stories, plays, and poems.

Students revise drafts of their works based on instructors' written comments.

The final project is a class literary anthology. Students may enter their works into writing contests.

Strategic Reading
Grades 5-6

Students learn and apply reading strategies and tools including close reading, looking for cause and effect, note-taking, outlining, paraphrasing, questioning, skimming, summarizing, and synthesizing.

Students write and revise responses to readings from newspapers, essays, biographies, speeches, and short stories.

High School Writing
Grades 7-9

Students practice short-form high school-level writing focusing on five-paragraph essays.

Topics include essay and paragraph structure, persuasive arguments, thesis statements, clean style, mechanics, grammar, diction, and idioms.

Students write and revise daily five-paragraph essays.

Reading for Meaning
Grades 7-9

This is an introduction to critical reading and writing. Genres include short stories, journalistic writing, essays, and poetry.

Classroom exercises develop important literary analytical tools including compare/contrast, cause/effect, and prediction.

Students write a variety of compositions on the results of their analyses and the literary themes expressed in the texts. They also write an original work.

Writers' Workshop
Grades 7-9

This course provides middle school students with intensive practice in writing. Classes are small-group seminars.

Students learn the entire writing process including brainstorming, outlining, composing, editing, and revising.

Writing assignments include short stories, poems, articles, and personal essays.

Elements of Style
Grades 7-9

Students learn how to "make every word tell" by practicing the principles of correct usage and effective English style. Lessons are based on Strunk and White's *The Elements of Style*.

Topics include rules of usage, principles of composition, matters of form, commonly misused expressions, writing for clarity, and key grammatical terms.

Students write daily passages in creative, academic, and persuasive styles, and receive detailed feedback from instructors.

Research Writing
Grades 7-9

Students practice writing high school-level research papers.

Instructors discuss genres of research papers, choosing topics and identifying audiences, locating and evaluating online, print, and primary sources, organizing research papers, and research paper mechanics.

Students write and revise two four-page high school-level research papers based on instructors' corrections and suggestions. Fairfax Collegiate provides computers that students use to research and write papers.

MATHEMATICS

Fairfax Collegiate Math 3-4*
Grades 3-4

Keep your math skills sharp over the summer with Fairfax Collegiate. This course is appropriate for anyone who wants to review or get a head start on the material covered in their regular school year math class.

Fairfax Collegiate Math 3-4 covers topics from Math 3 and Math 4.

Each day's schedule will include small-group instruction, individual practice, one-on-one coaching, enrichment, and math games.

Math Fundamentals*
Grades 3-4

This specialized course is designed to promote a deeper understanding of Math 3 and Math 4 topics in a consistently hands-on learning environment.

Each lesson centers around the use of manipulatives and models to teach new concepts, and scaffolding for students as they transition from these models to familar pen-and-pencil algorithms.

This course is highly recommended for students looking for additional support in keeping up with grade level standards.

Math Games
Grades 3-4

Explore the fun and practical side of math with this game-themed course.

Students learn and play a variety of math-centered board games and puzzles to practice and improve their quantitative and logical reasoning skills. Examples of games include Equate, 24 Game, and Swish.

Recurring themes include number sense, mental math, game theory, and spatial reasoning.

Word Problems*
Grades 3-4

This course is designed for students wishing to practice Math 3 and Math 4 topics in a more challenging environment.

Emphasis is placed on providing students with a wide variety of opportunities to solve word problems. Instructors provide both strategies and individualized coaching to help students suceeed.

Students will receive a combination of instruction, individual practice, enrichment, and math games on each day of class.

Fairfax Collegiate Math 5-6*
Grades 5-6

Keep your math skills sharp over the summer with Fairfax Collegiate. This course is appropriate for anyone who wants to review or get a head start on the material covered in their regular school year math class.

Fairfax Collegiate Math 5-6 covers topics from Math 5 and Math 6.

Each day's schedule will include small-group instruction, individual practice, one-on-one coaching, enrichment, and math games.

Problem Solving*
Grades 5-6

In this course, students' logic and reasoning skills are challenged in new ways that go beyond the difficulty of regular school year Math 5 or Math 6 classes.

Emphasis is placed on providing students with a wide variety of opportunities to solve word problems. Instructors provide both strategies and individualized coaching to help students succeed.

Each day of class, students receive a combination of instruction, individual practice, enrichment, and math games.

*Fairfax Collegiate Core Math Courses

Fairfax Collegiate Core Math Courses help students review or get a head start on material covered in regular school year math courses. Each Core Course features:

1. A diagnostic test to help us plan an individualized course of study for your student
2. A final test that highlights areas of growth and areas for further practice
3. Frequent written updates from the instructor regarding your student's progress
4. Extensive practice materials that students take home at the end of the course

Brain Games
Grades 5-6

Explore the fun and practical side of math with this game-themed course.

Students learn and play a variety of modern board games and card games to challenge and improve their quantitative and critical thinking skills. Examples include Khet, Carcassone, and Splendor.

Recurring themes include resource management, dealing with incomplete information, and testing hypotheses for achieving optimal outcomes.

Cryptography
Grades 5-6

Make and break secret codes using math! Students learn the historical evolution of cryptography in a hands-on exploration of real-world codes, including Caesar ciphers, substitution ciphers, Vigenère ciphers, and RSA encryption.

As a final project, students develop their own cryptosystem. Topics include modular arithmetic, factoring, inverse functions, exponents, and prime numbers.

Fairfax Collegiate Math 7-8*
Grades 6-8

Get ready for the middle school years and reinforce critical math skills with Fairfax Collegiate. This course is appropriate for anyone wanting to review or get an early start on topics from Math 7 or Math 8, including basic principles of algebra and geometry.

Each day's schedule will include small-group instruction, individual practice, one-on-one coaching, enrichment, and math games.

Probability
Grades 5-6

Take a deep dive into a fascinating branch of mathematics that affects our everyday lives.

Students investigate topics such as simple and compound probability, the Law of Large Numbers, and the Fundamental Counting Principle through a variety of projects and hands-on activities.

For a final project, students will design and conduct their own survey or experiment and then present the results.

Intro to Algebra*
Grades 7-9

Prepare for the challenges of high school mathematics with Fairfax Collegiate. This course is a focused workshop for the concepts necessary to succeed in a high school level Algebra I course.

Each day's schedule will include small-group instruction, individual practice, one-on-one coaching, enrichment, and math games.

Intro to Geometry*
Grades 7-9

Prepare for the challenges of high school mathematics with Fairfax Collegiate. This course is a focused workshop for the concepts necessary to succeed in a high school level Geometry course.

Each day's schedule will include small-group instruction, individual practice, one-on-one coaching, enrichment, and math games.

SCIENCE

Chemistry Concepts
Grades 3-4

Students perform experiments to learn about key chemistry concepts: matter, forces, heat, energy, phase changes, acids, bases, and reactions.

Students also learn important chemistry terminology and laboratory methods.

Students work in small groups. Instructors closely supervise students, and experiments are age-appropriate and use only non-hazardous chemicals and supplies.

Spy Science
Grades 3-4

Students learn the secrets of spying, sleuthing, and subterfuge. Hands-on activities help students hone their detective skills by teaching real life techniques used in information collection and undercover work.

Topics include fingerprint and handwriting analysis, chemical analysis, forgery identification, homemade spy gadgets and surveillance tools, encryption, and code breaking. Students conduct spy missions to integrate what they have learned throughout the course.

Hands On Science
Grades 3-4

The course is divided into three units: biology, chemistry, and physics. Each day features two or three different hands-on activities.

Biology activities include plant, bacteria, microscope, and epidemiology labs. Chemistry activities include water labs, chemical reaction labs, and acid and bases labs. Physics activities include force and friction labs, bridge building experiments, and energy and power labs.

Chem Workshop
Grades 5-6

In this hands-on, activity driven class, students explore central chemistry topics including experimental design, the periodic table, atomic structure, chemical bonds and reactions, acids and bases, phase changes, pressure and temperature, and solubility.

Activities include modeling atoms, making casein glue, investigating fluid viscosity, simulating acid rain, refining invisible inks, and exploring chemical reactions.

Human Biology & Anatomy
Grades 5-6

This course is an introduction to human physiology, focusing on four key organ systems: the cardiovascular system, the digestive system, the nervous system, and the skeletomuscular system.

Daily class activities include reading assignments, discussions, hands-on exercises, experiments, working with human skeleton and body anatomy models, and medical simulations. Students create life-sized posters of their organ systems.

Physics
Grades 5-6

This is a broad introduction to physics at a middle school level, including basic kinematics, optics, and electromagnetism.

Topics include force, work, motion, potential energy, kinetic energy, chemical energy, friction, electricity, magnetism, light, wave, and heat transfer.

Activities include constructing motors, batteries, and steam engines, performing experiments in optics and magnetism, and learning about kinematics and force using air tracks, pulleys, dynamics carts, and spring scales.

Forensic Science
Grades 5-6 & Grades 7-9

This is a hands-on introduction to the science and laboratory techniques of law enforcement.

Lab topics include crime scenes, tool marks, chemical analysis, counterfeit documents, dental impressions, fiber identifications, fingerprints, glass fractures, handwriting analysis, forgeries, ink chromatography, shoe prints, forensic anthropology, blood splatter patterns, and DNA electrophoresis.

As a final project, each class attempts to solve a simulated crime using the forensic techniques learned.

Genetics
Grades 7-9

This is a high school-level presentation of genetics for advanced middle school students.

Topics include Mendelian genetics, the cell, DNA, chromosomes, mutations, cancer, bacterial transformation, recombination, viruses, genetic engineering, transcription and translation, evolution, and the human genome.

Activities include readings and discussions, hands-on activities, demonstrations, short research papers, and student presentations.

Animal Physiology
Grades 7-9

Students learn about animal anatomy, physiology, and organ structures across a variety of taxonomies by completing dissections. They learn about major differences in physiology between different phyla and classes and discuss evolutionary adaptation.

Students complete a variety of laboratory dissections of preserved specimens, including owl pellets, annelids, frogs, rats, sheep brains, and dogfish sharks.

Topics include animal taxonomy, skeletal and organ structures, nervous, circulatory, and digestive systems, and convergent and divergent evolution.

Neuroscience
Grades 7-9

Students learn about the nervous system.

Topics include brain structure, motor control, neurons, neurotransmitters, action potentials, signal transduction, potentiation, memory, and neurodegenerative diseases.

Experiments include computer simulations, insect and human motor nerve signal measurement, and brain wave pattern observation and interpretation.

Lasers
Grades 7-9

Students learn about laser safety, properties, theory, and design through demonstrations and experiments.

Experiments cover fiber optics, reflection, refraction, holograms, and lasers as measurement tools. Topics include laser design, laser physics, types of lasers, and laser applications.

Laser projects include measuring refraction indices, navigating laser mazes, experimenting with fiber optics, and building spectroscopes.

This course uses only low-power, "eye-safe" lasers, and students wear safety goggles.

Newtonian Physics
Grades 7-9

This is a high-school level presentation of classical mechanics for students who are comfortable with basic algebra.

Topics include Newton's laws, kinematics, inertia, forces, energy, work, friction, vectors, velocity and acceleration.

Experiments explore distance, velocity, acceleration, and force using air tracks, dynamics carts, ballistic cars, pulleys, and spring scales.

PUBLIC SPEAKING

Persuasive Speaking
Grades 3-4

Students practice developing and delivering skillful, thoughtful, and well-reasoned arguments.

Topics are of direct relevance to students. Students argue both for and against each proposition.

Instructors emphasize mutual courtesy and careful listening.

Public Speaking
Grades 3-4

Students write and deliver short speeches and presentations on topics of their own choosing in a comfortable setting.

Instructors provide detailed individual suggestions for improving both content and delivery.

Students learn how to encourage each other and provide constructive feedback.

Elementary Debate
Grades 5-6

This course introduces elementary students to parliamentary debate.

Debate topics are both challenging and directly relevant to students. The rule structure is less rigid than standard parliamentary debate rules.

Group exercises develop public speaking, critical reasoning, argument construction, rebuttal, and evidence presentation skills.

Speech
Grades 5-6

Students deliver written, extemporaneous, and impromptu speeches.

Instructors critique voice inflection, eye contact, body language, gestures, word choice, visual aids, and tone.

The first week features daily speech exercises. Students research, write, and rehearse individual speeches the second week.

Leadership
Grades 5-6

Students become comfortable taking initiative and advocating and defending courses of action on important issues in public forums.

Instructors help each student select a local or national issue of personal concern and devise a proposal to address the issue. Students then present their solutions and respond to the audience's objections, concerns, and suggestions.

This exercise is repeated the second week with students incorporating their experiences from the first week.

Middle School Debate
Grades 7-9

Students engage in debates which involve a wide variety of issues of public concern at the local, state, national, and global level, as well as topics that are of direct relevance to students.

This course is based on the Middle School Public Debate Program (*http://www.middleschooldebate.com*).

Mock Trial
Grades 7-9

Students take on courthouse roles such as attorneys, witnesses, and jurors in a mock trial presided over by an instructor-judge.

Activities include selecting jurors, delivering opening statements, examining witnesses, presenting evidence, making closing arguments, and deliberating verdicts. Discussions address the role of courts, due process, justice, differences between civil and criminal trials, and standards of proof.

Model U.N.
Grades 7-9

Students act as ambassadors to the U.N. Security Council and work to resolve international disputes. They develop critical thinking, negotiating, public speaking, debating, and writing skills.

Topics include the United Nations, the U.N. Security Council, U.N. rules and procedures, speech-making, negotiating, caucusing, and drafting resolutions.

Improv and Sketches
Grades 7-9

Students learn improv and sketch comedy and build confidence and creativity.

Exercises teach the rules of improv and develop listening, empathy, brainstorming, and communication skills. Students create their own characters and use their improv skills to generate comedy scenes and sketches. The final class features a performance for parents and family.

TEST PREP

T.J. Exam Prep
Grades 7-8

Middle school students prepare for the **new** Thomas Jefferson High School Admissions Exam announced on March 17, 2017.

This course covers the ACT Aspire reading and science sections, the Quant Q math test, and the T.J. SIS Essay.

Review materials include Fairfax Collegiate's completely revised T.J. Exam Prep manual and *The Official ACT Prep Guide*.

Each student receives an evaluation detailing areas for improvement.

Intro to Test Prep
Grades 5-6

This course provides a fun and engaging survey of the skills, tactics, and strategies relevant to excelling on standardized tests that students will encounter in middle school, high school, and beyond.

Exercises and games build vocabularies, math skils, reading comprehension, test-taking speed, and strategic sense.

The key goal for the course is to inspire students to read ambitously outside the regular academic curriculum, which is the most effective way to build the higher-level skills that standardized tests attempt to measure.

T.J. SIS Essay Prep
Grades 7-8

Students prepare for the Student Information Sheet (SIS) portion of the admissions process for Thomas Jefferson High School for Science and Technology (TJHSST).

Students write daily timed essays. Instructors provide detailed suggestions for improvement of grammar, mechanics, organization, and ideas.

Topics include exam essay strategies, essay organization, essay scoring, essay planning, essay prompts, topic sentences, supporting arguments, and grammar. The course also explores the TJHSST admissions process from the student and school perspectives.

Loudoun AOS Prep
Grades 7-9

Students learn about the Loudoun Academy of Science (AOS) and the AOS admissions process.

Students prepare for the PSAT, the standardized test required for AOS admission. They also prepare for the AOS timed writing sample.

This course uses *Strategies and Practice for the NEW PSAT/NMSQT* and covers all three sections of the PSAT. Students practice on actual PSAT exams under timed conditions.

PSAT/SAT Prep
Grades 7-9

Students prepare for the math, reading, and writing sections of the PSAT and SAT. The course text is *The Official SAT Study Guide*.

The math review includes numbers and operations, algebra and functions, geometry and measurement, data analysis, statistics, and probability. The reading review emphasizes vocabulary, sentence completion, and reading comprehension questions.

Students complete one actual PSAT and three actual SAT exams under timed conditions. They become familiar with question formats, test scoring, and time-management strategies.

ACT Prep
Grades 7-9

Students prepare for the English, mathematics, reading, science, and writing sections of the ACT exam. The course text is *The Official ACT Prep Guide*.

Students complete three actual ACT tests under timed conditions and become familiar with ACT question formats, test scoring, and time-management strategies.

Individual evaluations identify areas for improvement and provide suggestions for long-term ACT Test prepation.

ENGINEERING

Intro to Engineering
Grades 3-4

Hands-on activities focus on the six classical simple machines: lever, wheel and axle, pulley, ramp, wedge, and screw.

Students also investigate the branches of engineering, practice the engineering design process, and learn about force, motion, and energy.

Space Exploration
Grades 3-4

Students explore space suits, rocketry, the phases of the moon, telescopes, rovers, and zero-gravity equipment. They build model spacecraft, including water pressure-powered rockets.

Other activities include planning and simulating space missions, inventing constellations, and using planetarium software to explore the night sky and to locate stars and planets.

Intro to Raspberry Pi
Grades 3-4

The Raspberry Pi is a tiny, cheap, powerful, and flexible computer system that allows students to explore the basics of computer hardware and programming.

Students use Raspberry Pi computers and attached devices to create digital music, capture pictures and videos, and write simple Python programs and Minecraft scripts.

Intro to Arduino
Grades 5-6

Students explore Arduino, an open-source electronics platform known for its simplicity and ease of use.

Projects include a digital lockbox, an audio visualizer, and a digital multimeter.

Siege Engines
Grades 5-6

Students construct and operate classroom-safe miniature catapults, ballistae, onagers, trebuchets, and other ancient artillery engines. They learn the application of geometry and physics in their designs. For a final project, students participate in launch-distance competitions.

Engineering topics include simple machines, tension, torque, two-dimensional kinematics, and the design process.

Civil Engineering
Grades 5-6

Students build models of bridges, skyscrapers, roller coasters, and other structures, some using K'NEX model kits. For the final project, students design and build their own buildings.

Topics include Newton's laws, energy, force, and motion physics. Activities include weight capacity competitions, roller coaster loop design, and other engineering challenges.

Intro to Virtual Reality
Grades 5-6

Students learn how virtual reality (VR) tech works, and then try a wide variety of software, apps, and games that are both fun and educational. Fairfax Collegiate provides all the equipment for students to work in pairs.

Examples of VR activities include visiting modern and ancient landmarks, traveling though space, navigating harsh environments such as the ocean floor and the inside of a human cell, painting and creating music, and playing a 3D version of Minecraft. Apps are sourced from the Oculus platform.

Raspberry Pi Projects
Grades 5-6

Students explore the basics of computer engineering and programming by configuring, customizing, and using Raspberry Pi computer systems in the context of electronics and programming challenges.

Projects include building a video game controller, creating a security camera, plotting a virtual city map, programming a "flying birds" game, and installing and using a Linux distribution.

Prototyping and 3D Printing
Grades 5-6

Students use 3D printers, scanners, and software to plan, design, fabricate, assemble, and refine solutions to fun problems and challenges.

Students undertake design challenges and interatively plan, build, and test solutions to various problems. For the final project, students work in groups to create a prototype for a device of their own design.

Inventing and 3D Printing
Grades 7-9

Students learn to design and test their own inventions using 3D printing. During the course, students operate 3D printers, print objects, develop solutions to design challenges, and iterate their designs to optimize performance.

Students also learn to use computer assisted design software tools to create their invention blueprints. Students also use a 3D scanner to generate computer models from physical models. For the final project, they create prototypes of their inventions to take home.

Virtual Reality
Grades 7-9

In this course, students are both users and creators of virtual reality (VR) technology. Fairfax Collegiate provides the equipment for students to work in pairs.

In the first week, students use VR to visit modern and ancient landmarks, travel through space, navigate harsh environments such as the ocean floor and the inside of a human cell, and explore various types of VR games.

In the second week, students use the Unity software development platform to program and then play their own 3D games. Prior experience with computer programming is not required.

Arduino Engineering
Grades 7-9

Middle school students explore electronics, computers, and programming by building projects with Arduino.

Projects include LED Dice, a binary counter, a Morse code translator, a lie detector, and a motion-sensing alarm.

Consistent with the Arduino philosophy of learning by tinkering and rapid prototyping, students also develop their own projects by interfacing "electronic junk" to Arduino circuit boards.

Raspberry Pi Engineering
Grades 7-9

Students use Raspberry Pi computers to build embedded computing projects and explore computer hardware. This course combines computer engineering, electronics, and programming,

Students build projects such as video game controllers, security cameras, and GPS trackers, and learn about input, output, processing, basic Python programming, and storage.

Biomedical Engineering
Grades 7-9

Students apply engineering principles to physiology and medicine, developing understanding through classroom demonstrations, discussions, and experiments. They also propose and prototype medical equipment, prostheses, and artificial organs using 3D printers, computer simulations, and traditional modeling materials.

Projects introduce basic concepts of biochemistry, cell physiology, cell cycles, cell division, DNA structure and synthesis, protein synthesis and gene expression, tissue structure, human anatomy, and genetic engineering.

ROBOTICS

Intro to Robotics
Grades 3-4

Platform: LEGO Mindstorms NXT.

This course's theme is a gentle introduciton to building robots, with a wide variety of projects.

Example projects include trash removal, a robotic arm, and navigating a maze. The spotlight skill for the course is using sensors to change what the robot does.

Construction Robots
Grades 3-4

Platform: LEGO Mindstorms NXT.

This course's theme is the integration of robotics, architecture, and construction machinery.

Example projects include a hammer car, a forklift robot, and a crane. The spotlight skills for the course are building for stability, and using physics for your advantage.

Robots in Space
Grades 3-4

Platform: LEGO Mindstorms NXT.

This course's theme is the use of robots in space travel, navigation, and exploration.

Example projects include a Mars rover, a space shuttle, a lunar walker, and asteroid mining. The spotlight skill for the course is programming robots to address specific project requirements.

Robotics Zoo
Grades 3-4

Platform: LEGO Mindstorms NXT.

This course's theme is the integration of robotics and biology: students study the characteristics of animals and then build robotic analogues.

Example projects include a study of the spider, the frog, the elephant, and the stegosaurus. The spotlight skill for the course is building and modifying unusual designs.

Mobile Robotics
Grades 5-6

Platform: LEGO Mindstorms EV3.

This course's theme is learning about a wide variety of sensors and incorporating sensors into robot designs.

Example projects include following a line, detecting walls, and remote control navigation. The spotlight skill for the course is using sensor data to change what the robot does.

Robotics Engineering
Grades 5-6

Platform: LEGO Mindstorms EV3.

This course's theme is integrating the engineering process, project management, problem solving, and teamwork.

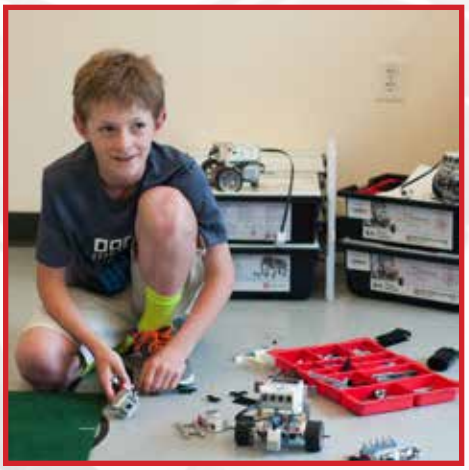
Example projects include top spinning, mini golf, and hill climbing. The spotlight skills for this course are keeping a design journal, and revising designs through trial and error.

Robotics Olympiad
Grades 5-6

Platform: LEGO Mindstrorms EV3.

This course's theme is an introduction to competitive challenges in which robots face off against other robots.

Example projects include soccer, go kart racing, and obstacle courses. The spotlight skill for the course is optimizing robot designs to gain an advantage.



Destruction Robots
Grades 5-6

Platform: LEGO Mindstorms EV3.

This course's theme is using robots to break and destroy things ranging from single objects to larger environments.

Projects include a wrecking ball, a robotic balloon popper, and a battering ram. The spotlight skills for the course are building for stability, and using physics to your advantage.

Intro to VEX IQ Robotics
Grades 5-6

Platform: VEX IQ.

This course's theme is a comprehensive overview of the capabilities of the VEX IQ platform.

Example projects include an autopilot robot, a claw robot, and robot soccer. The spotlight skill for the course is using classical engineering components such as pulleys and levers in robotics in combination with sensor data.

Robotics Combat
Grades 7-9

Platform: LEGO Mindstorms EV3.

This course's theme is building and customizing robots to compete in daily head-to-head battles.

Example projects include jousting, a grenade drop battle, and sumo wrestling. The spotlight skill for the course is optimizing robot designs to gain an advantage.

Competitive Robotics
Grades 7-9

Platform: LEGO Mindstorms EV3.

This course's theme is an assortment of competitive events that include both individual and head-to-head contests.

Example projects include drag racing, rock paper scissors, and a reaction time game. The spotlight skill for the course is revising designs through trial and error.

Robotic Vehicles
Grades 7-9

Platform: LEGO Mindstorms EV3.

This course's theme is exploring different methods of mobility, including the use of wheels, treads, and tripodal designs.

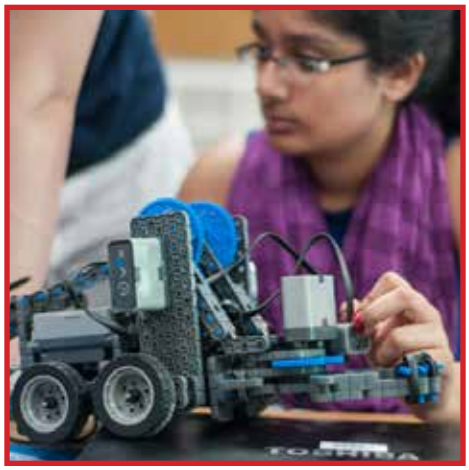
Example projects include the use of gear ratios, "supercar" racing, and a sentinel robot. The spotlight skill for the course is analyzing complex robot designs.

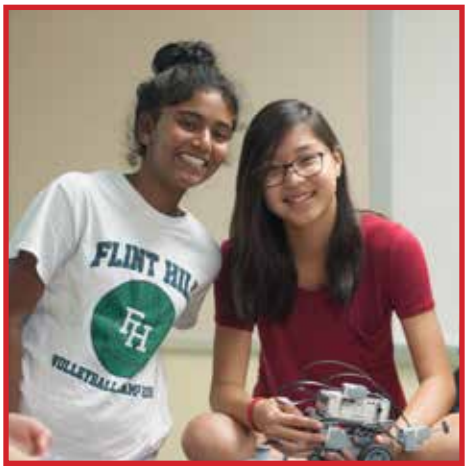
VEX IQ Robotics
Grades 7-9

Platform: VEX IQ.

This course's theme is the investigation of competitive challenges with multiple objectives and requirements.

Example projects include stacking cubes, and collecting and sorting objects by color. The spotlight skill for the course is proposing, building, iterating on, and comparing multiple solutions to a problem.





PROGRAMMING

Scratch Programming
Grades 3-4

Students have fun and develop enthusiam for programming by experimenting with Scratch, a popular graphical programming tool for children.

Scratch programs are composed of graphical blocks which specify program logic and control graphics, photos, and sounds.

Projects include creating a variety of interactive stories, games, and animations.

Small Basic Games
Grades 3-4

This is a fun introduction to text-based coding using Small Basic, a simple version of the BASIC programming language designed for kids.

Topics include the Small Basic editor, the sixteen Small Basic keywords, variables, if/then statements, print statements, and turtle graphics. The course also includes instruction in touch typing.

Students experiment with a variety of example programs and games written in Small Basic.

GameMaker: Studio
Grades 5-6

Students have fun and learn programming by creating games using GameMaker: Studio, a powerful graphical programming tool.

The course covers GameMaker programming using both the drag-and-drop interface and the GML scripting language.

Projects include modifying and creating a variety of games.

BlitzPlus Games
Grades 5-6

Students develop programming skills by coding games in BlitzPlus, a version of the BASIC programming language for writing games.

The course assumes no prior experience with coding. Students learn about print statements, variables, and control structures before tackling more advanced topics including simple 2D graphics.

For the final project, students write their own simple games.

Intro to Python
Grades 5-6

Students get started with programming by learning Python, today's leading language for computer science instruction.

The course provides a comprehesive introduction to the key features of Python at a measured pace which is comfortable for a broad range of students.

For the final project, students write their own Python games.

Browser Games
Grades 5-6

Students learn JavaScript by writing games that run in web browsers such as Google Chrome.

Students discuss examples of browser grames, sketch designs for the games they wish to create, use HTML and CSS to create the user interfaces for their games, and learn how to select and modify HTML elements using Javascript.

Mobile Games
Grades 5-6

Students explore programming tablets and smartphones by writing games using App Inventor, an easy-to-learn graphical programming tool.

Projects include reaction, memory, and painting games. Fairfax Collegiate provides Android tablets for students' use.

Game Programming
Grades 7-9

Students learn programming by coding games in BlitzPlus, a simple but powerful game programming language.

The first week is an introduction to programming. Topics include variables, control structures, loops, functions, arrays, types, and graphics.

The second week students design and write their own simple games.

C# Game Programming
Grades 7-9

Student write their own games using Visual Studio Code and the C# language, the free versions of the leading tools for Windows and .NET programming.

The first week is a systematic introduction to C# programming and covers control structures, variables, functions, types, generics, and console I/O.

The second week students write their own games using C# and the built-in Windows 2D graphics library.

App Inventor
Grades 7-9

Students write a variety of mobile apps using App Inventor, a graphical tool for programming smartphones and tablets.

Projects explore key features of modern mobile devices including touchscreen input, high resolution displays, accelerometers, location services, Bluetooth, barcode scanning, and digital photography and video.

Fairfax Collegiate provides Android tablets for students' use.

JavaScript Programming
Grades 7-9

Students learn JavaScript, the programming language that runs in web browsers and powers modern web apps.

The course begins with an introduction to programming and JavaScript. Students learn about variables, math operators, if/then statements, loops, functions, and arrays. Next, students learn how to interact with web pages using JavaScript and how to use the development tools packaged in leading web browsers.

The second week students use JavaScript to create their own web apps and browser-based games.

Python Programming
Grades 7-9

Students learn the Python programming language and prepare for high school Python-based courses.

Topics include Python language syntax, the fundamental data structures, organizing Python programs using functions, classes, and modules, and reading and writing text files.

Projects include text-based utilities and games.

Small Java
Grades 7-9

This course prepares students for Java language-based high school computer science courses.

The course combines classroom instruction and practice projects. Students explore fundamental data structures including strings, arrays, lists, and maps. They also learn about Java classes and object-oriented programming.

Algorithms
Grades 7-9

This is a quick tour of classic computer algorithms, a central topic of high-school computer science courses.

Topics include sorting, elementary data structures, searching, and simple graph algorithms. Examples and projects use the Python programming language.

ART AND DESIGN

Digital Design
Grades 3-4

Students explore universal design principles by creating digital art in a variety of media.

Design topics include composition, exposure, colors, contrast, and vector and raster images.

Activities include digital photography, image editing, digital illustration, digital music creation, and game design exercises.

For a final project, students customize Minecraft, a popular computer game, with their own original digital art.

Illustrated Stories
Grades 3-4

Students read, write, and draw accompanying artwork for illustrated stories in different genres.

Students practice writing complete sentences, paragraphs, and stories. Genres include comic strips, graphic novels, manga, children's picture books, and storyboards.

For a final project, students write and illustrate a story in the genre of their choice.

Graphic Design
Grades 5-6

Students learn how to execute sophisticated single-page design projects using universal design principles, layout pads, and Adobe Photoshop Elements.

Design topics include space, grouping, alignment, emphasis, grids, color theory, typography, and digital images.

Projects include store signs, menus, banners, posters, and advertisements.

Architectural Design
Grades 5-6

Students learn about architecture and about Google SketchUp, a free digital drafting software package.

Architecture topics include the history of residential architecture, international housing styles, and form and function in residential design.

Students practice 2D drafting and 3D modeling. As a final project, each student creates and presents his or her "dream house" using Google SketchUp.

HTML Web Design
Grades 5-6

Students learn HTML and create their own web pages.

Topics include the structure of a web page, HTML tags, HTML attributes, hyperlinks, CSS styles, and HTML elements and attributes.

Students use digital cameras, Paint.NET, and GIMP to create images for the web.

As a final project, each student creates and publishes a small website.

Alice: Creating 3D Worlds
Grades 5-6

Alice (*http://www.alice.org*) is an object-oriented, 3D programming environment developed at Carnegie Mellon University. This is an introduction to Alice and emphasizes creativity and technology.

Students use Alice to build 3D storybook worlds and to control advanced interactions and animations of 3D models, using basic conditional programming.

Topics include objects, events, logic, control structures, and orienting and moving 3D images.

Drawing
Grades 5-6 & Grades 7-9

This is a course for beginners and teaches drawing as a foundation for all forms of visual expression.

Topics include sketches, shapes, angles, perspective, horizon, vanishing points, reflections, contrast, shadows, light effects, and composition.

Exercises include still life drawings, portraits, landscapes, and cartoons.

Materials are provided and include specialized pencils, sketch pads, drawing boards, and drawing tools.

Photography
Grades 7-9

Students learn digital SLR photography starting with basic camera operation.

Subjects include plants and flowers, food, portraits, products, sports and action, and architecture.

Exercises emphasize exposure, composition, color, and lighting. Students achieve artistic effects by manually controlling the components of exposure: aperture, shutter speed, and ISO.

Fairfax Collegiate provides Canon EOS DSLR cameras for students to use.

Fashion Design
Grades 7-9

Students design their own clothing and accessories using both traditional and digital techniques.

The first week, students learn basic principles of hand-drawn fashion design, including drawing strokes, color balance, texture, croquis, garment and accessory categorization, poses, and historical trends. They use light boxes and art supplies to create designs using both hand-drawn figures and premade templates.

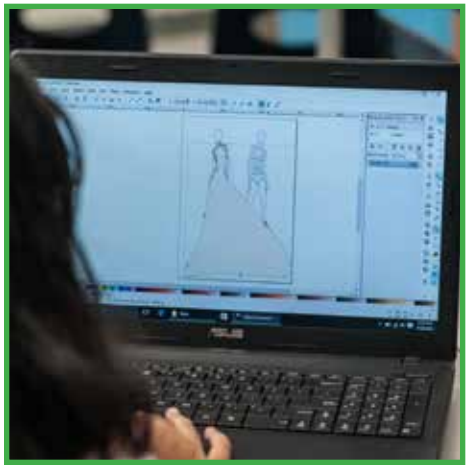
The second week, students apply these concepts and skills using the vector-drawing program InkScape. They use layers, colors, shapes, and shading to create a virtual fashion line. As a final project, students assemble their designs into a portfolio.

HTML, CSS, and Javascript
Grades 7-9

Students learn basic web design principles and write and style web pages using HTML and CSS.

Design topics include colors, alignment, contrast, fonts, images, white space, navigation, and usability.

Students learn to import and embed CSS and media files. They experiment with new HTML5 features, and author pages using open source tools: Notepad++ and GIMP. For a final project, each student creates and publishes a small website.



MINECRAFT AND GAMING

Minecraft Exploration
Grades 3-4

Turn Minecraft into an educational experience this summer! This course guides beginners and skilled players alike through a diverse range of experiences that challenge them to experiment, think, and work cooperatively to tackle a wide variety of scenarios with their classmates.

Students learn how to install and run Minecraft mods, set up and join a curated private server, customize graphics and gameplay, compose digital music, learn engineering and programming concepts through the use of redstone circuits and the ComputerCraft mod, and much more.

Minecraft Modding
Grades 3-4

Using programming and design utilities, students create mods for the immensely popular computer game Minecraft. Students use MCreator to design, build, and test their own custom mods.

Topics include using mods to create new blocks, items, creatures, environments, achievements, triggers, and events. As a final project, students design and code their own fully functional Minecraft mods, and export them to use at home with Minecraft Forge.

Minecraft and Python
Grades 5-6

Students use their experiences with the computer game Minecraft as a gateway to learn the fundamentals of the Python programming langauge.

Students write Python scripts using variables, types, conditional statements, loops, collections, and algorithms to build massive structures and cities inside of Minecraft.

In the second week, students learn to use game programming concepts to build customized Minecraft minigames.

Minecraft RPG Design
Grades 5-6

In this course, students unleash their creativity to build a complete Minecraft role-playing game world from scratch. Instruction focuses on immersive world design and storytelling as well as the required technical skills.

Using MCreator and other tools for support, projects include components such as custom NPCs, dialog trees, quests, new tools and items, and custom skins and models for characters and enemies.

Students take their projects home for use with Minecraft Forge.

Chess
Grades 5-6

Students learn chess rules, tactics, and strategy.

Topics include traps, common openings, aggressive and defensive play styles, spatial control of the board, piece development, pawn structure, and profitable piece exchange.

This course is appropriate for both novice and experienced players, with students grouped based on experience and skill. Daily activities include instruction and discussion, chess puzzles, and student matches.

Game Design and Modding
Grades 5-6

Students "mod" (customize) commercial video games with their own graphics, sounds, unit definitions, maps, and scripts.

The first week students mod the strategy game Civilization IV by inventing new units and technologies, and by altering combat rules and map generation logic.

The second week, students create modules for the 3D physics sandbox Garry's Mod, designing objects, levels, environments, obstacle courses, and minigames.

Minecraft Mods with Java
Grades 7-9

Using programming and design utilities, students create modifications to the computer game Minecraft.

Students learn basic Java programming in the context of designing, implementing, and customizing mods. No previous coding experience is required.

Topics include using mods to create new blocks, items, creatures, environments, achievements, triggers, and events. As a final project, students design and code their own fully functional Minecraft mods, and export them to use at home with Minecraft Forge.

FILMMAKING

Intro to Filmmaking
Grades 3-4

Students learn about filmmaking and, as a class, create two short films, one each week.

Each week begins with the class brainstorming ideas for a short film, writing an original script, and creating a shot list and storyboard.

Next the students shoot their film using tripods, advanced video cameras, boom microphones, costumes, and props.

Finally, as a class, students edit their film, add music and credits, and export the film to a private Vimeo acount for home viewing.

Filmmaking
Grades 5-6

Students learn how to plan, write, shoot, and edit digital video short films. Classes generally complete two films, one each week.

With the guidance of instructors, students brainstorm ideas for short films, write original scripts, and create shot lists and storyboards.

Students shoot their films using tripods, advanced video cameras, boom microphones, costumes, and props.

Students edit their films, add music and credits, complete post-production, and export their films to a private Vimeo account for home viewing.

Stop-Motion Animation
Grades 5-6

Students use still cameras, audio recorders, and video editing software to create stop-motion animation films. These can be narrative (scripted) or experimental videos created from LEGO blocks, modeling clay, action figures, and other "found objects".

This introductory course covers the basics of using household objects and miniature construction to create a compelling story. The course provides an overview of photography, sound recording, and video editing as part of the filmmaking process.

Video Production
Grades 7-9

Students plan, write, shoot, and edit their own films on digital video.

The course begins with exercises covering acting, script writing, storyboarding, shot listing, location scouting, camera operation, lighting, and sound.

The majority of the course is devoted to group production of two short films using tripods, advanced video cameras, boom microphones, costumes, props, and (optionally) lighting kits.

Students edit their films and export them to a private Vimeo account.

Web Video
Grades 7-9

Students plan, write, edit, and share a variety of genres of web video including parodies, advertorials, product reviews, vlogs, and tutorials.

Production concepts include location scouting, interviewing, B-roll footage, green screen effects, adding pictures and screenshots, and multicam setups.

Production equipment includes DSLR cameras, simple lighting kits and on-camera lights, audio recorders, and stick, shotgun, and lavaliere microphones. Students use Adobe Premiere Elements to edit and optionally upload videos to personal Vimeo, YouTube, Facebook, and Twitter accounts.

ALEXANDRIA AND ANNANDALE SCHEDULES

Alexandria[D‡]: Beth El Hebrew Congregation, 3830 Seminary Rd., Alexandria, VA 22304

Session II: Jul 2-Jul 13

Morning
Writing and Revising 3-4
Spy Science 3-4
Probability 5-6
Elementary Debate 5-6
Siege Engines 5-6
High School Writing 7-9
VEX IQ Robotics 7-9
Small Java 7-9
T.J. Exam Prep 7-8

Afternoon
Fairfax Collegiate Math 3-4
Robotics Zoo 3-4
Creative Writing 5-6
Intro to VEX IQ Robotics 5-6
Minecraft RPG Design 5-6
Fairfax Collegiate Math 7-8
T.J. SIS Essay Prep 7-8
Middle School Debate 7-9
Raspberry Pi Engineering 7-9

Session III: Jul 16-Jul 27

Morning
Writing Fundamentals 3-4
Intro to Raspberry Pi 3-4
Writing Skills and Grammar 5-6
Forensic Science 5-6
Civil Engineering 5-6
Intro to Algebra 7-9
Model U.N. 7-9
Game Programming 7-9
Photography 7-9

Afternoon
Digital Design 3-4
Intro to Filmmaking 3-4
Fairfax Collegiate Math 5-6
Speech 5-6
Alice: Creating 3D Worlds 5-6
ACT Test Prep 7-9
Minecraft Mods with Java 7-9
Reading for Meaning 7-9
Forensic Science 7-9

Session IV: Jul 30-Aug 10

Morning
Reading Reinforcement 3-4
Robots in Space 3-4
Brain Games 5-6
Robotics Engineering 5-6
Raspberry Pi Projects 5-6
High School Writing 7-9
Lasers 7-9
HTML, CSS, and JavaScript 7-9
Video Production 7-9

Afternoon
Math Fundamentals 3-4
Chemistry Concepts 3-4
Strategic Reading 5-6
Browser Games 5-6
Filmmaking 5-6
Intro to Geometry 7-9
Competitive Robotics 7-9
Python Programming 7-9
T.J. Exam Prep 7-8

Session V: Aug 13-Aug 24

Morning
Fairfax Collegiate Math 3-4
Robotics Zoo 3-4
Intro to Virtual Reality 5-6
Writing Skills and Grammar 5-6
GameMaker: Studio 5-6
Intro to Algebra 7-9
Middle School Debate 7-9
Robotics Combat 7-9
Arduino Engineering 7-9

Afternoon
Story Writing 3-4
Minecraft Exploration 3-4
Fairfax Collegiate Math 5-6
Mobile Robotics 5-6
Minecraft and Python 5-6
Virtual Reality 7-9
Writers' Workshop 7-9
PSAT/SAT Prep 7-9
Web Video 7-9

Annandale: St. Michael Catholic School, 7401 St. Michael School, Annandale, VA 22003

Session I: Jun 18-Jun 29

Morning
Chemistry Concepts 3-4
Digital Design 3-4
Brain Games 5-6
Robotics Olympiad 5-6
Minecraft RPG Design 5-6
High School Writing 7-9
Mock Trial 7-9
Game Programming 7-9
Genetics 7-9

Afternoon
Math Games 3-4
Construction Robots 3-4
Creative Writing 5-6
Elementary Debate 5-6
Human Biology & Anatomy 5-6
ACT Test Prep 7-9
Intro to Algebra 7-9
Raspberry Pi Engineering 7-9
Role-Playing Game Design 7-9

Session II: Jul 2-Jul 13

Morning
Word Problems 3-4
Minecraft Exploration 3-4
Writing for Middle School 5-6
Intro to Python 5-6
Filmmaking 5-6
Intro to Geometry 7-9
Robotics Combat 7-9
PSAT/SAT Prep 7-9
Fashion Design 7-9

Afternoon
Writing Fundamentals 3-4
Intro to Engineering 3-4
Fairfax Collegiate Math 5-6
Mobile Robotics 5-6
HTML Web Design 5-6
Research Writing 7-9
Python Programming 7-9
Animal Physiology 7-9
Video Production 7-9

Session III: Jul 16-Jul 27

Morning
Story Writing 3-4
Scratch Programming 3-4
GameMaker: Studio 5-6
Drawing 5-6
Prototyping and 3D Printing 5-6
High School Writing 7-9
Robotic Vehicles 7-9
HTML, CSS, and JavaScript 7-9
Web Video 7-9

Afternoon
Fairfax Collegiate Math 3-4
Intro to Robotics 3-4
Strategic Reading 5-6
Filmmaking 5-6
Minecraft and Python 5-6
Fairfax Collegiate Math 7-8
Algorithms 7-9
Drawing 7-9
Inventing and 3D Printing 7-9

Session IV: Jul 30-Aug 10

Morning
Persuasive Speaking 3-4
Minecraft Modding 3-4
Writing Skills and Grammar 5-6
Intro to VEX IQ Robotics 5-6
Forensic Science 5-6
C# Game Programming 7-9
T.J. SIS Essay Prep 7-8
Intro to Algebra 7-9
Middle School Debate 7-9

Afternoon
Writing Fundamentals 3-4
Spy Science 3-4
Fairfax Collegiate Math 5-6
Elementary Debate 5-6
Graphic Design 5-6
Writers' Workshop 7-9
VEX IQ Robotics 7-9
Forensic Science 7-9
T.J. Exam Prep 7-8

[D]Dietary Restrictions at this facility. Please do not bring meat or shell fish. Lunches may include dairy products and tuna fish. Questions? Please call 703 481-3080.
[‡]Indoor break location. The supervised twenty-minute morning and afternoon breaks are indoors at these facilities.

MCLEAN AND TYSONS SCHEDULES

McLean: Redeemer Lutheran Church, 1545 Chain Bridge Rd., McLean, VA 22101

Session I: Jun 18-Jun 29

Morning

Leadership 5-6
Fairfax Collegiate Math 5-6
Intro to VEX IQ Robotics 5-6
Browser Games 5-6
Drawing 7-9
Writers' Workshop 7-9
Neuroscience 7-9
Arduino Engineering 7-9

Afternoon

The Writing Process 5-6
Alice: Creating 3D Worlds 5-6
Drawing 5-6
Civil Engineering 5-6
Algorithms 7-9
Reading for Meaning 7-9
Middle School Debate 7-9
VEX IQ Robotics 7-9

Session II: Jul 2-Jul 13

Morning

Intro to Virtual Reality 5-6
Brain Games 5-6
Elementary Debate 5-6
Minecraft and Python 5-6
Elements of Style 7-9
Robotic Vehicles 7-9
Game Programming 7-9
Forensic Science 7-9

Afternoon

Writing Skills and Grammar 5-6
Robotics Engineering 5-6
Forensic Science 5-6
Filmmaking 5-6
Virtual Reality 7-9
Intro to Geometry 7-9
T.J. Exam Prep 7-8
HTML, CSS, and JavaScript 7-9

Session III: Jul 16-Jul 27

Morning

Intro to Test Prep 5-6
Game Design and Modding 5-6
Strategic Reading 5-6
Siege Engines 5-6
Fairfax Collegiate Math 7-8
Middle School Debate 7-9
Small Java 7-9
Lasers 7-9

Afternoon

Fairfax Collegiate Math 5-6
Mobile Robotics 5-6
HTML Web Design 5-6
Stop-Motion Animation 5-6
High School Writing 7-9
PSAT/SAT Prep 7-9
Arduino Engineering 7-9
Role-Playing Game Design 7-9

Session IV: Jul 30-Aug 10

Morning

Chem Workshop 5-6
Cryptography 5-6
Architectural Design 5-6
Prototyping and 3D Printing 5-6
Algorithms 7-9
Reading for Meaning 7-9
Robotics Combat 7-9
Photography 7-9

Afternoon

Destruction Robots 5-6
Intro to Python 5-6
Writing Skills and Grammar 5-6
Speech 5-6
ACT Test Prep 7-9
Writers' Workshop 7-9
Animal Physiology 7-9
Inventing and 3D Printing 7-9

Session V: Aug 13-Aug 24

Morning

Creative Writing 5-6
Elementary Debate 5-6
Robotics Olympiad 5-6
Raspberry Pi Projects 5-6
T.J. SIS Essay Prep 7-8
Intro to Geometry 7-9
Video Production 7-9
Inventing and 3D Printing 7-9

Afternoon

Problem Solving 5-6
Mobile Games 5-6
Forensic Science 5-6
Fairfax Collegiate Math 7-8
High School Writing 7-9
Model U.N. 7-9
T.J. Exam Prep 7-8
Biomedical Engineering 7-9

Tysons: BASIS Independent McLean, 8000 Jones Branch Dr., Mclean, VA 22102

Session I: Jun 18-Jun 29

Morning

Intro to Filmmaking 3-4
Intro to Engineering 3-4
Destruction Robots 5-6
Prototyping and 3D Printing 5-6
Fairfax Collegiate Math 7-8
T.J. SIS Essay Prep 7-8
Model U.N. 7-9
Python Programming 7-9
Newtonian Physics 7-9

Afternoon

Reading Reinforcement 3-4
Robotics Zoo 3-4
Elementary Debate 5-6
Raspberry Pi Projects 5-6
Minecraft and Python 5-6
Intro to Algebra 7-9
T.J. Exam Prep 7-8
Web Video 7-9
Inventing and 3D Printing 7-9

Session II: Jul 2-Jul 13

Morning

Writing Fundamentals 3-4
Minecraft Modding 3-4
Problem Solving 5-6
Mobile Games 5-6
Human Biology & Anatomy 5-6
Filmmaking 5-6
Intro to Algebra 7-9
Genetics 7-9
Inventing and 3D Printing 7-9

Afternoon

Hands-On Science 3-4
Digital Design 3-4
Chem Workshop 5-6
Robotics Olympiad 5-6
Fairfax Collegiate Math 7-8
ACT Test Prep 7-9
Mock Trial 7-9
JavaScript 7-9
Biomedical Engineering 7-9

Session III: Jul 16-Jul 27

Morning

Word Problems 3-4
Robots in Space 3-4
Elementary Debate 5-6
Robotics Engineering 5-6
Civil Engineering 5-6
T.J. SIS Essay Prep 7-8
Intro to Algebra 7-9
App Inventor 7-9
Video Production 7-9

Afternoon

Reading Reinforcement 3-4
Chemistry Concepts 3-4
Brain Games 5-6
GameMaker: Studio 5-6
Architectural Design 5-6
Intro to Geometry 7-9
Robotics Combat 7-9
T.J. Exam Prep 7-8
Raspberry Pi Engineering 7-9

Session IV: Jul 30-Aug 10

Morning

Story Writing 3-4
Scratch Programming 3-4
Chess 5-6
Fairfax Collegiate Math 5-6
Alice: Creating 3D Worlds 5-6
Research Writing 7-9
Virtual Reality 7-9
Intro to Algebra 7-9
T.J. Exam Prep 7-8

Afternoon

Fairfax Collegiate Math 3-4
Construction Robots 3-4
Intro to Virtual Reality 5-6
Creative Writing 5-6
Fairfax Collegiate Math 7-8
Minecraft Mods with Java 7-9
T.J. SIS Essay Prep 7-8
Middle School Debate 7-9
Small Java 7-9

VIENNA AND FAIRFAX SCHEDULES

Vienna: Green Hedges School, 415 Windover Ave. NW, Vienna, VA 22180

Session I: Jun 18-Jun 29

Morning
Writing Fundamentals 3-4
Robots in Space 3-4
Spy Science 3-4
Minecraft Modding 3-4
Intro to Python 5-6
Chem Workshop 5-6
Brain Games 5-6
Speech 5-6

Afternoon
Word Problems 3-4
Persuasive Speaking 3-4
Small Basic Games 3-4
Chemistry Concepts 3-4
Writing Skills and Grammar 5-6
HTML Web Design 5-6
Filmmaking 5-6
Siege Engines 5-6

Session II: Jul 2-Jul 13

Morning
Fairfax Collegiate Math 3-4
Public Speaking 3-4
Construction Robots 3-4
Scratch Programming 3-4
Intro to Test Prep 5-6
The Writing Process 5-6
Architectural Design 5-6
Raspberry Pi Projects 5-6

Afternoon
Story Writing 3-4
Intro to Filmmaking 3-4
Intro to Raspberry Pi 3-4
Minecraft Exploration 3-4
Leadership 5-6
Fairfax Collegiate Math 5-6
GameMaker: Studio 5-6
Physics 5-6

Session III: Jul 16-Jul 27

Morning
Writing and Revising 3-4
Robotics Zoo 3-4
Space Exploration 3-4
Minecraft Modding 3-4
Blitz Games 5-6
Cryptography 5-6
Filmmaking 5-6
Intro to Arduino 5-6

Afternoon
Math Fundamentals 3-4
Persuasive Speaking 3-4
Small Basic Games 3-4
Spy Science 3-4
Destruction Robots 5-6
Creative Writing 5-6
Human Biology & Anatomy 5-6
Minecraft RPG Design 5-6

Session IV: Jul 30-Aug 10

Morning
Math Games 3-4
Public Speaking 3-4
Illustrated Stories 3-4
Intro to Filmmaking 3-4
Writing for Middle School 5-6
Robotics Olympiad 5-6
Forensic Science 5-6
Minecraft and Python 5-6

Afternoon
Writing Fundamentals 3-4
Intro to Robotics 3-4
Chemistry Concepts 3-4
Intro to Engineering 3-4
Brain Games 5-6
Elementary Debate 5-6
Stop-Motion Animation 5-6
Civil Engineering 5-6

Fairfax[D]: Gesher Jewish Day School, 4800 Mattie Moore Ct., Fairfax, VA 22030

Session I: Jun 18-Jun 29

Morning
Illustrated Stories 3-4
Intro to Raspberry Pi 3-4
Writing for Middle School 5-6
Forensic Science 5-6
Graphic Design 5-6
Fairfax Collegiate Math 7-8
T.J. SIS Essay Prep 7-8
Game Programming 7-9
Video Production 7-9

Afternoon
Writing and Revising 3-4
Intro to Filmmaking 3-4
Problem Solving 5-6
GameMaker: Studio 5-6
Intro to Arduino 5-6
Research Writing 7-9
Lasers 7-9
T.J. Exam Prep 7-8
Fashion Design 7-9

Session II: Jul 2-Jul 13

Morning
Fairfax Collegiate Math 3-4
Minecraft Modding 3-4
Chess 5-6
Writing Skills and Grammar 5-6
Browser Games 5-6
T.J. SIS Essay Prep 7-8
Intro to Algebra 7-9
Middle School Debate 7-9
Neuroscience 7-9

Afternoon
Reading Reinforcement 3-4
Chemistry Concepts 3-4
Cryptography 5-6
Speech 5-6
Alice: Creating 3D Worlds 5-6
Reading for Meaning 7-9
Competitive Robotics 7-9
Small Java 7-9
T.J. Exam Prep 7-8

Session III: Jul 16-Jul 27

Morning
Math Games 3-4
Public Speaking 3-4
Brain Games 5-6
Elementary Debate 5-6
Robotics Engineering 5-6
Writers' Workshop 7-9
Genetics 7-9
T.J. Exam Prep 7-8
Raspberry Pi Engineering 7-9

Afternoon
Story Writing 3-4
Construction Robots 3-4
Creative Writing 5-6
Filmmaking 5-6
Raspberry Pi Projects 5-6
C# Game Programming 7-9
T.J. SIS Essay Prep 7-8
Intro to Geometry 7-9
Mock Trial 7-9

Session IV: Jul 30-Aug 10

Morning
Writing Fundamentals 3-4
Robotics Zoo 3-4
Mobile Robotics 5-6
Mobile Games 5-6
Human Biology & Anatomy 5-6
Intro to Algebra 7-9
PSAT/SAT Prep 7-9
Web Video 7-9
Arduino Engineering 7-9

Afternoon
Fairfax Collegiate Math 3-4
Small Basic Games 3-4
Intro to Test Prep 5-6
Game Design and Modding 5-6
Fairfax Collegiate Math 5-6
High School Writing 7-9
Robotics Combat 7-9
JavaScript 7-9
Forensic Science 7-9

[D]Dietary Restrictions at this facility. Please do not bring meat or shell fish. Lunches may include dairy products and tuna fish. Questions? Please call 703 481-3080.
[†]Indoor break location. The supervised twenty-minute morning and afternoon breaks are indoors at these facilities.

CHANTILLY AND DULLES SCHEDULES

Chantilly: St. Timothy Catholic School, 13809 Poplar Tree Rd., Chantilly, VA, 20151

Session I: Jun 18-Jun 29

Morning
Reading Reinforcement 3-4
Minecraft Exploration 3-4
Fairfax Collegiate Math 5-6
Elementary Debate 5-6
Mobile Robotics 5-6
High School Writing 7-9
JavaScript 7-9
Forensic Science 7-9
Photography 7-9

Afternoon
Hands-On Science 3-4
Math Fundamentals 3-4
Intro to Test Prep 5-6
Chess 5-6
Physics 5-6
Minecraft Mods with Java 7-9
Intro to Geometry 7-9
Robotic Vehicles 7-9
Raspberry Pi Engineering 7-9

Session II: Jul 2-Jul 13

Morning
Public Speaking 3-4
Robotics Zoo 3-4
Blitz Games 5-6
Strategic Reading 5-6
Filmmaking 5-6
T.J. SIS Essay Prep 7-8
Intro to Algebra 7-9
Model U.N. 7-9
Lasers 7-9

Afternoon
Story Writing 3-4
Spy Science 3-4
Leadership 5-6
Robotics Engineering 5-6
Intro to Arduino 5-6
Writers' Workshop 7-9
App Inventor 7-9
T.J. Exam Prep 7-8
Web Video 7-9

Session III: Jul 16-Jul 27

Morning
Fairfax Collegiate Math 3-4
Minecraft Modding 3-4
Writing Skills and Grammar 5-6
Robotics Olympiad 5-6
Architectural Design 5-6
Improv 7-9
Intro to Algebra 7-9
Forensic Science 7-9
T.J. Exam Prep 7-8

Afternoon
Writing Fundamentals 3-4
Intro to Engineering 3-4
Chem Workshop 5-6
Fairfax Collegiate Math 5-6
Minecraft and Python 5-6
Elements of Style 7-9
Competitive Robotics 7-9
Game Programming 7-9
Video Production 7-9

Session IV: Jul 30-Aug 10

Morning
Digital Design 3-4
Intro to Filmmaking 3-4
Probability 5-6
Elementary Debate 5-6
Siege Engines 5-6
Reading for Meaning 7-9
Python Programming 7-9
Raspberry Pi Engineering 7-9
Role-Playing Game Design 7-9

Afternoon
Reading Reinforcement 3-4
Intro to Raspberry Pi 3-4
Creative Writing 5-6
GameMaker: Studio 5-6
Filmmaking 5-6
Fairfax Collegiate Math 7-8
Middle School Debate 7-9
Newtonian Physics 7-9
Fashion Design 7-9

Dulles: St. Veronica Catholic School, 3460-B Centreville Rd., Chantilly, VA 20151

Session II: Jul 2-Jul 13

Morning
Persuasive Speaking 3-4
Space Exploration 3-4
Writing Skills and Grammar 5-6
Graphic Design 5-6
Prototyping and 3D Printing 5-6
Intro to Algebra 7-9
Robotics Combat 7-9
Video Production 7-9
Raspberry Pi Engineering 7-9

Afternoon
Intro to Robotics 3-4
Intro to Filmmaking 3-4
Game Design and Modding 5-6
Fairfax Collegiate Math 5-6
Forensic Science 5-6
Algorithms 7-9
High School Writing 7-9
Middle School Debate 7-9
Inventing and 3D Printing 7-9

Session III: Jul 16-Jul 27

Morning
Construction Robots 3-4
Chemistry Concepts 3-4
Intro to Virtual Reality 5-6
Problem Solving 5-6
Raspberry Pi Projects 5-6
Writers' Workshop 7-9
Small Java 7-9
Loudoun AOS Prep 7-9
Biomedical Engineering 7-9

Afternoon
Math Games 3-4
Illustrated Stories 3-4
Writing for Middle School 5-6
Intro to Python 5-6
Elementary Debate 5-6
Fairfax Collegiate Math 7-8
Virtual Reality 7-9
Neuroscience 7-9
Inventing and 3D Printing 7-9

Session IV: Jul 30-Aug 10

Morning
Fairfax Collegiate Math 3-4
Spy Science 3-4
Writing Skills and Grammar 5-6
Physics 5-6
Minecraft RPG Design 5-6
Drawing 7-9
T.J. SIS Essay Prep 7-8
Intro to Geometry 7-9
Game Programming 7-9

Afternoon
Writing Fundamentals 3-4
Minecraft Modding 3-4
Blitz Games 5-6
Fairfax Collegiate Math 5-6
Drawing 5-6
Improv 7-9
Elements of Style 7-9
Genetics 7-9
T.J. Exam Prep 7-8

RESTON AND ASHBURN SCHEDULES

Reston[D‡]: Northern Virginia Hebrew Congregation, 1441 Wiehle Ave., Reston, VA 20190

Session I: Jun 18-Jun 29

Morning
Space Exploration 3-4
Minecraft Modding 3-4
Blitz Games 5-6
Mobile Robotics 5-6
Stop-Motion Animation 5-6
Virtual Reality 7-9
T.J. SIS Essay Prep 7-8
Intro to Geometry 7-9
Animal Physiology 7-9

Afternoon
Writing Fundamentals 3-4
Scratch Programming 3-4
Intro to Virtual Reality 5-6
Game Design and Modding 5-6
Forensic Science 5-6
Competitive Robotics 7-9
App Inventor 7-9
T.J. Exam Prep 7-8
Video Production 7-9

Session II: Jul 2-Jul 13

Morning
Math Games 3-4
Construction Robots 3-4
Creative Writing 5-6
GameMaker: Studio 5-6
Civil Engineering 5-6
Drawing 7-9
Intro to Algebra 7-9
Forensic Science 7-9
Arduino Engineering 7-9

Afternoon
Reading Reinforcement 3-4
Chemistry Concepts 3-4
Destruction Robots 5-6
Fairfax Collegiate Math 5-6
Drawing 5-6
C# Game Programming 7-9
High School Writing 7-9
PSAT/SAT Prep 7-9
Role-Playing Game Design 7-9

Session III: Jul 16-Jul 27

Morning
Writing Fundamentals 3-4
Spy Science 3-4
Writing Skills and Grammar 5-6
Physics 5-6
Filmmaking 5-6
T.J. SIS Essay Prep 7-8
Intro to Geometry 7-9
Robotics Combat 7-9
Python Programming 7-9

Afternoon
Fairfax Collegiate Math 3-4
Intro to Filmmaking 3-4
Probability 5-6
Mobile Games 5-6
Graphic Design 5-6
Writers' Workshop 7-9
Middle School Debate 7-9
Newtonian Physics 7-9
T.J. Exam Prep 7-8

Session IV: Jul 30-Aug 10

Morning
Writing and Revising 3-4
Minecraft Exploration 3-4
The Writing Process 5-6
HTML Web Design 5-6
Raspberry Pi Projects 5-6
Intro to Geometry 7-9
Model U.N. 7-9
Neuroscience 7-9
Inventing and 3D Printing 7-9

Afternoon
Hands-On Science 3-4
Robotics Zoo 3-4
Problem Solving 5-6
Elementary Debate 5-6
Minecraft and Python 5-6
Elements of Style 7-9
Game Programming 7-9
PSAT/SAT Prep 7-9
Biomedical Engineering 7-9

Session V: Aug 13-Aug 24

Morning
Writing Fundamentals 3-4
Space Exploration 3-4
Chess 5-6
Fairfax Collegiate Math 5-6
Prototyping and 3D Printing 5-6
Writers' Workshop 7-9
T.J. Exam Prep 7-8
Photography 7-9
Raspberry Pi Engineering 7-9

Afternoon
Fairfax Collegiate Math 3-4
Minecraft Modding 3-4
Writing Skills and Grammar 5-6
Robotics Engineering 5-6
Filmmaking 5-6
T.J. SIS Essay Prep 7-8
Intro to Algebra 7-9
Middle School Debate 7-9
Inventing and 3D Printing 7-9

Ashburn: St. Theresa Catholic School, 21370 St. Theresa Ln., Ashburn, VA 20`47

Session I: Jun 18-Jun 29

Morning
Fairfax Collegiate Math 3-4
Public Speaking 3-4
Writing Skills and Grammar 5-6
Robotics Engineering 5-6
Prototyping and 3D Printing 5-6
Intro to Algebra 7-9
Robotics Combat 7-9
Small Java 7-9
PSAT/SAT Prep 7-9

Afternoon
Story Writing 3-4
Intro to Robotics 3-4
Mobile Games 5-6
Architectural Design 5-6
Filmmaking 5-6
Middle School Debate 7-9
Forensic Science 7-9
HTML, CSS, and JavaScript 7-9
Biomedical Engineering 7-9

Session II: Jul 2-Jul 13

Morning
Writing Fundamentals 3-4
Robots in Space 3-4
Brain Games 5-6
Raspberry Pi Projects 5-6
Minecraft and Python 5-6
Writers' Workshop 7-9
Game Programming 7-9
Loudoun AOS Prep 7-9
Photography 7-9

Afternoon
Math Fundamentals 3-4
Small Basic Games 3-4
Strategic Reading 5-6
Robotics Olympiad 5-6
Stop-Motion Animation 5-6
Improv 7-9
Minecraft Mods with Java 7-9
Intro to Geometry 7-9
Newtonian Physics 7-9

Session III: Jul 16-Jul 27

Morning
Hands-On Science 3-4
Minecraft Exploration 3-4
Leadership 5-6
Intro to VEX IQ Robotics 5-6
Browser Games 5-6
Intro to Algebra 7-9
Animal Physiology 7-9
PSAT/SAT Prep 7-9
Fashion Design 7-9

Afternoon
Reading Reinforcement 3-4
Robotics Zoo 3-4
Chess 5-6
Fairfax Collegiate Math 5-6
Forensic Science 5-6
Research Writing 7-9
Middle School Debate 7-9
VEX IQ Robotics 7-9
JavaScript 7-9

Session IV: Jul 30-Aug 10

Morning
Story Writing 3-4
Construction Robots 3-4
Destruction Robots 5-6
Problem Solving 5-6
GameMaker: Studio 5-6
Writers' Workshop 7-9
Mock Trial 7-9
Video Production 7-9
Raspberry Pi Engineering 7-9

Afternoon
Word Problems 3-4
Space Exploration 3-4
Strategic Reading 5-6
Filmmaking 5-6
Intro to Arduino 5-6
Intro to Algebra 7-9
Robotic Vehicles 7-9
App Inventor 7-9
Loudoun AOS Prep 7-9

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[‡]Indoor break location. The supervised twenty-minute morning and afternoon breaks are indoors at these facilities.

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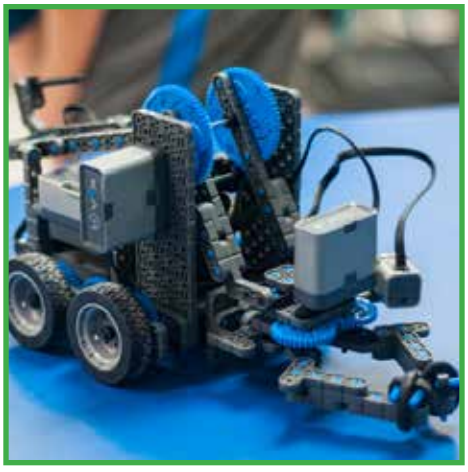

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Chantilly
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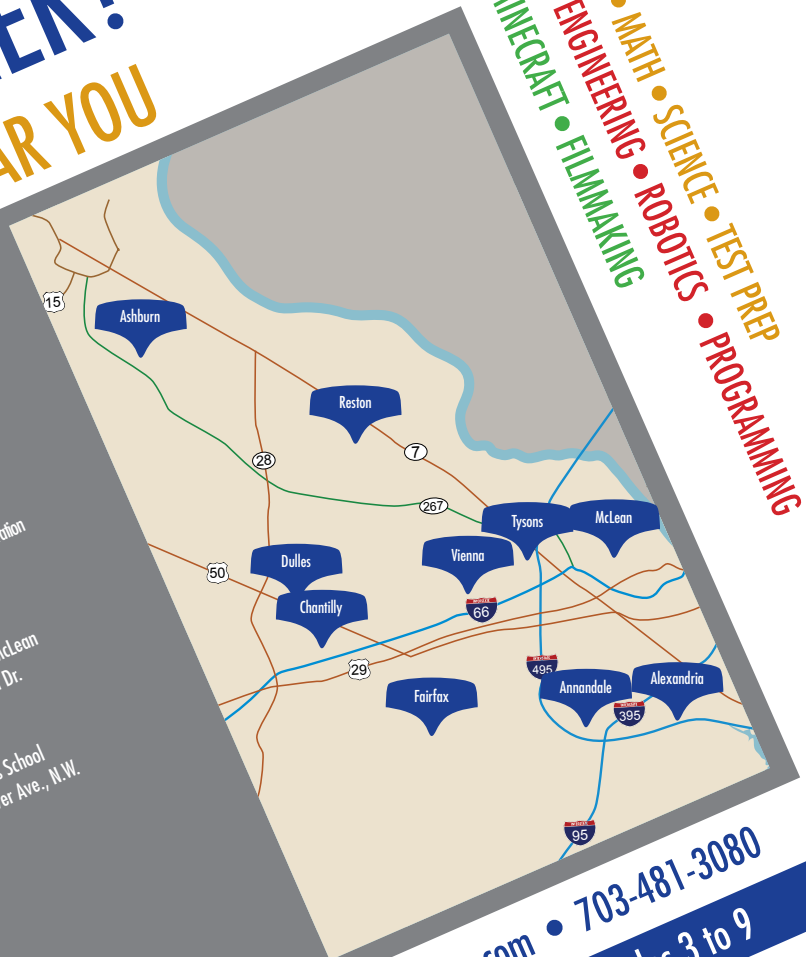

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