

2010–2011 Profile

Thomas Jefferson High School for Science and Technology



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Recently recognized by *U.S. News & World Report* as the #1 Public High School in America, Thomas Jefferson High School for Science and Technology (TJHSST) is the product of a partnership forged between the business community and Fairfax County Public Schools to improve education in science, mathematics, and technology. This unique Fairfax County Public School offers a comprehensive program that focuses on scientific, mathematical, and technological fields. The core skills and values infused throughout the curriculum emphasize and promote critical inquiry and research, problem solving skills, intellectual curiosity, and social responsibility. As the regional magnet Governor's School for Science and Technology in Northern Virginia, the school serves applicants from seven different participating school districts: Arlington, Fairfax, Fauquier, Loudoun, and Prince William counties, as well as the cities of Fairfax and Falls Church. Of the 428 students in the Class of 2011, 125 are National Merit Semi-Finalists, 8 are National Achievement Semi-Finalists, 8 are National Hispanic Scholars, and an additional 170 are National Merit Commended students.

Admissions

With approximately 480 students in each class and through a competitive admissions process that selects students based upon their demonstrated aptitude and passion for studies in the scientific, mathematical, and technological fields, the TJ Admissions Office evaluates and considers prospective students' admission test scores, academic achievement, personal essays, and teacher recommendations. Applications are reviewed by independent selection committees composed of school administrators, counselors, and teachers from schools within the participating school districts.

Each year, approximately 480 students are offered admission to the incoming 9th grade class. The enrollment for the 2010-2011 school year is 1812.

The Class of 2014 admissions cycle offered enrollment to approximately 15 percent of all applicants.

Currently, our grade distribution and enrollment is as follows:

9th Grade	(Class of 2014) - 473 Students
10th Grade	(Class of 2013) - 462 Students
11th Grade	(Class of 2012) - 449 Students
12th Grade	(Class of 2011) - 428 Students

Student Research

Since its very first graduating class in 1985, student research has played an essential role in learning at TJHSST. Requirements for the Thomas Jefferson High School Diploma include the completion of an original engineering or experimental research project in an on-campus laboratory or off-site through a Mentorship program at a government, corporate, or university research laboratory.

Jefferson's 13 science and technology research laboratories include:

Astronomy and Astrophysics	Automation and Robotics
Biotechnology	Chemical Analysis
Communication Systems	Computer Systems
Computer Assisted Design	Energy Systems
Microelectronics	Neuroscience
Oceanography/Geophysical Systems	
Optics and Modern Physics	
Prototyping and Engineering Materials	

Selected outstanding research projects are published in TJHSST's annual student produced research journal, *TEKNOS*, which has won numerous national awards.

Mentorship Program

Students in the mentorship program are involved in research and/or project development at various mentoring agencies, including corporate, university, and government institutions, throughout the metropolitan Washington D.C. area. Students are supervised by mentors who are

Unique Mission & Beliefs

Mission Statement

The mission of Thomas Jefferson High School for Science and Technology is to provide students a challenging learning environment focused on math, science, and technology, to inspire joy at the prospect of discovery, and to foster a culture of innovation based on ethical behavior and the shared interests of humanity.

Beliefs Statement

At Thomas Jefferson High School for Science and Technology, we believe:

1. Critical thinking and problem solving skills are vital in addressing the complex societal and ethical issues of our time.
2. Students learn best in a community where academic disciplines are integrated, fostering an appreciation of how they interact and form a whole.
3. Global interdependence compels us to understand the languages, systems and diverse cultures of people throughout the world.
4. Literature, music and the arts are essential, timeless aspects of human existence.
5. The methods of science provide discipline to our search for structure in the world.
6. Research stems from a combination of fundamental knowledge, individual creativity and curiosity.
7. Effective communication is often the only difference between a good idea and a successful initiative.
8. Collaborative learning, athletics, and extracurricular activities develop leadership and interpersonal skills.
9. Responsibility and integrity are core principles in the pursuit of excellence.
10. Learning never ends.

accomplished scientists, engineers and other technical professionals working at these agencies. The mentorship program provides an alternative way for dedicated students to fulfill their required senior research project. Scientific laboratory mentorships are often comparable to university undergraduate research courses.

Mentoring agencies that support the TJHSST mentorship program include: The National Institutes of Health, Walter Reed Army Institute of Research, Naval Research Laboratories, U.S. Naval Observatory, Orbital Corporation, Northrop Grumman, MITRE, Georgetown University Medical Center, George Mason University, Federal Highway Research Center, Naval Medical Research Center, CH2M HILL, Vehicle Control Technologies, PSA Dewberry, Navy Yard, National Oceanic and Atmospheric Administration, Smithsonian Environmental Research Center, Digital Sandbox, and Astute Technology.

Embedded Activities Period

In addition to the seven academic periods, students are required to participate in an activities period that is included in the instructional day. Affectionately referred to as "8th period", this additional class period of the day affords students the ability to seek out academic support and/or enrichment while also providing them the opportunity to participate in any of the over 150 clubs and activities pertaining to (but not limited to) diversity, academic competition, outreach, service, and more. Some recent initiatives and accomplishments include the acquisition of over \$20,000 to purchase and install solar panels to help TJHSST become more 'green'.

Scholarship Awards

Members of the Class of 2010 were offered \$16,045,206 in non-financial needs based, academic scholarship awards. \$9,163,933 merit scholarships were accepted by the Class of 2010.

Accelerated Curriculum

All courses are taught at the gifted, honors, AP, or post-AP level. The rigorous college preparatory curriculum provides students with the opportunity to achieve in all disciplines, with an emphasis on the sciences and the technology of applied sciences. All students are required to work toward a 26 credit "TJ Diploma" that exceeds the Virginia state requirements for its Advanced Studies Diploma of 24 credits, as well as its Standard Diploma of 22 credits.



Thomas Jefferson High School for Science and Technology

A GOVERNOR'S REGIONAL SCHOOL FOR SCIENCE AND TECHNOLOGY

DIPLOMA REQUIREMENTS

English	4
Mathematics (<i>not including Algebra 1; AP Calculus required</i>)	4
Science (<i>Biology, Chemistry, Physics, and Geosystems</i>)	4
Social Studies	4
Foreign Language (<i>in the same language</i>)	3
Health and Physical Education	2
Fine/Practical Arts/Cultural Studies	2
Science/ Technology Research	1
Computer Science	1
Additional Mathematics, Science, or Technology	1
Total	26 credits

ADVANCED PLACEMENT AND BEYOND

Advanced Placement courses offered:

English Lit/Lang	Biology	Chinese
U.S. Government	Chemistry	Japanese
United States History	Psychology	German
Computer Science A	Spanish Lit/Lang	Russian
European History	French Lang	Statistics
Calculus AB & BC	Latin Vergil	Physics C

****In 2010, 3357 AP Exams were taken by TJ students; over 98% earned a score of 3, 4, or 5.**

Post-Advanced Placement courses offered (courses that have AP courses as a pre-requisite):

Multivariable Calculus*	Advanced Math Techniques*
Linear Algebra*	Artificial Intelligence 1 & 2*
Differential Equations*	Organic Chemistry*
Complex Variables*	Neurobiology*
Numerical Analysis*	

*These courses receive an additional 1.00 quality point in the grade point average calculation..

+These courses receive an additional 0.50 quality point in the grade point average calculation.

Grading Scale

Prior to 2009-2010 school year:	2009-2010 school year and beyond:
A 94 – 100 (4.0) "Excellent"	A 93 – 100 (4.0)
B* 90 – 93.9 (3.5)	A- 90 – 92 (3.7)
B 84 – 89.9 (3.0) "Above Average"	B+ 87 – 89 (3.3)
C* 80 – 83.9 (2.5)	B 83 – 86 (3.0)
C 74 – 79.9 (2.0) "Average"	B- 80 – 82 (2.7)
D* 70 – 73.9 (1.5)	C+ 77 – 79 (2.3)
D 64 – 69.9 (1.0) "Below Average"	C 73 – 76 (2.0)
F below 64 (0.0) "Failure"	C- 70 – 72 (1.7)
	D+ 67 – 69 (1.3)
	D 64 – 66 (1.0)
	F below 64 (0.0)

Weighting:

- Honors courses are weighted with an additional 0.50 quality points.
- AP Courses receive an additional 1.0 weight for year-long courses.
- Selected post-AP courses (semester courses that require completion of an AP course prior to enrolling) receive additional weighting as well.

Class Rank

Class rank is not computed or estimated at TJHSST. The Class of 2011 Grade Point Averages ranged from 3.392 to 4.521.

SAT Scores (Class of 2010)

	Mathematics	Critical Reading	Writing
TJHSST	754	723	723
FCPS	569	552	552
VIRGINIA	512	512	497
NATIONAL	516	501	492

Class of 2010 College Acceptance Data

99 percent of the Class of 2010 are attending a four-year college or university. (Listing reflects schools where ten or more students were accepted).

College	Accepted
University of Virginia	233
College of William and Mary	186
Virginia Polytechnic Institute and State University	155
Carnegie Mellon University	54
Duke University	44
Cornell University	43
George Mason University	31
Virginia Commonwealth University	29
James Madison University	28
University of Michigan	27
Georgia Institute of Technology	26
Washington University in St. Louis	26
Princeton University	24
Massachusetts Institute of Technology	23
Pennsylvania State University, University Park	23
University of Chicago	20
University of Pennsylvania	20
Brown University	19
Boston University	18
Johns Hopkins University	18
Rensselaer Polytechnic Institute	18
New York University	17
Georgetown University	16
Dartmouth College	15
Northwestern University	15
University of Notre Dame	15
University of Pittsburgh	15
Rice University	15
Yale University	15
University of Illinois at Urbana-Champaign	14
University of Maryland, College Park	14
Case Western Reserve University	13
Drexel University	13
The George Washington University	13
The University of North Carolina at Chapel Hill	13
Columbia University	12
University of Mary Washington	11
Oberlin College	11
University of Southern California	11
Rochester Institute of Technology	10
Stanford University	10
Vanderbilt University	10
Wake Forest University	10

Fairfax County Public Schools and TJHSST are accredited by the State Board of Education and the Southern Association of Colleges and Schools.