

# DOWNINGTOWN STEM ACADEMY

SCIENCE • TECHNOLOGY • ENGINEERING • MATH

AN INTERNATIONAL BACCALAUREATE WORLD SCHOOL  
"TOP 100 HIGH SCHOOLS IN THE COUNTRY"

NEWSWEEK

"#1 MOST CHALLENGING HS IN PA AND #6 IN THE NORTHEAST"

WASHINGTON POST



## SCHOOL PROFILE 2016 – 2017

"EFFORT CREATES INTELLIGENCE"

### STEM ACADEMY

335 Manor Avenue  
Downingtown, PA 19335  
Phone (610)-269-8460  
Fax (484)-694-5590  
[Visit our website!](#)

### ADMINISTRATION

Dr. Lawrence Mussoline  
*Superintendent of Schools*

Mr. Art Campbell  
*Head of School*

Mr. Zachary Ruff  
*Dean of Academics & Student Life*

Mr. Michael Sheehan  
*Dean of Curriculum & Instruction*

Mrs. Susan Boardman  
*Internships & Partnerships Leader*

Mr. Earl Burnham  
*Athletic Director*

### SCHOOL COUNSELING STAFF

[Mrs. Davirah Timm-Dinkins](#)  
(ext. 7207)

[Mrs. Leanne Glowik](#)  
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[Mrs. Kellie McGavin-Wiedlich](#)  
(ext. 7244)

[Mrs. Melissa Zach](#),  
Counseling Secretary  
(ext. 7206)



CEEB Code: 391-036

### DISTRICT MISSION

The mission of the Downingtown Area School District, proud of our tradition of excellence, is to educate all students to meet the challenges of a global society by providing an individually responsive learning environment characterized by outstanding academic and personal achievement in partnership with family, students, and community.

### THE COMMUNITY AND DISTRICT HIGH SCHOOLS

Located in Chester County, Pennsylvania, Downingtown Area School District is a suburban residential community with a thriving business district. An abundance of new housing developments has caused a significant increase in school district enrollment. Currently, the District serves nearly 12,000 students and has three high schools: Downingtown High School–East Campus, Downingtown High School–West Campus, and the Downingtown STEM Academy. The East and West high school campuses offer traditional high school programs and curricula. The Academy features a project and inquiry-based learning environment which focuses on science, technology, engineering and mathematics (STEM).

### THE STEM ACADEMY

All 800 students who are accepted into the prestigious Downingtown STEM Academy magnet high school are full IB students. As an accredited International Baccalaureate World School, we offer 31 IB courses spanning the entire educational core including the arts and music. 90% of all Academy students participate in the IB diploma program consisting of six IB courses, the TOK course, the EE, & CAS. The small percentage of Academy students not participating in the full diploma program are mandated to enroll in at least five IB courses of which they are eligible to receive an IB certificate. To prepare all 800 students for the IB core educational program in the Junior and Senior years, the Academy offers "pre-diploma" classes for all 9th and 10th graders.

The Board of School Directors provides oversight of the Academy. An advisory board comprised of area business and industry professionals helps steer Academy initiatives and programs, including internships and other field experiences.

## PRE-DIPLOMA/HONORS COURSES

World Literature  
American Literature  
International Studies  
Civics and Government  
*(traditional and blended options)*

Geometry  
Algebra II  
Math Analysis  
Advanced Topics in Math  
Universal Physics  
Biology  
Chemistry  
*(traditional and blended options)*  
Spanish (IV)  
French (IV)  
German (IV)

## INTERNATIONAL BACCALAUREATE COURSES

English Language A1 (SL/HL)  
Modern Language B (SL/HL)  
Psychology (SL/HL)  
History Route 2 (SL/HL)  
Mathematics (SL/HL)  
Further Mathematics (HL)  
Math Studies (SL)  
Visual Arts (SL/HL)  
Biology (SL/HL)  
Chemistry (SL/HL)  
Physics (SL/HL)  
Economics (SL/HL)  
Design Technology (SL/HL)  
Business and Mgmt. (SL/HL)  
Music Group Performance (SL)  
Music Solo Performance (SL/HL)  
Music Creating (SL)  
Theory of Knowledge (SL)

## CAREER PATHWAYS

Academy of Health, Medicine, and Biology

Academy of Applied Science and Engineering

Academy of Technology, Media, and Communications

Academy of Corporate and Mathematical Innovation

## ADMISSIONS CRITERIA

Eighth grade students residing in the Downingtown Area School district are eligible for admission to the Academy provided they have earned a “C” average in all core classes in 6<sup>th</sup>, 7<sup>th</sup>, and 8<sup>th</sup> grades, and submitted the Academy’s application, which includes three essays and a teacher recommendation. All Academy applications are triple blind scored by a team of school district professionals. Each year, approximately 200 students are offered admission out of the 450 that apply.

## ACADEMY CURRICULUM

The International Baccalaureate (IB) Diploma Program is a rigorous liberal arts curriculum that prepares 11th and 12th grade students for university study. STEM Academy students largely participate in the full IB Diploma Program, which consists of six IB courses, the Theory of Knowledge course, the Extended Essay, and Creativity, Action, and Service (CAS). STEM Academy students not participating in the full diploma program are typically enrolled in at least five IB courses for which they are eligible to receive an IB certificate. To prepare students for the International Baccalaureate Program, the STEM Academy offers “Pre-Diploma” classes for all 9th and 10th grade students.

Classes are offered in the context of a modified block schedule. STEM Academy students earn approximately 6-7 credits each year. Special opportunities for students include participation in the Academy’s intensive career pathways program, college/university dual enrollment opportunities, and field study experiences. Specialty elective courses include computer programming, communications technology, engineering, and recording studio, as well as performing and studio arts courses such as concert choir, symphony & chamber orchestra, and concert & marching band, and art in the 21<sup>st</sup> century.

## CAREER PATHWAYS PROGRAM

The STEM Academy provides opportunities for students during the junior and senior years to explore a specific career area of interest through course work, trips, speakers, research and university-based activities. The four career academies, offered by the Academy, largely reflect STEM fields and culminate in an individualized capstone activity, or STEM Practicum. The following Academies are available to students: 1) Academy of Corporate and Mathematical Innovation; 2) Academy of Health, Medicine and Biology 3) Academy of Applied Science and Engineering; 4) Academy of Technology, Media and Communications. Pathway courses include:

- Health & Medicine
- Biotechnology
- Global Marketing
- Finance
- STEM Inc.
- iMedia/Visual Media
- Filmmaking & Broadcast Tech
- Technological Innovation
- Information Systems
- Design Engineering
- Robotics
- Forensics

The STEM Practicum is the culmination of students’ work and experiences in their STEM Pathways at the Academy, further developing their critical thinking and practical work skills. The practicum also provides them with the opportunity to make informed decisions regarding their future career choices. The practicum includes a Career Exploration, Independent Research Project or STEM related College Course. The Career Exploration is a 21 hour on-site experience with STEM Academy business partners, such as Comcast, Lockheed Martin, Bentley Systems, Sikorsky Aircraft Corporation, and West Pharmaceutical Services to name a few.

## GRADING SYSTEM

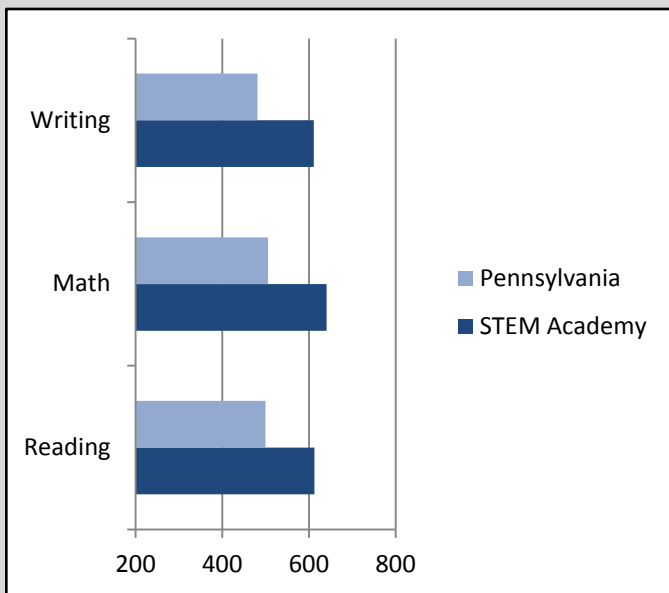
The Downingtown Area School District utilizes a traditional letter grade system. A student's grade point average is calculated on a 4.0 scale. Pre-Diploma, IB, and Career Pathway courses are given additional weight. All Pre-Diploma classes and Standard Level (SL) IB classes earn .5 (Honors) weight, while Higher Level (HL) IB classes earn 1.0 weight. Classes associated with the career pathways program receive .5 weight. In an effort to stress the importance of the International Baccalaureate's focus on assessment through internal and external assessments, students' course grades at the Academy are solely determined by assessments and are not based on activities, homework, or other classroom assignments.

Grade	Standard Course	Honors/Pre-Diploma Course/IB SL Course/Career Pathway Course	IB HL Course
A (90-100%)	4	4.5	5.0
B (80-89%)	3	3.5	4.0
C (70-79%)	2	2.5	3.0
D (60-69%)	1	1.5	2.0
F (30-59%)	0	0	0

**THE STEM ACADEMY DOES NOT REPORT CLASS RANK.**

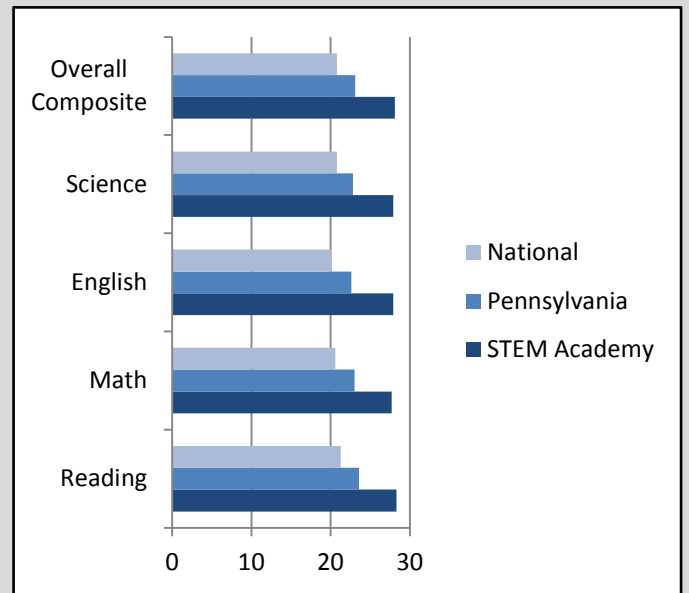
## STANDARDIZED TEST SCORES

**CLASS OF 2016 SAT SCORES BY SUBJECT**



Average based on highest score per section, per student. Data represents SAT results prior to March 2016, on 2400 scale. National data not available at time of printing.

**CLASS OF 2016 ACT SCORES BY SUBJECT**

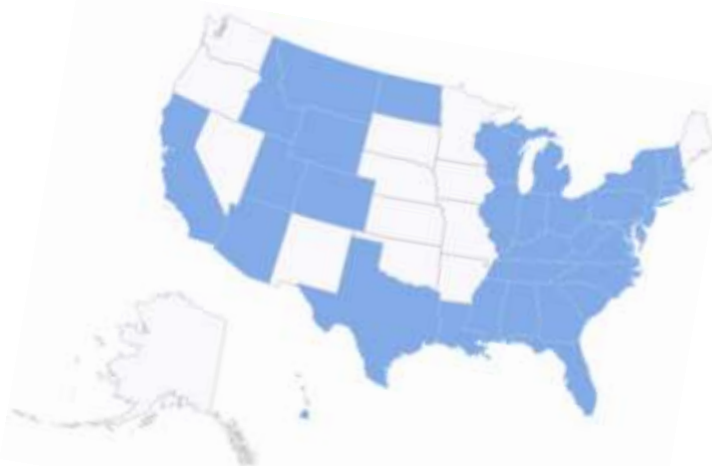


Average based on highest score per section, per student.

## COLLEGE PLACEMENT

In 2016, 99% of graduates from the Downingtown STEM Academy chose to continue their education at two and four-year institutions. This school year, the STEM Academy anticipates that 100% of its graduates will choose to pursue higher education.

Last school year, the class of 2016 submitted a total of 1,418 college applications, both here in the U.S. and abroad. Each student submitted an average of 6.74 applications, and the entire class was accepted to a little over 200 colleges across 28 states, including various public, private, and state-related institutions. Below is a list of some institutions our students have attended since 2014:



- University of Pennsylvania
- Brown University
- Cornell University
- Carnegie Mellon University
- Georgia Institute of Technology
- Dartmouth University
- Duke University
- George Washington University
- Villanova University
- Washington Univ. of St. Louis
- Massachusetts Institute of Technology
- Pomona College
- University of Delaware
- University of Michigan
- Boston College
- Wake Forest University
- Case Western University
- Purdue University
- University of Texas
- University of Miami
- UNC Chapel Hill
- University of Chicago
- University of Winchester (ENG)
- UC Berkeley
- Penn State University
- University of Pittsburgh
- Temple University
- Swarthmore College
- Brigham Young University
- College of William and Mary
- United States Air Force Academy
- United States Naval Academy
- American University of Paris (FR)

## NATIONAL MERIT SCHOLARSHIP PROGRAM

2016 National Merit Recognition	
National Merit Finalists	7
National Merit Commended Students	12

## 2016 INTERNATIONAL BACCALAUREATE PROGRAM SUMMARY

187 members of the Class of 2016 sat for over 4,400 hours of exams in May 2016, after successfully completing two years of IB coursework. As a whole, the class completed over 2,500 exams and 83% of diploma candidates successfully received the prestigious International Baccalaureate Diploma – an honor shared with only 54,000 other students in the world, across 141 countries. Furthermore, 85% of the subject area tests received a score of 4 or better.

167 students completed the Extended Essay – an independent, self-directed piece of research, culminating in a 4,000-word paper submitted to content area experts across the world for review. These students also completed over 28,000 hours of Creativity, Action, and Service (CAS) hours, an IB Diploma Program requirement that stresses the importance of life outside the world of scholarship, providing a refreshing counterbalance to academic studies.