

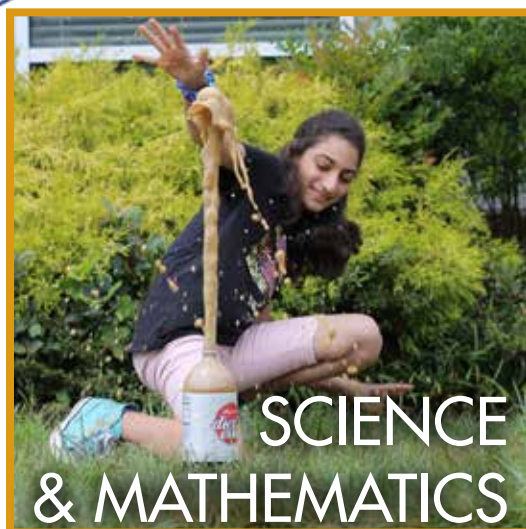
2020 SUMMER



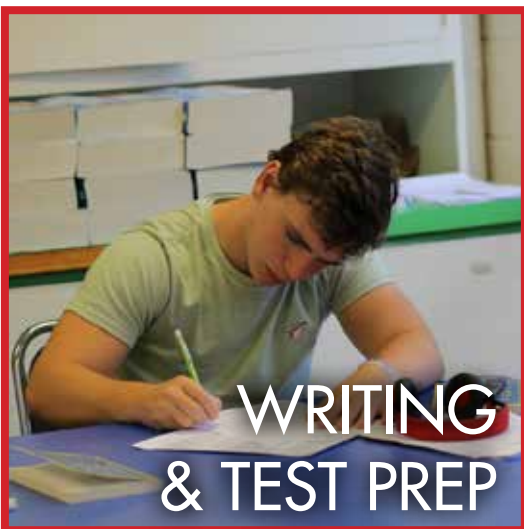
FOR
RISING
GRADES 3-12



FILMMAKING



SCIENCE
& MATHEMATICS



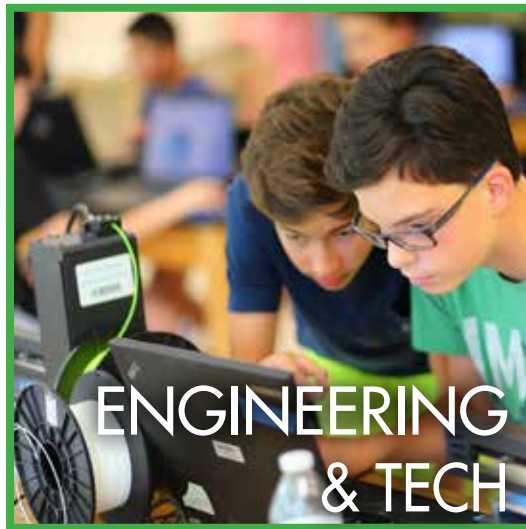
WRITING
& TEST PREP



DEBATE
& PUBLIC
SPEAKING



ART
& DESIGN



ENGINEERING
& TECH

10 NO. VA
LOCATIONS

FAIRFAX COLLEGIATE SUMMER 2020

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, public speaking, test prep, engineering, computer science, art, design, emerging tech, gaming, 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!

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SUMMER PROGRAM LOCATIONS

Alexandria Campus

Beth El Hebrew Congregation
3830 Seminary Rd.

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-B Centreville Rd.

Fairfax Campus

Gesher Jewish Day School
4800 Mattie Moore Ct.

Loudoun Campus

Loudoun School for Advanced Studies
20577 Ashburn Rd.

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. NW

PROGRAM OVERVIEW

SUMMER SESSION PRICING

Session	Start Date	End Date	Duration	Half Day	Full Day
Session 1	June 15	June 26	10 days	\$495	\$785
Session 2	June 29	July 10	9 days*	\$450	\$715
Session 3	July 13	July 24	10 days	\$495	\$785
Session 4	July 27	August 7	10 days	\$495	\$785
Session 5	August 10	August 21	10 days	\$525	\$845

*No class on July 3, Independence Day Observed.

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 \$95 per 10 day session
Afternoon \$95 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 2020. 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. There is a 5% discount for full payment by March 15.

Registration Changes

There is no fee for changing sessions, locations, or classes. (There may be a balance if the new class has a higher price.)

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.

Expository Writing

Grades 5-6

Students practice writing explanations of ideas, arguments, and processes.

This course emphasizes organization and logical thinking. Students construct paragraphs and short essays with thesis statements, supporting arguments, evidence, transitions, and conclusions.

Assignments include written presentations of concrete and abstract ideas, short persuasive essays, and exercises that require students to write recipes, directions, and algorithms.



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.

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.

Writing for High School

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.

Analytic Writing

Grades 7-9

This course is about constructing and evaluating written arguments.

As a group, students read, discuss, critique, and rebut a variety of essays, speeches, and articles that present and support complex ideas.

Students write, discuss, and revise their own original analytic writing about topics of personal interest. Instructors provide students with detailed individual suggestions for improvement.

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.

Academic Writing

Grades 9-12

Students write and revise short papers and essays on topics of personal interest and learn academic editorial and citation styles.

The course is taught in a seminar style and features discussion of notable examples of different forms of academic writing.

Students write daily in academic style and receive detailed corrections and suggestions for improvement from instructors.

Critical Reading

Grades 9-12

This course is about becoming a more careful, sophisticated, and skeptical reader and writer.

Daily writing assignments require students to identify and critique the assumptions, arguments, reasoning, and supporting evidence of a variety of journalistic, editorial, and academic essays and articles.

College Essay Workshop

Grades 9-12

This course explores how different colleges use application essays, how to write effective essays, and how to use essays to differentiate and position college applications.

The course is taught as a seminar. Students present their college admission goals and positioning strategies, brainstorm essay topics and approaches, and write, discuss, and revise admission essays.

MATHEMATICS

Fairfax Collegiate Math 3-4

Grades 3-4

Keep your math skills sharp over the summer.

Fairfax Collegiate Math 3-4 covers 3rd and 4th grade math topics: addition and subtraction, multiplication and division, fractions, decimals, measurement, geometry, probability, patterns, graphing, and word problems.

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

Math Workshop 3-4

Grades 3-4

Enrich your understanding of 3rd and 4th grade math topics with physical models and new mental strategies.

Lessons center around the use of modeling tools such as base ten blocks, two-color counters, and fraction circles. Once students understand how to use each model, they connect their understanding back to typical pen-and-paper methods in a small-group setting.

The specific areas of focus are: addition, subtraction, multiplication, division, fractions, decimals, and measurement.

Word Problems

Grades 3-4

Improve your 3rd and 4th grade math skills by applying them to challenging real-world situations.

Emphasis is placed on providing students with a wide variety of opportunities to solve word problems using an assortment of strategies for interpreting, modeling, and problem solving.

Specific areas of focus include the four basic operations, time, converting measurements, money, fractions, shapes and geometry, and patterns.

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.

As a final project, students choose a game and make a new version with an altered ruleset. Then, they give a short presentation on their new game and playtest it with their classmates.

Fairfax Collegiate Math 5-6

Grades 5-6

Make the transition from elementary to middle school math with confidence.

Fairfax Collegiate Math 5-6 covers the same topics as public school 5th and 6th grade math classes, including: fractions, decimals, integers, geometry, perimeter and area, statistics, ratios and proportions, and algebra.

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

Math Workshop 5-6

Grades 5-6

Empower your knowledge of 5th and 6th grade math topics with physical models and new mental strategies.

Lessons focus on the use of modeling tools such as algebra tiles, base ten blocks, and fraction circles. This new understanding is then used to connect back to traditional pen-and-paper methods.

The specific areas of focus include fractions and decimals, integers, geometry, statistics, and variables and simple equations.



Problem Solving

Grades 5-6

Learn key strategies for solving challenging word problems.

Students solve problems using strategies such as “think one” and “two-ten”, pictorial representations, and Venn Diagrams.

Areas of focus include algebra, function machines, pattern and logic problems, fractions and ratios, geometric problems, permutations, and cryptarithms.

Advanced Math

Grades 5-6

Use summer as an opportunity to work beyond 5th and 6th grade level standards.

The course closely aligns with topics that would usually be part of a 7th to 8th grade curriculum, such as: algebraic expressions and equations, slope and graphing, transformations, and complex geometry problems involving area, perimeter, surface area, and volume.

Math For Middle School

Grades 6-8

Reinforce critical middle school math skills.

Math for Middle School 6-8 covers the same topics as public school 7th and 8th grade math classes, including: rational and irrational numbers, evaluating expressions, solving equations, proportional and additive relationships, slope and graphing, geometry, volume and surface area, and transformations.

Intro to Algebra

Grades 7-9

Prepare for the challenges of high school Algebra.

Topics include: evaluating expressions, the language of algebra, solving equations and systems of equations, relations and functions, slope, graphing and writing linear equations, simplifying exponents, operations on polynomials, factoring, and solving quadratic equations.

Intro to Geometry

Grades 7-9

Prepare for high school Geometry.

Topics include: distance, midpoint, and slope formulas, constructions, parallel lines and angles, triangle properties, congruent, similar, and right triangles, quadrilaterals, polygons, circles, 3D figures, and transformations and symmetry.

Intro to Algebra II

Grades 9-12

Prepare for high school Algebra II.

Topics include: operations on rational and radical expressions, factoring and solving polynomials, complex numbers, sequences and series, exponential and logarithmic functions, statistics, and permutations and combinations.

Intro to Precalculus

Grades 9-12

Get ready for high school Precalculus.

This course is a focused workshop for the concepts necessary to succeed in high school Precalculus, including: a careful review of Algebra 2 topics, solving and graphing trigonometric equations, inverse and composite trig functions, vectors, matrices, and limits.

Fairfax Collegiate Math Courses

Fairfax Collegiate mathematics courses help students review or get a head start on material covered in regular school year math courses. Each course features:

1. A diagnostic test to help us plan a customized course of study for your student
2. Daily small group instruction, one-on-one coaching, and enrichment activities
3. A final test that highlights areas of growth and areas for further practice
4. Frequent progress updates from the instructor
5. Practice materials that students take home at the end of the course



Chemistry Concepts

Grades 3-4

Discover chemistry—matter, forces, heat, energy, phase changes, acids, bases, and reactions—by experimenting.

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

Hands-On Science

Grades 3-4

Ignite scientific curiosity via 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.

Spy Science

Grades 3-4 & Grades 5-6

Delve into the science behind spying, sleuthing, and subterfuge.

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 apply what they have learned throughout the course.

Chem Workshop

Grades 5-6

Explore central ideas of chemistry through hands-on experiments.

Topics include 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.

Forensic Science

Grades 5-6 & Grades 7-9

Investigate the laboratory techniques of law enforcement.

Labs 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.

Each class attempts to solve a simulated crime using the forensic techniques learned.

Human Biology & Anatomy

Grades 5-6

Research four key organ systems: the cardiovascular system, the digestive system, the nervous system, and the skeletal-muscular system.

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.



Medical Science

Grades 7-9

Survey the scientific foundations of modern medicine.

Topics include human anatomy, organ systems, pathology, epidemiology, and pharmacology.

Activities include demonstrations, labs such as bacterial cultures, and simulations of medical procedures such as suturing and phlebotomy.

Animal Physiology

Grades 7-9

Examine animal anatomy, physiology, and organ structures by dissecting owl pellets, annelids, frogs, rats, sheep brains, and dogfish sharks.

Topics include animal taxonomy, skeletons, organs, the nervous, circulatory, and digestive systems, and convergent and divergent evolution.

Neuroscience

Grades 7-9

Probe 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.

Physics Lab

Grades 7-9

Experiment to learn about physics.

The first week introduces classical mechanics, Newton's laws, and kinematics. Experiments investigate distance, displacement, velocity, and acceleration.

The second week focuses on waves, optics, and light. Hands-on activities with low-power 'eye-safe' lasers demonstrate light as a particle and wave, reflection, refraction, and laser applications.

Intro to High School Bio

Grades 9-12

Get ready for high school Biology.

Students preview four complex topics from general and honors high school Biology: Cellular Structure and Function, Biological Transport, DNA, and Heredity and Genetics.

Activities include readings, short lectures, presentations, discussions, problem sets, quizzes, and mock exams. There is no homework.

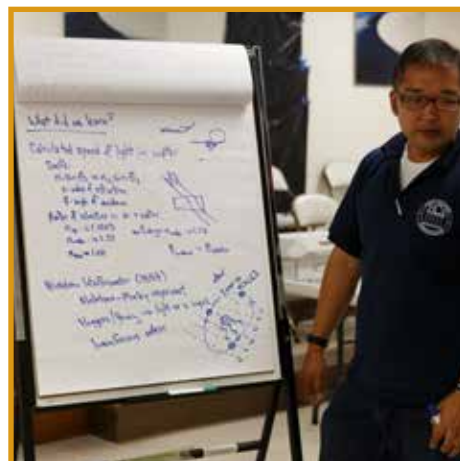
Intro to High School Chem

Grades 9-12

Prepare for high school Chemistry.

Students get an advanced look at the most challenging concepts in general and honors high school Chemistry: Atomic Structure and Bonding, Chemical Equations, Stoichiometry, States of Matter, and Solutions and Mixtures.

Activities include readings, short lectures, presentations, discussions, problem sets, quizzes, and mock exams. There is no homework.



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.

High School Debate

Grades 9-12

Students learn and practice four high school debate formats: Policy Debate, Lincoln-Douglas debate, Student Congress, and Public Forum debate.

Topics include rules, strategies, and tactics for each format. There is a mock tournament for each format.



T.J. Exam Prep

Grades 7-8

Prepare for the first round of the Thomas Jefferson High School Admissions Exam.

This course covers the three sections of the exam: ACT Aspire Reading, ACT Aspire Science, and Quant-Q Math.

Course materials include *The Fairfax Collegiate TJ Exam Prep Guide* and *The Official ACT Prep Guide*. Each student takes two full-length practice tests and receives an evaluation detailing areas for improvement.

T.J. SIS Essay Prep

Grades 7-8

Prepare for the Student Information Sheet (SIS) Essay Test, the semifinalist round of the Thomas Jefferson High School Admissions Exam.

Students review SIS essay prompts and scoring. They also learn about the mathematics or science-related Problem-Solving question, which is part of the SIS Essay Test.

Each day students write timed practice essays and instructors provide detailed suggestions for improvement.

The course features *The Fairfax Collegiate TJ SIS Essay Prep Guide*.

Academies of Loudoun Prep

Grades 7-8

Prepare for the Academies of Loudoun (AOS and AET) admissions process.

Students review content for the STEM Thinking Skills Assessment and sample California Critical Thinking Disposition Inventory (CCTDI) items. They also practice test-taking strategies.

The course also previews the semifinalist round of Academies of Loudoun admissions, which includes the CCTST-N test and a writing assessment.

Each student takes three practice tests and receives an evaluation detailing areas for improvement.

PSAT Prep

Grades 7-9

Prepare for the PSAT, the qualifying test for the National Merit Scholar program.

The math review covers algebraic expressions and equations, graphical representations, statistics, and strategies for the calculator and no-calculator portions of the test. The reading and writing review emphasizes grammar and mechanics, locating information, making inferences, and analyzing rhetoric.

Students complete two official practice PSAT tests and become familiar with question formats, test scoring, and time-management. Instructors write evaluations with suggestions for improvement.

SAT Prep

Grades 9-12

Prepare for the math, reading, writing, and essay sections of the SAT.

The math review covers SAT Algebra, Geometry, and Algebra 2 topics and strategies for the calculator and no-calculator portions of the test. The reading and writing review emphasizes locating and synthesizing information, making inferences, and analyzing rhetoric.

Students complete three practice SAT tests under timed conditions and become familiar with question formats, test scoring, and time-management strategies. Instructors write evaluations with suggestions for improvement.

Each student receives a copy of *The Official SAT Study Guide*.

ACT Prep

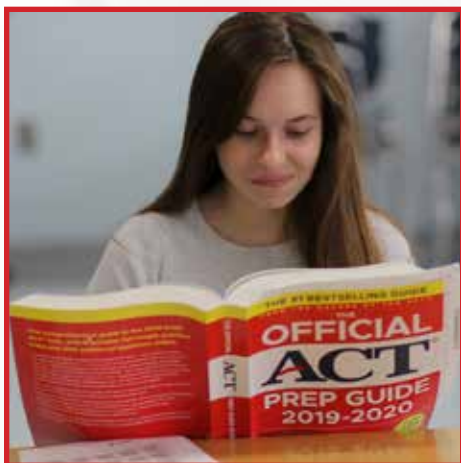
Grades 9-12

Prepare for the English, mathematics, reading, science, and writing sections of the ACT.

The English and reading reviews focus on grammar, style, vocabulary, and reading comprehension. Math review topics include concepts from Algebra 1, Geometry, and Algebra 2. The science review covers experimental design, and interpreting and making inferences from experimental data.

Students complete three practice ACT tests under timed conditions and become familiar with question formats, test scoring, and time-management strategies. Instructors write evaluations with suggestions for improvement.

Each student receives a copy of *The Official ACT Prep Guide*.



ENGINEERING

Intro to Engineering

Grades 3-4

Students complete challenges and learn principles of engineering and physics.

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

Structural Engineering

Grades 3-4

Students play the role of architects and engineers as they design and construct buildings, towers, bridges, and dams.

Projects center on construction materials, structural integrity, safety testing, disaster mitigation, blueprints, and ancient and modern civil engineering.

Space Engineering

Grades 3-4

Students explore astronomy and space travel by performing experiments, completing hands-on projects, and running computer simulations.

Students investigate space suits, rocketry, the phases of the moon, telescopes, rovers, and zero-gravity equipment. They build model spacecraft, simulate space missions, invent constellations, and find stars in virtual planetarium.

Vehicle Engineering

Grades 5-6

Get up to speed on vehicle engineering by designing cars, trucks, and boats.

Topics include components, systems, power, maneuverability, aerodynamics, the design process, safety testing, and manufacturing planning.

Activities include a model car race, a speedboat race, testing designs for brakes and tires, and crash testing. For a final project, each student assembles a working, autonomous RC car that they take home with them.

Power Engineering

Grades 5-6

Turn on to electricity, power plants, green energy, and the power grid.

Students learn about voltage, current, resistance, electricity generation, transmission, and the uses of electric power.

Projects include constructing wind turbines, making batteries, building with solar panels, and creating a small-scale "circuit town".

Materials Engineering

Grades 5-6

Uncover the chemical engineering behind fabrics, metals, and composites.

Course topics include metals, polymers, ceramics, composites, mining, refining, and manufacturing.

Projects include testing the mechanical, physical and chemical properties of materials, designing improvements to everyday objects, and investigating characteristics of nanomaterials.

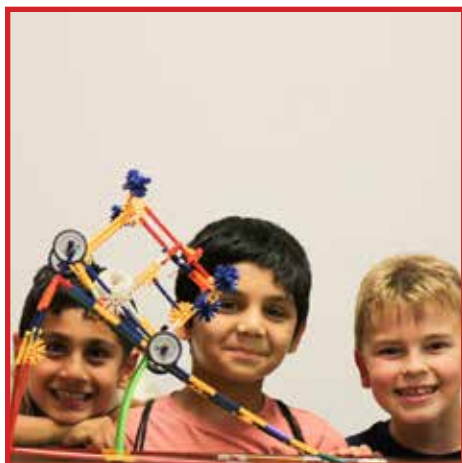
Military Engineering

Grades 5-6

Explore physics and engineering in a historical context by building models of medieval siege engines.

Students construct and operate miniature artillery engines including catapults, ballistae, onagers, and trebuchets. For a final project, students participate in launch-distance competitions.

Lessons include simple machines, tension, torque, kinematics, the design process, and the history of siege engines.



Intro to 3D Printing

Grades 5-6

Design 3D objects and bring them to life on a 3D printer.

Students learn to set up, operate, and troubleshoot printers. They also learn to use computer-assisted design software to create digital models for printing.

Lessons highlight commercial and industrial applications of 3D printing and different 3D printing materials. Students create objects around themes, such as cities, puzzles, or fantasy objects.

Fairfax Collegiate provides a 3D printer and computer for each pair of students. Over the two weeks, each student prints 6 to 8 small objects.

3D Engineering

Grades 5-6

Apply 3D modeling and printing skills to a variety of real-world practical and engineering scenarios.

Students learn to recognize problems that can be solved with 3D printing and then create and print their solutions. They also tackle engineering challenges such as a bridge-building competition.

As a final project, students create and then print prototypes of a device or invention of their own design.

Students with no prior 3D printing experience are welcome to take this course.

3D Printing

Grades 7-9

Use CAD software and 3D printers to design and materialize intricate 3D objects.

Instructors guide students through a comprehensive primer on how to set up, operate, and maintain 3D printers. Students also learn how to use computer-assisted design (CAD) software to create digital models for printing.

Fairfax Collegiate provides enough 3D printers for students to share in pairs, and each student will create and take home approximately 6-8 small objects.

Biomedical Engineering

Grades 7-9

Envision and prototype new medical equipment, prostheses, and artificial organs using 3D printing, computer simulations, and traditional modeling.

Topics include biochemistry, cell physiology, cell cycles, cell division, DNA structure and synthesis, protein synthesis, gene expression, tissue structure, human anatomy, and genetic engineering.

Aerospace Engineering

Grades 7-9

Launch into mechanical engineering and the design of aircraft, rockets, and spacecraft.

Topics include the physics of flight, aircraft design, jet propulsion, rocketry, satellites, and human space flight.

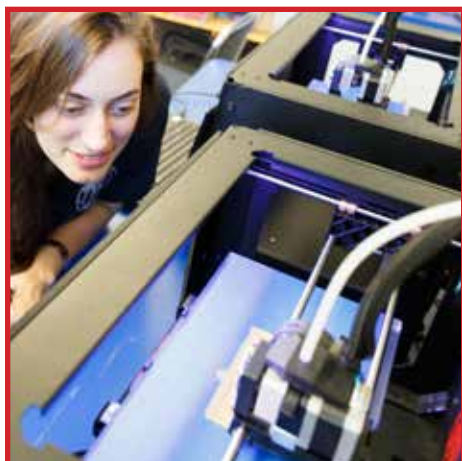
Projects include wind tunnel testing of airfoils, aircraft model building, model rocketry using household materials, creating an atmospheric data station, and tracking the path of the International Space Station.

Arduino Engineering

Grades 7-9

Middle school students explore electronics, computers, and programming by building projects with Arduino, an open-source electronics prototyping platform.

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



COMPUTER SCIENCE

Scratch Programming

Grades 3-4

Have fun writing programs with Scratch, a programming tool for children.

Students use graphical blocks to define program logic and control graphics, photos, and sounds.

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

Intro to Game Design

Grades 5-6

Create computer 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.

Intro to Web Design

Grades 5-6

Create web pages with HTML.

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

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.

Intro to Programming

Grades 5-6

Learn Python, the leading language for computer science instruction.

The course provides a comprehensive 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.

Intro to Web Development

Grades 5-6

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

Students discuss examples of browser games, 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.

Intro to Mobile Development

Grades 5-6

Write games for tablets and smartphones using App Inventor, a graphical programming tool.

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

Programming

Grades 7-9

Learn Python 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 utilities and games.

Game Design

Grades 7-9

Program 3D games using the Unity 5 game engine.

Topics include scripting, graphics, objects, terrain, and levels. Students use open source digital assets and also create their own graphics and sounds.

As a final project, students design and create their own multi-platform games.

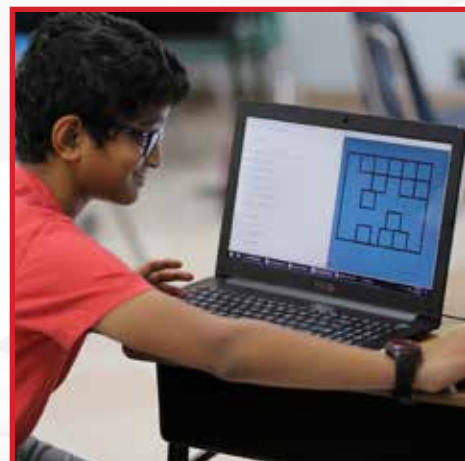
Mobile Development

Grades 7-9

Write Android smartphone and tablet apps using the Thunkable app builder.

Projects explore touchscreen input, high resolution displays, accelerometers, location services, Bluetooth, barcode scanning, and cameras.

Fairfax Collegiate provides Android tablets for students' use.



Web Design

Grades 7-9

Write and style web pages using HTML and CSS.

Design topics include colors, alignment, contrast, fonts, images, negative 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. For a final project, each student creates a small website.

Web Development

Grades 7-9

Learn JavaScript, the language that 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.

Intro to Computer Science

Grades 9-12

Learn the Java programming language and prepare for high school computer science courses.

The course builds from beginning topics such as keywords, variables, conditionals, and loops to advanced topics such as object-oriented programming, polymorphism, and Java GUI programming.

Exercises include console and GUI utilities, sorting algorithms, simple games, and other student projects.

Algorithms with Python

Grades 9-12

This course presents a hands-on tour of concepts at the core of high school computer science and beyond.

Students program algorithms for building, maintaining, searching, and sorting data structures.

Projects use the Python programming language.

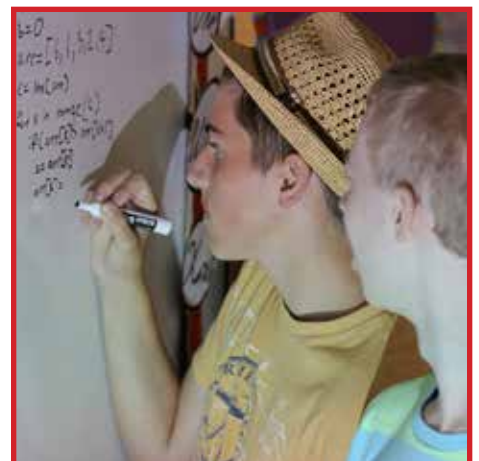
SQL Databases

Grades 9-12

Learn SQL language basics and database fundamentals.

Students use PostgreSQL and the pgAdmin interface to define, organize, and analyze real-world datasets from public sources. Next they design and query their own datasets.

This final project is to create a simple database-backed website.



ART AND DESIGN

Intro to Art

Grades 3-4

Sample the visual arts.

Art experiences include clay, collage, crayon, drawing, masks, mobiles, mosaics, painting, and puppetry.

Students develop visual awareness, personal expression, self-evaluation, and facility with art media. There is an art show for parents on the last day.

Digital Design

Grades 3-4

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.

Graphic Design

Grades 5-6

Create single-page design projects and practice universal design principles.

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

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

Architectural Design

Grades 5-6

Discover architecture and digital drafting.

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.

Drawing

Grades 5-6 & Grades 7-9

Learn 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.

Intro to Photography

Grades 5-6

Design and capture artistic images with DSLR cameras.

Topics include photographic genres, composition, camera operation, lenses, exposure, and basic image editing.

Projects include architectural photography, landscapes, portraits, macro photography, nature photography, and product photography.

Students work in pairs. Fairfax Collegiate provides cameras and computers.



Photography

Grades 7-9

Learn photography using DSLR cameras, starting with basic camera operation.

Exercises emphasize exposure, composition, color, lighting, and achieving artistic effects through the control of aperture, shutter speed, and ISO.

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

As a final project, students assemble a portfolio of their best photos.

Students work in pairs. Fairfax Collegiate provides cameras and computers.

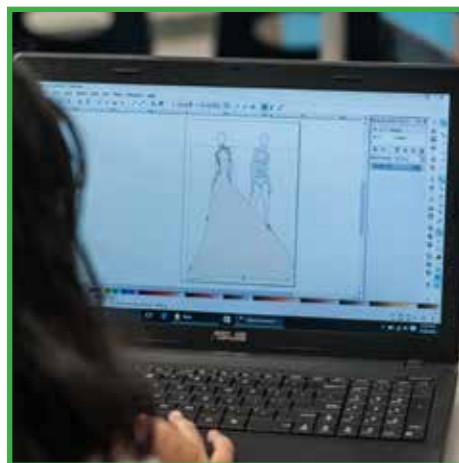
Fashion Design

Grades 7-9

Design clothing and accessories using 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.



EMERGING TECH

Mini-Drones

Grades 3-4

Fly miniature, remote-controlled drones and learn about drone technology.

Students work in pairs to fly and spot for drones as they compete in exciting activities such as drone hide and seek, drone scavenger hunt, and a drone class painting activity.

Students learn how drones fly and about present and future uses of drones.

Tech Crafts

Grades 3-4

Unleash your creative side in this hands-on fusion of electronics and arts and crafts.

Projects are based on the Makey Makey Invention Kit (such as a piano that uses bananas as keys, and using a drawing on a sheet of paper as a video game controller) and the Lilypad Sewable Electronics Kit (contains materials for creating textile-based toys and accessories that light up and have circuits sewn into them). Lilypad projects may be taken home at the end of class.

Students use needles and soldering irons under instructors' close supervision.

Intro to Robotics

Grades 3-4

Build and program LEGO Mindstorms NXT robots.

Projects include building a trash collecting robot, a robotic arm, and a robot that navigates mazes. The spotlight skill for the course is elementary programming using the NXT-G graphical environment.

Robotics Zoo

Grades 3-4

Build LEGO NXT Mindstorms robots that mimic the appearance and behavior of animals.

Projects include building robotic spiders, frogs, elephants, and stegosaurus. The spotlight skill for the course is building and modifying unusual designs.

Mobile Robotics

Grades 5-6

Build and program LEGO Mindstorms EV3 robots using all of the standard sensors and motors.

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

Learn the engineering process and practice teamwork while building LEGO Mindstorms EV3 robots.

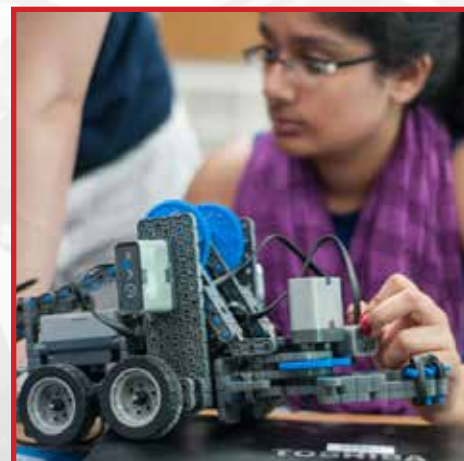
Projects include top spinning, mini golf, and hill climbing. The spotlight skills for this course are keeping a design journal, and evolving designs through trial and error.

Robotics Olympiad

Grades 5-6

Build and program LEGO Mindstorms EV3 robots, and engage in friendly competitive challenges.

Activities include soccer, go kart racing, and maze navigation. The spotlight skill for the course is optimizing robots to create competitive advantages.



Intro to Drones

Grades 5-6

Fly and learn about drones.

After flight instruction and safety training, students participate in obstacle courses, aerial cinematography, airborne surveillance, and drone racing.

Topics include drone hardware, the physics of flight, airspace restrictions, ethics, and the future of drones. Instructors are FAA certified remote pilots.

Intro to Virtual Reality

Grades 5-6

Learn how virtual reality (VR) tech works.

Activities include visiting ancient cultures, soaring through space, and navigating environments from the ocean floor to the inside of a human cell. Students paint and sculpt in 3D, and even venture into the world of Minecraft.

Fairfax Collegiate provides all the equipment for students to work in pairs. Apps are sourced from the Oculus platform.

Raspberry Pi

Grades 5-6

Learn about electronics and programming with Raspberry Pi, a tiny computer.

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.

Drones

Grades 7-9

Fly, program, and learn about drones.

After flight instruction and safety training, students participate in obstacle courses, search and rescue simulations, airborne surveillance, and aerial cinematography. Students write simple computer programs to control drones.

Instructors are FAA certified remote pilots.

Virtual Reality

Grades 7-9

Navigate and create virtual reality (VR) environments.

Students use VR to visit world landmarks, rocket through space, traverse the ocean floor, and go inside a human cell. In the second week, students use the Unity software platform to program VR games and build 3D worlds.

Students work in pairs using equipment provided by Fairfax Collegiate.

Robotics Combat

Grades 7-9

Design, build, and program LEGO Mindstorms EV3 robots to compete in daily head-to-head battles.

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

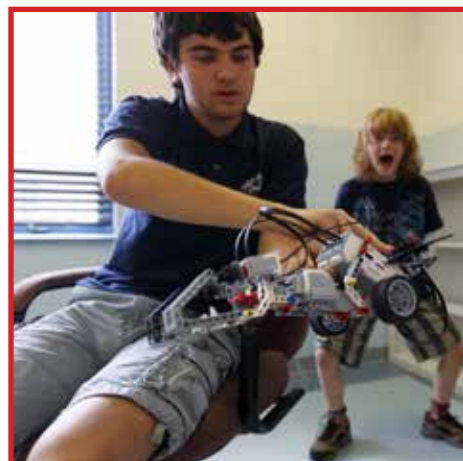
Internet of Things

Grades 7-9

Explore the technology that enhances common, everyday objects by connecting them to the internet.

Students identify examples of Internet of Things (IOT) devices, and how the technology works that allows them to send and receive information. Students then build and experiment with IOT projects such as internet-connected lights and circuits, remote security cameras, DIY voice assistants, and "smart classroom" devices.

Several projects incorporate the Raspberry Pi computer.



Team Gaming

Grades 3-4

Build social competences through team-based video games requiring interaction, cooperation, and communication.

Students in this course approach video gaming from a similar perspective as team sports such as soccer or baseball.

Topics include teamwork, competition, sportsmanship, kindness, constructive advice, confidence, self-improvement, character, leadership, and resilience.

The course features Minecraft, Super Mario Maker, and Rocket League.

Minecraft Modding

Grades 3-4

Customize and extend Minecraft.

Students use MCreator to design, build, and test Minecraft mods. Students customize 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.



Intro to Esports

Grades 5-6

Play competitive video games to develop social and interpersonal skills.

Topics include sportsmanship, respect, inclusion, goal setting, individual skills, and team strategy. Students learn about opportunities to participate in organized middle and high school esports leagues.

Games include Super Smash Bros Ultimate (ESRB Rating: Everyone 10+), Super Mario Maker, and Rocket League.

Minecraft and Python

Grades 5-6

Learn Python programming by writing scripts to enhance Minecraft.

Programming topics include variables, types, conditional statements, loops, collections, and algorithms.

Students write Python programs to generate massive structures and cities inside of Minecraft. The second week they create customized Minecraft minigames.

Minecraft RPG Design

Grades 5-6

Build new Minecraft role-playing game worlds using MCreator.

Students practice immersive world design and digital storytelling. They create their own NPCs, dialog trees, quests, tools, items, custom skins, and character models.

Students take their projects home for use with Minecraft Forge.

Esports Arena

Grades 7-9

Build advanced gaming PCs and take on the role of esports athletes.

The course begins with a unit on PC gaming technology. Each student assembles a full-fledged gaming PC using parts provided by Fairfax Collegiate.

Instructors teach students the rules, tactics, and strategy of each game. Students compete in teams and practice leadership and team skills.

The games used in the course are Fortnite (ESRB Rating: Teen) and StarCraft II (ESRB Rating: Teen).

Esports League

Grades 7-9

Participate in a summer esports league and learn why schools are offering esports alongside traditional athletics.

Students develop teamwork and strategic skills through playing popular esports games. They also try out supporting roles such as broadcasting and commentating on esports matches.

The games used in the course are League of Legends (ESRB Rating: Teen) and Rocket League (ESRB Rating: Everyone).



Intro to Filmmaking

Grades 3-4

Students learn about filmmaking and 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.

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 account for home viewing.

Filmmaking

Grades 5-6

Students plan, write, shoot, and edit digital video short films. Classes 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 lavalier microphones. Students use Adobe Premiere Elements to edit and optionally upload videos to personal Vimeo, YouTube, Facebook, and Twitter accounts.



ALEXANDRIA AND FAIRFAX SCHEDULES

Alexandria^D: Beth El Hebrew Congregation, 3830 Seminary Rd., Alexandria, VA 22304

Session II: Jun 29-Jul 10

Morning

Writing and Revising 3-4
Chemistry Concepts 3-4
Advanced Math 5-6
Elementary Debate 5-6
Writing for High School 7-9
Forensic Science 7-9
TJ Exam Prep 7-8
College Essay Workshop 9-12
Intro to Computer Science 9-12

Afternoon

Fairfax Collegiate Math 3-4
Persuasive Speaking 3-4
Creative Writing 5-6
Vehicle Engineering 5-6
Math for Middle School 6-8
Middle School Debate 7-9
Programming 7-9
Intro to High School Bio 9-12
SAT Prep 9-12

Session III: Jul 13-Jul 24

Morning

Word Problems 3-4
Intro to Filmmaking 3-4
Writing Skills and Grammar 5-6
Robotics Olympiad 5-6
Intro to Algebra 7-9
Animal Physiology 7-9
Photography 7-9
Intro to Algebra II 9-12
High School Debate 9-12

Afternoon

Writing Fundamentals 3-4
Mini-Drones 3-4
Math Workshop 5-6
Intro to Photography 5-6
Analytic Writing 7-9
Model UN 7-9
Robotics Combat 7-9
Academic Writing 9-12
SAT Prep 9-12

Session IV: Jul 27-Aug 7

Morning

Math Workshop 3-4
Space Engineering 3-4
Expository Writing 5-6
Spy Science 5-6
Intro to Geometry 7-9
Internet of Things 7-9
PSAT Prep 7-9
College Essay Workshop 9-12
Intro to Computer Science 9-12

Afternoon

Reading Reinforcement 3-4
Intro to Robotics 3-4
Graphic Design 5-6
Power Engineering 5-6
Reading for Meaning 7-9
Middle School Debate 7-9
Web Development 7-9
Intro to Precalculus 9-12
ACT Prep 9-12

Session V: Aug 10-Aug 21

Morning

Fairfax Collegiate Math 3-4
Spy Science 3-4
Writing Skills and Grammar 5-6
Forensic Science 5-6
Writers' Workshop 7-9
Mock Trial 7-9
E-Sports Arena 7-9
Intro to Algebra II 9-12
SAT Prep 9-12

Afternoon

Writing Fundamentals 3-4
Scratch Programming 3-4
Fairfax Collegiate Math 5-6
Elementary Debate 5-6
Intro to Algebra 7-9
Forensic Science 7-9
TJ Exam Prep 7-8
Academic Writing 9-12
Intro to High School Chem 9-12

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

Session I: Jun 15-Jun 26

Morning

Writing Fundamentals 3-4
Intro to Robotics 3-4
Writing for Middle School 5-6
Robotics Olympiad 5-6
Forensic Science 5-6
Intro to Geometry 7-9
Model UN 7-9
Internet of Things 7-9
E-Sports League 7-9

Afternoon

Fairfax Collegiate Math 3-4
Chemistry Concepts 3-4
Advanced Math 5-6
Raspberry Pi 5-6
Minecraft and Python 5-6
Writers' Workshop 7-9
Robotics Combat 7-9
Programming 7-9
Forensic Science 7-9

Session II: Jun 29-Jul 10

Morning

Word Problems 3-4
Minecraft Modding 3-4
Strategic Reading 5-6
Intro to Drones 5-6
Power Engineering 5-6
Intro to Algebra 7-9
Middle School Debate 7-9
Game Design 7-9
TJ Exam Prep 7-8

Afternoon

Reading Reinforcement 3-4
Intro to Engineering 3-4
Fairfax Collegiate Math 5-6
Intro to Game Design 5-6
Intro to E-Sports 5-6
Reading for Meaning 7-9
Drones 7-9
TJ SIS Essay Prep 7-8
Video Production 7-9

Session III: Jul 13-Jul 24

Morning

Persuasive Speaking 3-4
Robotics Zoo 3-4
Writing Skills and Grammar 5-6
Filmmaking 5-6
3D Engineering 5-6
Intro to Geometry 7-9
Mock Trial 7-9
Forensic Science 7-9
E-Sports League 7-9

Afternoon

Story Writing 3-4
Tech Crafts 3-4
Elementary Debate 5-6
Chem Workshop 5-6
Minecraft and Python 5-6
Writers' Workshop 7-9
Web Video 7-9
Biomedical Engineering 7-9
Aerospace Engineering 7-9

Session IV: Jul 27-Aug 7

Morning

Writing Fundamentals 3-4
Minecraft Modding 3-4
Creative Writing 5-6
Forensic Science 5-6
Drawing 5-6
Intro to Algebra 7-9
Web Design 7-9
TJ SIS Essay Prep 7-8
Arduino Engineering 7-9

Afternoon

Fairfax Collegiate Math 3-4
Chemistry Concepts 3-4
Problem Solving 5-6
Architectural Design 5-6
Minecraft RPG Design 5-6
Writing for High School 7-9
Robotics Combat 7-9
TJ Exam Prep 7-8
Drawing 7-9

^DDietary 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.

MCLEAN AND TYSONS SCHEDULES

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

Session I: Jun 15-Jun 26

Morning

Elementary Debate 5-6
Mobile Robotics 5-6
Analytic Writing 7-9
Animal Physiology 7-9
TJ SIS Essay Prep 7-8
E-Sports Arena 7-9
Intro to Algebra II 9-12
SAT Prep 9-12

Afternoon

Strategic Reading 5-6
Vehicle Engineering 5-6
Intro to Geometry 7-9
Mock Trial 7-9
Game Design 7-9
TJ Exam Prep 7-8
College Essay Workshop 9-12
Intro to High School Bio 9-12

Session II: Jun 29-Jul 10

Morning

Problem Solving 5-6
Intro to Virtual Reality 5-6
Research Writing 7-9
Robotics Combat 7-9
Forensic Science 7-9
Fashion Design 7-9
Academic Writing 9-12
Intro to Precalculus 9-12

Afternoon

Writing for Middle School 5-6
Spy Science 5-6
Intro to Algebra 7-9
Middle School Debate 7-9
Virtual Reality 7-9
Web Video 7-9
Intro to Computer Science 9-12
SAT Prep 9-12

Session III: Jul 13-Jul 24

Morning

Expository Writing 5-6
Intro to Mobile Development 5-6
Intro to Geometry 7-9
Internet of Things 7-9
TJ SIS Essay Prep 7-8
Drawing 7-9
High School Debate 9-12
Intro to High School Chem 9-12

Afternoon

Drawing 5-6
Military Engineering 5-6
Reading for Meaning 7-9
Web Design 7-9
Medical Science 7-9
TJ Exam Prep 7-8
Critical Reading 9-12
SAT Prep 9-12

Session IV: Jul 27-Aug 7

Morning

Writing Skills and Grammar 5-6
Intro to 3D Printing 5-6
Math for Middle School 6-8
Neuroscience 7-9
PSAT Prep 7-9
Video Production 7-9
Academic Writing 9-12
Intro to Computer Science 9-12

Afternoon

Fairfax Collegiate Math 5-6
Stop-Motion Animation 5-6
Writers' Workshop 7-9
Model UN 7-9
Programming 7-9
3D Printing 7-9
Intro to Algebra II 9-12
ACT Prep 9-12

Session V: Aug 10-Aug 21

Morning

Creative Writing 5-6
Elementary Debate 5-6
Intro to Photography 5-6
Intro to Algebra 7-9
Mobile Development 7-9
Forensic Science 7-9
TJ Exam Prep 7-8
Biomedical Engineering 7-9

Afternoon

Problem Solving 5-6
Forensic Science 5-6
3D Engineering 5-6
Writing for High School 7-9
Middle School Debate 7-9
TJ SIS Essay Prep 7-8
Photography 7-9
Aerospace Engineering 7-9

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

Session I: Jun 15-Jun 26

Morning

Math Games 3-4
Tech Crafts 3-4
Creative Writing 5-6
Robotics Olympiad 5-6
3D Engineering 5-6
Intro to Algebra 7-9
Internet of Things 7-9
Neuroscience 7-9
Photography 7-9

Afternoon

Writing Fundamentals 3-4
Chemistry Concepts 3-4
Problem Solving 5-6
Filmmaking 5-6
Military Engineering 5-6
Reading for Meaning 7-9
Web Development 7-9
Forensic Science 7-9
Biomedical Engineering 7-9

Session II: Jun 29-Jul 10

Morning

Persuasive Speaking 3-4
Spy Science 3-4
Fairfax Collegiate Math 5-6
Intro to Mobile Development 5-6
Stop-Motion Animation 5-6
Writing for High School 7-9
Medical Science 7-9
TJ Exam Prep 7-8
3D Printing 7-9

Afternoon

Writing and Revising 3-4
Digital Design 3-4
Expository Writing 5-6
Chem Workshop 5-6
Intro to 3D Printing 5-6
Math for Middle School 6-8
Model UN 7-9
Web Design 7-9
TJ SIS Essay Prep 7-8

Session III: Jul 13-Jul 24

Morning

Fairfax Collegiate Math 3-4
Chemistry Concepts 3-4
Advanced Math 5-6
Architectural Design 5-6
Materials Engineering 5-6
Writers' Workshop 7-9
Programming 7-9
Forensic Science 7-9
Video Production 7-9

Afternoon

Writing Fundamentals 3-4
Space Engineering 3-4
Writing Skills and Grammar 5-6
Forensic Science 5-6
Filmmaking 5-6
Intro to Algebra 7-9
Mock Trial 7-9
Robotics Combat 7-9
Arduino Engineering 7-9

Session IV: Jul 27-Aug 7

Morning

Story Writing 3-4
Scratch Programming 3-4
Math Workshop 5-6
Elementary Debate 5-6
Intro to Virtual Reality 5-6
Research Writing 7-9
Mobile Development 7-9
Physics Lab 7-9
TJ Exam Prep 7-8

Afternoon

Word Problems 3-4
Mini-Drones 3-4
Writing for Middle School 5-6
Intro to Game Design 5-6
Raspberry Pi 5-6
Intro to Geometry 7-9
Middle School Debate 7-9
Virtual Reality 7-9
TJ SIS Essay Prep 7-8

RESTON AND VIENNA SCHEDULES

Reston^{D†}: Northern Virginia Hebrew Congregation, 1441 Wiehle Ave., Reston, VA 20190

Session I: Jun 15-Jun 26

Morning

Persuasive Speaking 3-4
Intro to Engineering 3-4
Writing for Middle School 5-6
Elementary Debate 5-6
Intro to Web Design 5-6
Intro to Algebra 7-9
Virtual Reality 7-9
Medical Science 7-9
Arduino Engineering 7-9

Afternoon

Writing and Revising 3-4
Scratch Programming 3-4
Intro to Virtual Reality 5-6
Forensic Science 5-6
Filmmaking 5-6
Research Writing 7-9
Middle School Debate 7-9
Programming 7-9
TJ Exam Prep 7-8

Session II: Jun 29-Jul 10

Morning

Math Games 3-4
Space Engineering 3-4
Writing Skills and Grammar 5-6
Leadership 5-6
Mobile Robotics 5-6
Intro to Geometry 7-9
Animal Physiology 7-9
Drawing 7-9
Aerospace Engineering 7-9

Afternoon

Writing Fundamentals 3-4
Mini-Drones 3-4
Problem Solving 5-6
Human Bio and Anatomy 5-6
Drawing 5-6
Writers' Workshop 7-9
Mock Trial 7-9
Web Development 7-9
Video Production 7-9

Session III: Jul 13-Jul 24

Morning

Writing and Revising 3-4
Robotics Zoo 3-4
Expository Writing 5-6
Speech 5-6
Spy Science 5-6
Math for Middle School 6-8
PSAT Prep 7-9
Fashion Design 7-9
E-Sports Arena 7-9

Afternoon

Fairfax Collegiate Math 3-4
Spy Science 3-4
Fairfax Collegiate Math 5-6
Graphic Design 5-6
Vehicle Engineering 5-6
Writing for High School 7-9
Model UN 7-9
Robotics Combat 7-9
Neuroscience 7-9

Session IV: Jul 27-Aug 7

Morning

Reading Reinforcement 3-4
Hands-On Science 3-4
Creative Writing 5-6
3D Engineering 5-6
Materials Engineering 5-6
Intro to Algebra 7-9
Game Design 7-9
TJ Exam Prep 7-8
Photography 7-9

Afternoon

Public Speaking 3-4
Intro to Art 3-4
Advanced Math 5-6
Intro to Programming 5-6
Intro to Photography 5-6
Analytic Writing 7-9
Forensic Science 7-9
TJ SIS Essay Prep 7-8
Biomedical Engineering 7-9

Session V: Aug 10-Aug 21

Morning

Writing Fundamentals 3-4
Intro to Filmmaking 3-4
Fairfax Collegiate Math 5-6
Chem Workshop 5-6
Intro to 3D Printing 5-6
Writers' Workshop 7-9
Middle School Debate 7-9
Internet of Things 7-9
TJ SIS Essay Prep 7-8

Afternoon

Fairfax Collegiate Math 3-4
Chemistry Concepts 3-4
Writing Skills and Grammar 5-6
Filmmaking 5-6
Raspberry Pi 5-6
Intro to Geometry 7-9
Virtual Reality 7-9
TJ Exam Prep 7-8
3D Printing 7-9

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

Session I: Jun 15-Jun 26

Morning

Fairfax Collegiate Math 3-4
Mini-Drones 3-4
Hands-On Science 3-4
Intro to Art 3-4
Speech 5-6
Intro to Programming 5-6
Graphic Design 5-6
Intro to E-Sports 5-6

Afternoon

Story Writing 3-4
Persuasive Speaking 3-4
Spy Science 3-4
Minecraft Modding 3-4
Writing Skills and Grammar 5-6
Fairfax Collegiate Math 5-6
Chem Workshop 5-6
Materials Engineering 5-6

Session II: Jun 29-Jul 10

Morning

Math Workshop 3-4
Robotics Zoo 3-4
Structural Engineering 3-4
Team Gaming 3-4
Creative Writing 5-6
Forensic Science 5-6
Filmmaking 5-6
Raspberry Pi 5-6

Afternoon

Writing Fundamentals 3-4
Public Speaking 3-4
Chemistry Concepts 3-4
Intro to Filmmaking 3-4
Math Workshop 5-6
Elementary Debate 5-6
Architectural Design 5-6
Minecraft and Python 5-6

Session III: Jul 13-Jul 24

Morning

Reading Reinforcement 3-4
Intro to Robotics 3-4
Spy Science 3-4
Minecraft Modding 3-4
Fairfax Collegiate Math 5-6
Intro to Web Design 5-6
Human Bio and Anatomy 5-6
Stop-Motion Animation 5-6

Afternoon

Math Games 3-4
Scratch Programming 3-4
Hands-On Science 3-4
Digital Design 3-4
Writing for Middle School 5-6
Leadership 5-6
Robotics Engineering 5-6
Minecraft RPG Design 5-6

Session IV: Jul 27-Aug 7

Morning

Fairfax Collegiate Math 3-4
Persuasive Speaking 3-4
Intro to Filmmaking 3-4
Intro to Engineering 3-4
Expository Writing 5-6
Robotics Olympiad 5-6
Forensic Science 5-6
Intro to E-Sports 5-6

Afternoon

Writing Fundamentals 3-4
Tech Crafts 3-4
Chemistry Concepts 3-4
Team Gaming 3-4
Problem Solving 5-6
Elementary Debate 5-6
Filmmaking 5-6
Vehicle Engineering 5-6

^DDietary 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 17-Jun 26

Morning

Reading Reinforcement 3-4
Digital Design 3-4
Math Workshop 5-6
Intro to Drones 5-6
Writing for High School 7-9
Mobile Development 7-9
Aerospace Engineering 7-9
High School Debate 9-12
SAT Prep 9-12

Afternoon

Word Problems 3-4
Space Engineering 3-4
Expository Writing 5-6
Filmmaking 5-6
Math for Middle School 6-8
Middle School Debate 7-9
Drones 7-9
Academic Writing 9-12
Intro to Computer Science 9-12

Session II: Jun 29-Jul 10

Morning

Story Writing 3-4
Intro to Robotics 3-4
Writing for Middle School 5-6
Intro to Programming 5-6
Intro to Geometry 7-9
Mock Trial 7-9
Physics Lab 7-9
Intro to Algebra II 9-12
ACT Prep 9-12

Afternoon

Fairfax Collegiate Math 3-4
Intro to Filmmaking 3-4
Elementary Debate 5-6
Robotics Engineering 5-6
Writers' Workshop 7-9
Internet of Things 7-9
TJ Exam Prep 7-8
Critical Reading 9-12
Intro to High School Chem 9-12

Session III: Jul 13-Jul 24

Morning

Math Workshop 3-4
Public Speaking 3-4
Strategic Reading 5-6
Mobile Robotics 5-6
Research Writing 7-9
Programming 7-9
TJ SIS Essay Prep 7-8
College Essay Workshop 9-12
Intro to Computer Science 9-12

Afternoon

Writing Fundamentals 3-4
Structural Engineering 3-4
Problem Solving 5-6
Intro to Game Design 5-6
Intro to Algebra 7-9
Middle School Debate 7-9
TJ Exam Prep 7-8
Intro to Precalculus 9-12
SAT Prep 9-12

Session IV: Jul 27-Aug 7

Morning

Word Problems 3-4
Intro to Filmmaking 3-4
Writing Skills and Grammar 5-6
Military Engineering 5-6
Intro to Geometry 7-9
Model UN 7-9
Drones 7-9
Intro to Algebra II 9-12
Intro to High School Bio 9-12

Afternoon

Story Writing 3-4
Spy Science 3-4
Fairfax Collegiate Math 5-6
Intro to Drones 5-6
Reading for Meaning 7-9
Forensic Science 7-9
Video Production 7-9
Academic Writing 9-12
SAT Prep 9-12

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

Session II: Jun 29-Jul 10

Morning

Writing Fundamentals 3-4
Spy Science 3-4
Writing Skills and Grammar 5-6
Graphic Design 5-6
3D Engineering 5-6
Intro to Algebra 7-9
PSAT Prep 7-9
Arduino Engineering 7-9
E-Sports League 7-9

Afternoon

Tech Crafts 3-4
Intro to Art 3-4
Speech 5-6
Materials Engineering 5-6
Minecraft RPG Design 5-6
Reading for Meaning 7-9
Mobile Development 7-9
Forensic Science 7-9
Biomedical Engineering 7-9

Session III: Jul 13-Jul 24

Morning

Reading Reinforcement 3-4
Team Gaming 3-4
Fairfax Collegiate Math 5-6
Intro to Virtual Reality 5-6
Forensic Science 5-6
Writing for High School 7-9
Game Design 7-9
TJ Exam Prep 7-8
3D Printing 7-9

Afternoon

Fairfax Collegiate Math 3-4
Intro to Engineering 3-4
Creative Writing 5-6
Intro to 3D Printing 5-6
Intro to E-Sports 5-6
Intro to Geometry 7-9
Virtual Reality 7-9
TJ SIS Essay Prep 7-8
Video Production 7-9

Session IV: Jul 27-Aug 7

Morning

Math Games 3-4
Robotics Zoo 3-4
Writing for Middle School 5-6
Chem Workshop 5-6
Minecraft and Python 5-6
Intro to Algebra 7-9
Middle School Debate 7-9
Programming 7-9
Academies of Loudoun Prep 7-8

Afternoon

Writing Fundamentals 3-4
Structural Engineering 3-4
Elementary Debate 5-6
Robotics Engineering 5-6
Intro to Web Design 5-6
Writers' Workshop 7-9
Internet of Things 7-9
Animal Physiology 7-9
E-Sports League 7-9

ASHBURN AND LOUDOUN SCHEDULES

Ashburn: St. Theresa Catholic School, 21370 St. Theresa Ln., Ashburn, VA 20147

Session I: Jun 15-Jun 26

Morning

Math Workshop 3-4
Robotics Zoo 3-4
Elementary Debate 5-6
Robotics Engineering 5-6
Intro to 3D Printing 5-6
Writers' Workshop 7-9
Web Design 7-9
Forensic Science 7-9
Academies of Loudoun Prep 7-8

Afternoon

Public Speaking 3-4
Structural Engineering 3-4
Writing Skills and Grammar 5-6
Intro to Game Design 5-6
Architectural Design 5-6
Intro to Algebra 7-9
Middle School Debate 7-9
Robotics Combat 7-9
3D Printing 7-9

Session II: Jun 29-Jul 10

Morning

Story Writing 3-4
Hands-On Science 3-4
Fairfax Collegiate Math 5-6
Forensic Science 5-6
Filmmaking 5-6
Analytic Writing 7-9
Model UN 7-9
Programming 7-9
Photography 7-9

Afternoon

Fairfax Collegiate Math 3-4
Scratch Programming 3-4
Expository Writing 5-6
Robotics Olympiad 5-6
Intro to Photography 5-6
Intro to Geometry 7-9
Neuroscience 7-9
Video Production 7-9
E-Sports Arena 7-9

Session III: Jul 13-Jul 24

Morning

Writing Fundamentals 3-4
Intro to Art 3-4
Problem Solving 5-6
Elementary Debate 5-6
Raspberry Pi 5-6
Reading for Meaning 7-9
Drones 7-9
Web Development 7-9
Physics Lab 7-9

Afternoon

Chemistry Concepts 3-4
Intro to Filmmaking 3-4
Writing for Middle School 5-6
Intro to Drones 5-6
Intro to Programming 5-6
Intro to Algebra 7-9
Middle School Debate 7-9
Internet of Things 7-9
Academies of Loudoun Prep 7-8

Session IV: Jul 27-Aug 7

Morning

Writing and Revising 3-4
Digital Design 3-4
Fairfax Collegiate Math 5-6
Leadership 5-6
Graphic Design 5-6
Writing for High School 7-9
Robotics Combat 7-9
Web Video 7-9
Aerospace Engineering 7-9

Afternoon

Fairfax Collegiate Math 3-4
Spy Science 3-4
Strategic Reading 5-6
Mobile Robotics 5-6
Filmmaking 5-6
Intro to Geometry 7-9
Mock Trial 7-9
Medical Science 7-9
Fashion Design 7-9

Loudoun: Loudoun School for Advanced Studies, 20577 Ashburn Rd., Ashburn, VA 20147

Session II: Jun 29-Jul 10

Morning

Word Problems 3-4
Writing Skills and Grammar 5-6
Elementary Debate 5-6
Intro to Algebra 7-9
Internet of Things 7-9
Academies of Loudoun Prep 7-8
College Essay Workshop 9-12
High School Debate 9-12
Algorithms with Python 9-12

Afternoon

Reading Reinforcement 3-4
Problem Solving 5-6
Military Engineering 5-6
Writing for High School 7-9
Middle School Debate 7-9
Robotics Combat 7-9
SQL Databases 9-12
Intro to High School Chem 9-12
SAT Prep 9-12

Session III: Jul 13-Jul 24

Morning

Fairfax Collegiate Math 3-4
Creative Writing 5-6
Filmmaking 5-6
Intro to Geometry 7-9
Mobile Development 7-9
PSAT Prep 7-9
Intro to Precalculus 9-12
Intro to High School Bio 9-12
ACT Prep 9-12

Afternoon

Story Writing 3-4
Fairfax Collegiate Math 5-6
Power Engineering 5-6
Writers' Workshop 7-9
Animal Physiology 7-9
Video Production 7-9
Academic Writing 9-12
Intro to Algebra II 9-12
Intro to Computer Science 9-12

Session IV: Jul 27-Aug 7

Morning

Math Workshop 3-4
Writing for Middle School 5-6
Intro to Mobile Development 5-6
Math for Middle School 6-8
Middle School Debate 7-9
Academies of Loudoun Prep 7-8
Critical Reading 9-12
SQL Databases 9-12
Intro to High School Chem 9-12

Afternoon

Writing Fundamentals 3-4
Problem Solving 5-6
Human Bio and Anatomy 5-6
Research Writing 7-9
Forensic Science 7-9
E-Sports Arena 7-9
High School Debate 9-12
Algorithms with Python 9-12
SAT Prep 9-12

Session V: Aug 10-Aug 21

Morning

Fairfax Collegiate Math 3-4
Spy Science 3-4
Writing Skills and Grammar 5-6
Elementary Debate 5-6
Intro to Algebra 7-9
Drones 7-9
Programming 7-9
Academic Writing 9-12
SAT Prep 9-12

Afternoon

Writing and Revising 3-4
Scratch Programming 3-4
Advanced Math 5-6
Intro to Drones 5-6
Reading for Meaning 7-9
Model UN 7-9
Academies of Loudoun Prep 7-8
Intro to Algebra II 9-12
Intro to Computer Science 9-12



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Loudoun School for Advanced Studies
20577 Ashburn Rd.

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