ADVOCACY

For New Jersey Mentor-Based STEAM Programs

Presented by the Pascack Pi-oneers
FIRST **Robotics Team 1676**

PASCACK VALLEY REGIONAL HIGH SCHOOL DISTRICT

225 West Grand Avenue, Montvale, NJ 07645

201-358-7020 • www.team1676.com

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Introduction

What is *FIRST*?

FIRST is a non-profit organization designed to inspire young people's interest and participation in science and technology, and to motivate them to pursue education and career opportunities in STEM fields. The goal of *FIRST* is met by engaging students in exciting Mentor-based programs that build science, engineering, and technology skills, that inspire innovation, and that foster well-rounded life capabilities including self-confidence, communication, and leadership.

FIRST is a global organization with participation of approximately 80 countries, 400,000 students and over 44,000 teams. In the United States there is over $22 million in scholarship opportunities for high school students. It is comprised of four programs from high school to elementary school:

1. **FRC- *FIRST* Robotics Competition** for high school students
2. **FTC- *FIRST* Tech Challenge** for high school students
3. **FLL- *FIRST* LEGO League** for middle school students
4. **FLL Jr.- *FIRST* LEGO League Junior** for elementary school students.

Who are the Pascack Pi-oneers?

The Pascack Pi-oneers were founded in 2004 by a high school senior and a technology teacher. Students from Pascack Hills High School and Pascack Valley High School joined together to create FRC Team 1676, the Pascack Pi-oneers.

The mission of the Pascack Pi-oneers is to combine the fundamental beliefs of *FIRST* with the desires of their team members to pursue and promote future careers in science, technology, engineering, arts, and math (STEAM) and to provide STEAM education for our community.

The goal of the Pascack Pi-oneers is to operate as a cohesive team, competing with Gracious Professionalism under the guise of *FIRST*, developing our students' abilities to conspire, create and develop as individuals and collectively as a team. They strive not only to build a successful robot, but also to master and exhibit the many life-skills necessary to succeed beyond *FIRST* Team 1676.
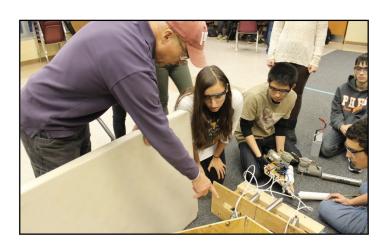
Introduction

For the past two years, the Pascack Pi-oneers have attended the National Advocacy Conferences (NAC) in Washington D.C. hosted by FRC Team 27 Rush. This past year, the mission was to advocate for the reauthorization of the No Child Left Behind and Elementary and Secondary Education Acts, specifically the Franken Kirk and Murray Amendment. This amendment will improve STEAM education, including funding for after-school mentor-based STEAM programs to underserved school districts. Inspired by their participation in NAC, the Pi-oneers took the initiative to pursue the reauthorization of ESEA and to advocate change among state legislators.

What are After-School Mentor-Based STEAM Programs?

FIRST is one of many different types of after-school mentor-based STEAM programs, with VEXPro and *FIRST* shown to be the most effective. These STEAM programs create hands-on experiences that commonly cannot be obtained in a classroom setting.
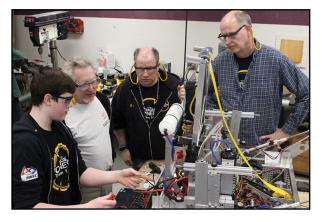
Professional engineers and adult mentors volunteer their time and knowledge to inspire and teach the participating students. These professionals assist students through the problem-solving process of engineering. Providing students this advantage makes pursuing a STEAM career attainable.

FIRST Impact

SCHOOL ENGAGEMENT INCREASES FOR *FIRST* PARTICIPANTS

More interested in doing well in school

87%
FIRST® LEGO® League

86%
FIRST® Tech Challenge

88%
FIRST® Robotics Competition

Plan to take a more challenging math or science course

84%
FIRST® Tech Challenge

90%
FIRST® Robotics Competition

More interested in going to college

88%
FIRST® LEGO® League

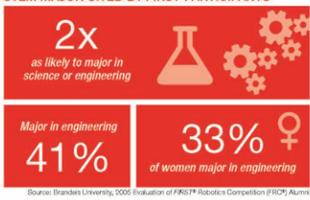**87%**
FIRST® Tech Challenge

91%
FIRST® Robotics Competition

Source: Brandeis University, 2011 *FIRST*® Tech Challenge (FTC®) – *FIRST*® Robotics Competition Evaluation and 2013 *FIRST*® LEGO® League (FLL®) Evaluation

STEM MAJOR CITED BY *FIRST* PARTICIPANTS

2x
as likely to major in science or engineering

Major in engineering
41%

33% ♀
of women major in engineering

Source: Brandeis University, 2005 Evaluation of *FIRST*® Robotics Competition (FRC®) Alumni

21ST CENTURY WORK-LIFE SKILLS GAINED BY *FIRST* PARTICIPANTS

Improved problem solving skills	Increased time management skills	Increased conflict resolution skills	Strengthened communication skills
98%	95%	93%	OVER 76%

Source: Brandeis University, 2011 *FIRST®* Tech Challenge – *FIRST®* Robotics Competition Evaluation and 2013 *FIRST®* LEGO® League Evaluation

FIRST ALUMNI IN STEM CAREERS

89.6%
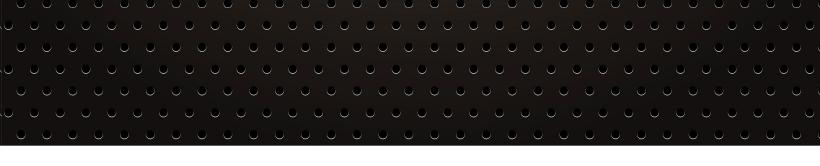of Alumni are in a STEM field as a student or professional

Source: *FIRST*, 2011 Survey of *FIRST®* Robotics Competition and *FIRST®* Tech Challenge Alumni

Dropout Rates

Introducing a Mentor-Based After-School Program will provide an opportunity for mentors to find ways to alleviate those reasons by:
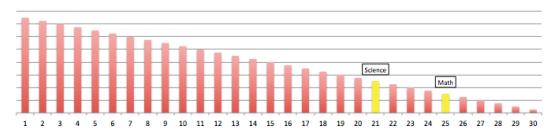
- Promoting involvement in the program and demonstrating support
- Helping students to discover what will interest them
- Provide goals to meet through teamwork
- Present learning in a different way and supporting the individual application of what is learned
- Provide an after-school destination in a safe, encouraging, creative atmosphere
- Ultimately create a reason to attend school

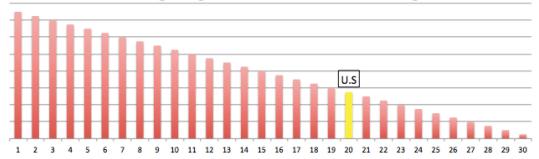| Cause of Dropout	Male	Female
Easier to get GED	41.5	39.1
Did not like school	40.1	32.0
Could not complete course requirements	22.9	39.0
Could not get along with teachers	27.7	21.6
Did not feel belonged there	19.9	19.9
Could not get along with others	17.7	20.1
Did not feel safe	10.5	9.5

Statistics from dropoutprevention.org.

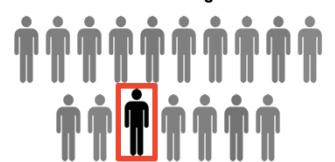## Ranking of US Among the Standarized Test Scores of 14-year-olds Across 30 Nations

Science
Math

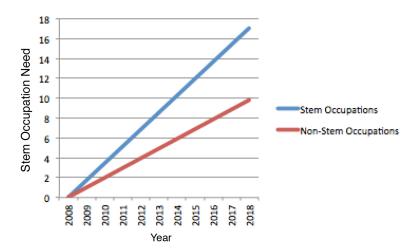## U.S. Ranking in High School Graduation Rates Among 30 Nations

U.S

Bachelor's Degree

Only 1 in 17 children from lower income families (earning less than $35,000) earn a bachelor's degree by the age of 24.

Stem Occupation Need

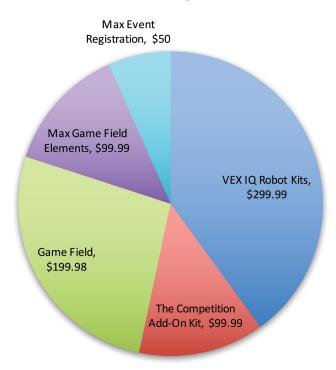Stem Occupations
Non-Stem Occupations

Year

VEX IQ

$750 To Start
- $299.99 for VEX IQ Robot Kits
- $99.99 The Competition Add-On Kit
- $199.98 Game Field
- $12.99 to $99.99 Game Field Elements
- $25.00 to $50.00 For Event Registration

FIRST LEGO League

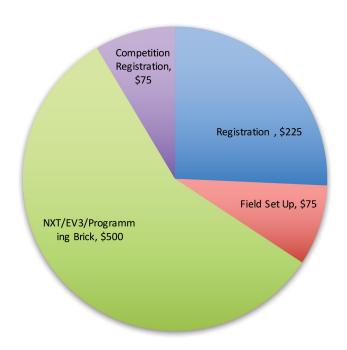**$875 To Start**
- $225 for registration
- $75 for field set up
- $435/499 for NXT/EV3 kit
- $75 for competition registration

VEX IQ Expenses

Max Event Registration, $50
Max Game Field Elements, $99.99
VEX IQ Robot Kits, $299.99
Game Field, $199.98
The Competition Add-On Kit, $99.99

FLL Expenses

Competition Registration, $75
Registration , $225
Field Set Up, $75
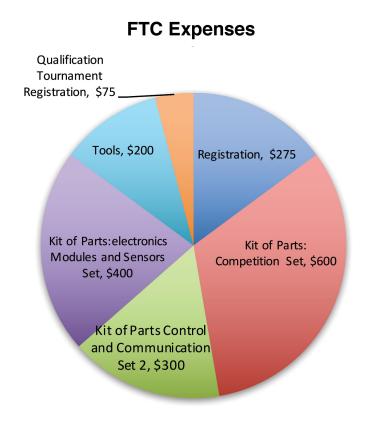NXT/EV3/Programming Brick, $500

FIRST Tech Challenge

$1,850 To Start
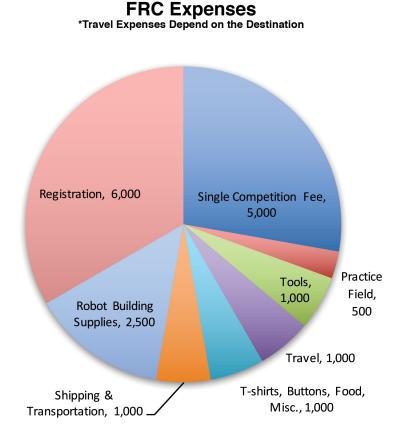- $75 Single Competition fee
- $1775 Materials & Parts

FIRST Robotics Competition

$12,500 To Start
- $5,000 Single Competition fee
- $5,000 Materials & Parts

FTC Expenses

Qualification Tournament Registration, $75

Tools, $200

Registration, $275

Kit of Parts: electronics Modules and Sensors Set, $400

Kit of Parts: Competition Set, $600

Kit of Parts Control and Communication Set 2, $300

FRC Expenses
*Travel Expenses Depend on the Destination

Registration, 6,000

Single Competition Fee, 5,000

Robot Building Supplies, 2,500

Tools, 1,000

Practice Field, 500

Travel, 1,000

Shipping & Transportation, 1,000

T-shirts, Buttons, Food, Misc., 1,000

What is the cost for a teacher or mentor?

If a team is school-based most situations have a teacher as a coach/mentor. They represent the school district as a paid employee and a stipend for the after-school activity is determined per school district.
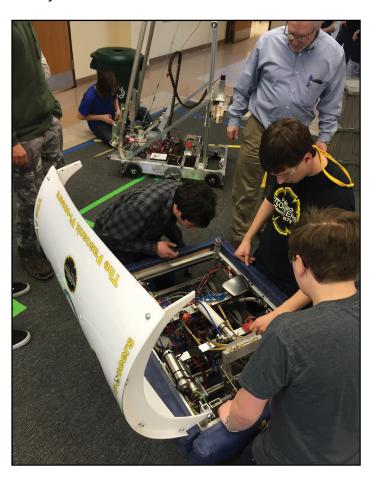
If a team is school-based mentors will also work with the team on a volunteer basis after passing the school district screening. *FIRST* Robotics has a verification program for all volunteers, coaches and mentors.

Are there any special skills required?

Teams thrive on the variety of skills students and mentors bring with them, but they also thrive on skills that are learned and shared. All levels of ability are welcome, technical and non-technical. Some of the skills used are programming, electronics, pneumatics, mechanical, CAD-computer aided drawing, carpentry, metal/shop work, graphic arts, web design, videography, writing, public speaking and more.

Where are team meetings held?

Team meetings are ideally held in a classroom or facility in the school building. This provides easy access to teachers/mentors, materials and safety. If the team is a non-school based team (community team) meetings can be held at a recreation center, library or church.

When do teams meet?

Each team determines dates depending on availability of mentors, team members and the facility. To accomplish team goals and attain competence, teams meet as often as possible. Each program, depending upon age group, will determine appropriate time allotment. For example, FLL could meet 3 to 5 days a week for an hour to an hour and a half. FRC could meet every day ranging from 3-6 hours a day.

How much time is necessary?

All teams meet depending on the goal of the team and the achievements they wish to accomplish. Successful teams meet a minimum of two to three days a week. As competition approaches, teams meet much more. Teams also meet after or before the competition season for off-season competitions and team events.

How many students?

Each program level has appropriate membership determined by the number of mentors to provide supervision, space available and interested students.

- **FRC:** No minimum, however 20 is suggested. The more students participating, the wider variety of skills you can employ.
- **FTC:** At least 2 members are needed, no more than 10. The more students participating, the wider variety of skills you can employ.
- **FLL:** At least 2 members are needed. 10 core team members are needed to compete, however there can be more to participate in general.
- **VEX IQ:** Teams generally have 5-10 members, but no limit exists. It is best if a team has at least two members, in order to participate in the Teamwork Challenge.

Every Student Succeeds Act

Overview

The Elementary and Secondary Education Act (ESEA) was first passed in 1965 by President Lyndon Baines Johnson. This major education bill was created in response to the growing need for the federal government to improve the quality of education for lower income students across the United States. ESEA is the major education law that governs how states and local education agencies spend federal dollars and conduct the education of millions of public school students from pre-k to 12th grade. Since 1965, ESEA has been reauthorized 8 times and prior tothe 2015 reauthorization, the most recent reauthorization occurred in 2002, when President George W. Bush and Congress reauthorized ESEA and renamed it the No Child Left Behind Act (NCLB). In December 2015, the House passed a reauthorization of ESEA now titled the Every Student Succeeds Act (ESSA) by a vote of 359-64 and the Senate passed the bill by a vote of 85-12. President Obama signed ESSA into law on December 10, 2015.

Title IV—21ST CENTURY SCHOOLS

The purpose of this title is to improve students' academic achievement by increasing the capacity of States, local educational agencies, schools, and local communities to provide all students with access to a well-rounded education; improve school conditions for student learning; and improve the use of technology in order to improve the academic achievement and digital literacy of all students.

New Jersey is expected to receive approximately $11 million if the appropriation of $500 million is received in 2017.

If the appropriation is $1.65 billion, New Jersey would receive approximately $36 million for 2017-2020.

**The combined House & Senate bill called Every Student Succeeds Act
has been passed.
This Act replaced the No Child Left Behind Act.
Below, find a timeline of the development of the Act.**

12/10/2015   Became Public Law No: 114-95.

12/10/2015   Signed by President.

12/09/2015   Presented to President.

12/09/2015   Conference report agreed to in Senate: Senate agreed to conference report
by Yea-Nay Vote. 85 - 12. Record Vote Number: 334.

12/02/2015   Conference report agreed to in House: On agreeing to the conference report
Agreed to by the Yeas and Nays: 359 - 64 (Roll No. 665).

11/30/2015   Conference report filed: Conference report H. Rept. 114-354 filed.

11/19/2015   Conference committee actions: Conferees agreed to file conference report.

11/18/2015   Conference committee actions: Conference held.

11/17/2015   To conference: Mr. Kline moved that the House insist upon its amendment, and
request a conference.(consideration: CR H8271-8272; text: CR H8271)

11/17/2015   Passed/agreed to in House: Pursuant to the provisions of H. Res. 526, S. 1177
is considered passed House as amended.

07/16/2015   Passed/agreed to in Senate: Passed Senate with an amendment by Yea-Nay
Vote. 81 - 17. Record Vote Number: 249.

04/30/2015   Introduced in Senate

Target Schools*

Asbury Park
- Asbury Park Middle School
- Barack Obama Elementary School
- Bradley Elementary School
- Thurgood Marshall Elementary School

Bridgeton
- Broad Street School
- Buckshutem Road School
- Cherry Street School
- Indian Avenue School
- Quarter Mile Lane School
- West Avenue School

Camden
- Henry L. Bonsall Family School
- Octavius V. Catto Community Family School
- Cooper's Poynt School
- Alfred Cramer College Preparatory Lab School
- R. T. Cream Family School
- Henry H. Davis Family School
- Thomas H. Dudley Family School
- Forest Hill Elementary School
- Cooper B. Hatch Family School
- Harry C. Sharp Elementary School
- Charles Sumner Elementary School
- Veterans Memorial Family School
- John Greenleaf Whittier Family School
- Dr. Ulysses S. Wiggins College Preparatory Lab Family School
- H. B. Wilson Family School
- Yorkship Family School

Carney's Point
- Penns Grove Middle School
- Paul W. Carleton
- Field Street School

East Orange
- Benjamin Banneker Academy
- Edward T. Bowser School of Excellence
- George Washington Carver Institute
- Johnnie Cochran Academy
- Mildred Barry
- Garvin School
- Whitney Houston Academy
- Langston Hughes School
- Garfield Jackson Academy
- Ecole Toussaint Louverture
- Gordon Parks Academy
- Cicely L. Tyson Community Elementary School
- Dionne Warwick Institute
- Secondary: John L. Costley Middle School (Grade 7)
- Patrick F. Healy Middle School (Grade 6)
- Fresh Start Academy Middle School

Elizabeth
- George Washington School #1
- Winifred Scott School #2
- Nicolas S. La Corte-Peterstown School #3
- Joseph Battin School #4
- Mabel G. Holmes School #5
- Toussaint L'ouverture-Marquis de Lafayette School #6
- Terence C. Reilly #7
- iPrep Academy School #8
- Jerome Dunn Academy #9
- Elmora School #12
- Benjamin Franklin School #13
- Abraham Lincoln School #14
- Christopher Columbus School #15
- MAdison-Monroe School #16
- Robert Morris School #18
- Woodrow Wilson School #19
- John Marshall School #20
- Victor Mravlag School #21
- William F. Halloran School #22
- Nicholas Murray Butler School #23
- Charles J. Hudson School #25
- Dr. Orlando Edreira Academy #26
- Juan Pablo Duarte - Jose Julian Marti School #28
- Dr. Albert Einstein Academy School #29
- Ronald Reagan Academy School #30
- Dr. Antonia Pantoja School #27
- Monsignor Joao S. Anto School #31

Hillside
- Calvin Coolidge
- George Washington
- Hurden Looker
- Walter O. Krumbiegel
- AP Morris ECC

Irvington

(All k-5)

- Berkeley Terrace
  Elementary School
- Chancellor Avenue School
- Florence Avenue School
- Grove Street Elementary School
- Madison Avenue School
- Mount Vernon Avenue
  Elementary School
- Thurgood Marshall
  Elementary School
- University Elementary School

(6-12)

- Union Middle School
- University Middle School

Jersey City

(K-8)

- Dr. Michael Conti School PS 5
- MLKJ School PS 11
- Julia A. Barnes School PS 12
- Joseph F. Brensinger School PS 17
- Mahatma K. Gandhi School PS 23
- Chaplain Charles Watters School PS 24
- Alfred E. Zampella School PS 27
- Christa McAuliffe School PS 28
- Public School Number 34
- Rafael de Cordero School PS 37
- James F. Murray School PS 38
- Dr. Charles P. Deficcio School PS 39
- Frank R. Conwell
  Middle School MS 4 (6-8)
- Franklin L. Williams School MS 7 (6-8)
- Ezra Nolan School MS 40 (6-8)
- Academy I Middle School (6-8)

(K-5)

- Frank. R. Conwell School PS 3
- Jotham W. Wakeman School PS 6
- Charles E. Trefurt School PS 8
- Ollie Culbreth Jr. School PS 14
- Whitney M. Young Jr. School PS 15
- Cornelia F. Bradford School PS 16
- Public School #20
- Reverend Dr. Ercel F. Webb School PS 22
- Nicolaus Copernicus School PS 25
- Alexander D. Sullivan School PS 30
- Anthony J. Infante School PS 31
- Dr. Paul Rafalides School PS 33

Lakewood

- Lakewood Middle School
- Clifton Avenue School
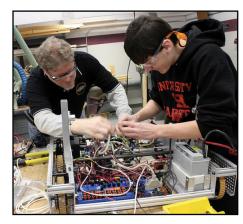- Ella G. Clarke School
- Oak Street School
- Spruce Street School

Newark

(PK-8)

- Abington Ave School
- Ann Street School
- BRICK Peshine Academy
- Camden Street School
- Cleveland Elementary
- First Ave School
- Hawkins Street School
- Ivy Hill Elementary School
- Lafayette Street School
- Lincoln Elementary School
- Luis Munoz Marin School
- McKinley Elementary School
- Miller Street School at Spencer
- Mount Vernon School
- Oliver Street School
- Park Elementary School
- Quitman Street Community School
- Rafael Hernandez Elementary School
- Sussex Ave Renew School
- Thirteenth Ave/Dr. MLKJ School
- BRICK Avon Academy
- Belmont Runyon School
- Bruce Street School

- Chancellor Avenue School
- Dr. E. Alma Flagg School
- Dr. William H. Horton School
- GW Carver School
- Hawthorne Ave School
- Louise A. Spencer Elementary School
- Ridge Street School
- South 17th Street School
- Speedway Academies
- Wilson Avenue School
- Fourteenth Ave School (K-4)
- Eagle Academy for Young Men (6-9)
- Girls' Academy Of Newark
- Harriet Tubman School (k-6)
- South Street School (PK-5)
- Benjamin Franklin School (PK-4)
- Branch Brook School
- Elliot Street School
- Roberto Clemente Elementary School

New Brunswick

- Lincoln Elementary School
- Livingston ELementary School
- Lord Stirling Community School
- McKinley Community School
- New Brunswick Middle School
- Paul Robeson Community School/Annex
- Redshaw Elementary School
- Roosevelt elementary School
- Woodrow Wilson Elementary School

Orange

- Cleveland Street Elementary School
- Forest Street School
- Heywood Avenue School
- Lincoln Avenue School
- Oakwood Avenue Community School
- Park Avenue School
- Rosa Parks Community School

Palmyra

- Charles Street School

Passaic

- Thomas Jefferson School #1 (k-6)
- George Washington School #2 (k-2)
- Mario J. Drago School #3 (prek-6)
- Abraham Lincoln Middle School #4
- Theodore Roosevelt School #5 and 5 Annex (k-6)
- Dr. MLKJ School #6 (prek-6)
- Casimir Pulaski School #8 (pre-2)
- Etta Gero School #9 (3-6)
- Theodore Roosevelt School #10 and 10 Annex (2-6)
- William B. Cruise School #11 (1-6)
- Daniel F. Ryan School #19 (2--6)

Paulsboro

- Loudenslager Elementary School
- Paulsboro Middle School

Perth Amboy

- Anthony V. Ceres Elementary School
- James J. Flynn Elementary School
- Edward J. Patten Elementary School
- Dr. Herbert N. Richardson 21st Century Elementary School
- Robert N. Wilentz Elementary School
- Samuel E. Shull Middle School
- William C. McGinnis Middle School

Paterson

- School 1
- School 2
- School 3
- Dr. Frank Napier Jr. School of Science and Technology
- School 5
- School 6
- School 7
- School 8
- Charles J. Riley--School 9
- School 10
- Newcomers (School 11)
- School 12
- School 13
- School 14
- School 15
- School 18
- School 19
- School 20
- School 21
- School 25
- School 26
- School 27
- School 28
- School 29
- Dale Avenue
- Rev Dr. MLKJ School
- New Roberto Clemente School
- Norman S. Weir School
- Roberto Clemente School

Pittsgrove

- Norma Elementary School
- Elmer Elementary School
- Olivet Elementary School
- Pittsgrove Township Middle School

Plainfield

- Barlow Elementary (k-5)
- CedarBrook K-8 Center
- Clinton Elementary
- Cook Elementary
- Emerson Elementary
- Jefferson Elementary
- Evergreen Elementary
- Stillman Elementary
- Washington Elementary
- Woodland Elementary
- Hubbard Middle School
- Maxson Middle School

Pleasantville

- Pleasantville Middle School
- Bedford Road School

Roselle

- Harrison Elementary School
- Dr. Charles C. Polk Elementary School
- Washington Elementary School
- Leonard V. Moore Middle School
- Grace Wilday Junior HS

Salem

- Salem School

Seabrook

- Seabrook Middle School
- Lincoln Akerman School
- North Hampton Elementary School
- South Hampton Barnard School

Trenton

- Rivera Middle School
- Kilmer Middle School
- Hedgepeth/Williams Middle School
- Dunn Middle School
- Columbus Elementary School
- Wilson Elementary School
- Washington Elementary School
- Robeson Elementary School
- Robbins Elementary School
- PJ Hill Elementary School
- Parker Elementary School
- Mott Elementary School
- King Elementary School
- Jefferson Elementary School
- Gregory Elementary School
- Grant Elementary School
- Franklin Elementary School

Wildwood

- Wildwood Middle School
- Glenwood Avenue Elementary School

Willingboro

- Garfield East Elementary School
- Hawthorne Elementary School
- Memorial Middle School
- J. C. Stuart Elementary School
- Twin Hills Elementary School
- W. R. James Sr. Elementary School

*The list of schools have been determined by "US News Education" based on their high school's statistics:
- **College Readiness**
- **Mathematics Proficiency**
- **Language Proficiency**

Sample Email to School Districts

Dear Mr./Ms,

Allow me to introduce myself. My name is Kevin Killian and I am a math teacher at Pascack Hills High School in Montvale NJ and also the head coach of the Pascack Pi-oneers robotics team. Our robotics team competes in *FIRST* robotics competitions (www.firstinspires.org) and also serves as ambassadors for robotics and STEAM (Science, Technology, Engineering, Arts, and Math) education throughout the state. We have been working with the NJ Department of Education and the Governor's office to help increase the number of after school mentor-based STEAM programs throughout New Jersey.

Recently, the NJ Department of Education has chosen us to administer a grant to begin competitive robotics teams in school districts that do not currently have one. Norah Peck, Bergen County Superintendent of Schools, has identified several schools in Bergen County that could benefit from these programs. This is how we were directed to Lodi High School. The grant would cover the first 1 or 2 years expenses for these new teams to compete in *FIRST* Tech Challenge robotics (http://www.firstinspires.org/robotics/ftc). Our goal is to help launch and mentor new teams for the season that begins in September 2016.

We would like to schedule a visit to your school in the near future. We would plan on explaining the program to you, a teacher who might be the advisor of the activity, and hopefully some interested students. We will also demonstrate one of our robots. We have availability before the end of the school year the afternoons of June 14-17. Please let me know if you are interested in having us visit and show you what it's all about.

Sincerely,

Kevin Killian
Math Teacher, Pascack Hills High School
Head Coach, *FIRST* Robotics Team 1676, The Pascack Pi-oneers

To learn more about FIRST, visit firstinspires.org.
To learn more about The Pascack Pi-oneers, visit team1676.com

Sample Email to Government Officials

Dear Mr./Ms,

My name is xxxx and I am from the Pascack Pi-oneers, *FIRST* Robotics Competition (FRC) Team 1676. We are from the Pascack Valley Regional High School District in Montvale, NJ. FIRST, For Inspiration and Recognition of Science and Technology, was founded in 1989 by inventor Dean Kamen to create the next generation of thinkers, doers, and innovators. The Pascack Pi-oneers are entering their 13th year. Every year we build a new robot for competition, along with participating in many outreach/community service activities.

Spearheaded by The Pascack Pi-oneers, FRC teams across the state are helping to implement Mentor Based STEAM (Science, Technology, Engineering, Arts, and Math) Programs in underserved schools throughout the state of New Jersey. We are starting *FIRST* Tech Challenge (FTC) teams, as the cost and commitment for schools are significantly less than *FIRST* Robotic Competition teams. The goal is to provide students the opportunity to experience hands-on learning they may not have previously experienced.

The Pascack Pi-oneers are eager to schedule a visit to explain how FTC teams work, the benefits of mentorship, necessary funding, and further discuss how we can collaborate to make Mentor Based STEAM Programs a success. Please let us know of several convenient dates.

We are looking forward to working with you!

Thank you very much,

Name
The Pascack Pi-oneers, FRC Team 1676

To learn more about FIRST, visit firstinspires.org.
To learn more about The Pascack Pi-oneers, visit team1676.com

Alumni Testimonial

"I was a member of Team 1676 my entire high school career. The mentors taught me so many things I never knew before, which inspired me to pursue my Bachelors/Masters degree in Mechanical Engineering. During winter and spring break and whenever possible I return to mentor the Pi-oneers in the mechanical division and CAD (Computer-Aided Design). It is a lot of time to give back to the team, but every minute I can help out is worth it. It is very satisfying to give back to the team that gave me so much, but also I have learned so much by mentoring them. It goes to show that learning never stops, and I am glad I can learn from the team while helping others learn engineering. That is why I return whenever I can."
Eric Delsanto, Pascack Pi-oneer Alumnus, Class of 2011

"After arriving at Northeastern University, it was important to me to remain connected to the FIRST community. Being a member of the Pascack Pi-oneers, who had given so much to me in high school, inspired my decision to volunteer and I began mentoring FRC Team 125 in 2013. This year my team hosted an FIRST LEGO League tournament. None of the mentors on the team had ever run one before, however I had volunteered for many with Team 1676. The Pi-oneers mentors welcomed me to shadow them throughout the planning stages, set up, and event during their 2015 FLL Qualifier, and this knowledge proved invaluable. Team 125 would not have been able to run their competition without the help of Team 1676."
Jenna Malley, Pascack Pi-oneers Alumnus, Class of 2013

"When I began college I became a mentor for FRC Team 4475, a rookie team in an urban area. As a former Pascack Pi-oneer, I realized mentoring was an important path to take. During Build Season a misplaced order left my team without any materials to build our robot. I reached out to Team 1676 and they immediately provided material to build our robot. They graciously answered our questions and assisted with programming which provided our robot the capability to function at its best. Due to their assistance and generosity, my team had a great competition robot and became Finalists at an event."
Matt Lantry, Pascack Pi-oneer Alumnus, Class of 2014

Conclusion

The mission statement of Team 1676 includes, "our members pursue and promote future careers in science, technology, engineering, arts and math and to provide STEAM education to our community". Through their search to find ways to reach out to the community, the Pascack Pi-oneers attended the National Advocacy Conference held by *FIRST* Team 27 Rush the past two years. Inspired by their involvement in NAC they made the decision to advocate for programs on the state level and developed Advocacy For New Jersey Mentor-Based STEAM Programs.

The goal of Team 1676 is to present information and inspire those who can facilitate STEAM programs to students who presently do not have the opportunity to participate in them.

The goal of Team 1676 is to inform those students of the benefits of participating in after-school mentor-based programs through communication and by example.

In conclusion, members of the Pascack Pi-oneers have benefited greatly through their involvement and experiences in *FIRST* Robotics. They have learned teamwork and how to meet a goal; through hands-on experiences they have learned real world skills from dedicated teachers, mentors and professionals; they have been provided with leadership opportunities and made connections for internships in local businesses. Being inspired by their participation in *FIRST*, Team 1676 has taken these experiences to create and mentor new teams in all levels of *FIRST* Robotics. All of the opportunities provided from team participation are needed for young people to fill jobs being created, but it is also important for students to realize their ability and gain confidence in a fun, challenging, creative way.

THE Pascack πONEERS Team 1676

The Goal

Student takes break to do homework.

Alumni Mentor Jon Brizzolara works with freshman and sophomore students in mechanical engineering.

Team members work on electrical mechanism.

The animation team works on their safety animation.

Students working on CAD drawings.

Students discuss a plan for the day.

Mentor Jack Teadore discussing programing with senior programmer.

Sophomore prints and assembles the team scrapbook.

Student takes time to complete school work.

Mentor Lisa Ruggieri works with students to edit chairman's video and essay.

Robot programmers testing code to prepare robot practice.

Teacher Adam Ostrowski works with students.

Students certified on machinery are approved to work solo to use equipment.

Mentor Steve Mertz advises students on carpentry.

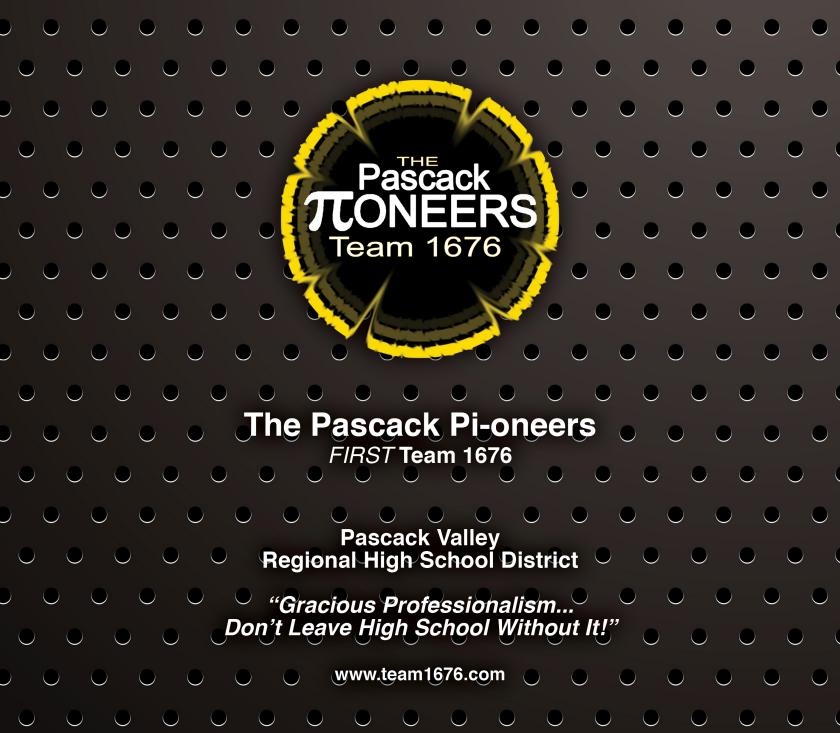Students who are certified on tools work solo on machinery.

Students experiencing trial and error with the first test of the robot.

Website programmers update the team website.

Notes

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The Pascack Pi-oneers
FIRST Team 1676

**Pascack Valley
Regional High School District**

*"Gracious Professionalism...
Don't Leave High School Without It!"*

www.team1676.com