



FIRST[®] Robotics Competition **FIRST[®] FAQ**

What is FIRST[®]?

FIRST[®] (For Inspiration and Recognition of Science and Technology) was founded in 1989 by inventor Dean Kamen to inspire young people's interest and participation in science and technology. Based in Manchester, N.H., the 501(c)(3) not-for-profit public charity inspires young people to be science and technology leaders, by engaging them in exciting Mentor-based programs that build science, technology, math, and engineering (STEM) skills, that inspire innovation, and that foster well-rounded life capabilities including self-confidence, communication, and leadership.

FIRST provides a progression of four international, after-school programs for K-12: the *FIRST[®]* Robotics Competition (FRC[®]), for Grades 9-12; the *FIRST[®]* Tech Challenge (FTC[®]), for Grades 7-12; the *FIRST[®]* LEGO[®] League (FLL[®]), for Grades 4-8; and the Junior *FIRST[®]* LEGO[®] League (Jr.FLL[®]), for Grades K-3. *FIRST* also operates a research, development, and training facility called *FIRST[®]* Place™ at its headquarters in New Hampshire.



Who are some of the organizations that sponsor FIRST?

FIRST is supported by a strong network of corporations, educational and professional institutions, and individuals. Some of the world's most respected companies – including more than 200 of the Fortune 500 companies – provide funding, mentorship time and talent,

Founding Sponsors:

Baxter International Inc., Boston Scientific Corporation, The Chrysler Foundation, DEKA Research & Development, Delphi, General Motors, Johnson & Johnson, Kleiner Perkins Caufield & Byers, Motorola Solutions Foundation, Xerox Corporation

Strategic Partners:

3M, BAE Systems, The Boeing Company, DEKA Research & Development, FedEx Corporation, General Motors, Google, JCPenney, Johnson & Johnson, NASA, National Instruments, PTC, Rockwell Automation, Rockwell Collins, Time Warner Cable, United Technologies Corporation

Rockwell Collins is the Official Program Sponsor and PTC is the CAD & Collaboration Sponsor for the *FIRST*TechChallenge.

The LEGO Group is a Founding Partner of *FIRST* LEGO League. 3M and LEGO Systems A/S are Official Suppliers, and National Instruments, Rockwell Automation, and Statoil are Global Sponsors of *FIRST* LEGO League.

How does the education community support *FIRST*?

FIRST provides an education, skill, and career path for young people who might not otherwise have discovered an interest in and pursued education and careers in science and technology. *FIRST* works closely with schools at every level to transform both the perception and reality of education in science and technology. Some of the finest colleges and universities support *FIRST* by providing scholarship opportunities, sponsoring teams, and providing mentorship, equipment, and facilities. As a result of the support of these colleges and universities, the 2014/2015 season *FIRST* high-school students are eligible to apply for more than \$20 million in scholarship funds to continue education in science, technology, engineering, and math (STEM).

Who manages the teams and events?

FIRST is truly a Volunteer-driven organization. For the 2014/2015 *FIRST* season, more than 130,000 Volunteers are expected to contribute in areas including mentorship, event management, recruitment, and team management. The growth and success of *FIRST* is a direct result of the efforts of the Mentors, parents, teachers, community leaders, and citizens who volunteer their time and talent.

How can Volunteers get involved?

The best ways to start discovering the rewards of *FIRST* are:

- Attend a *FIRST* event (visit www.usfirst.org and click on the "Locate a *FIRST* Team or Event" link in the upper right corner to find an event close to you – attendance is free!);
- Contact a Mentor from a local team to assist;
- Visit the *FIRST* website at <http://www.usfirst.org/community/volunteers/get-involved> for local Volunteer/event opportunities; or
- Contact *FIRST* at 1-800-871-8326.

Interested Volunteers can visit our website at www.usfirst.org for more information about how to become a Mentor, Coach, or event Volunteer.

What is Gracious Professionalism®?

Gracious Professionalism® is part of the ethos of *FIRST*. The idea and phrase are found throughout *FIRST*, but no one has been a stronger champion than *FIRST* National Advisor, Woodie Flowers.

“Gracious Professionalism is a way of doing things that encourages high-quality work, emphasizes the value of others, and respects individuals and the community. With Gracious Professionalism, fierce competition and mutual gain are not separate notions. Gracious professionals learn and compete like crazy, but treat one another with respect and kindness in the process.”

What is Coopertition®?

Coopertition® produces innovation. At *FIRST*, Coopertition is displaying unqualified kindness and respect in the face of fierce competition. Coopertition is founded on the concept and a philosophy that teams can and should help and cooperate with each other even as they compete. Coopertition involves learning from teammates. It is teaching teammates. It is learning from Mentors. And it is managing and being managed. Coopertition means competing always, but assisting and enabling others when you can.

What is the *FIRST*® Robotics Competition (FRC®)?

The *FIRST*® Robotics Competition (FRC®) for Grades 9-12 (ages 14 to 18) is an annual competition that helps young people discover the rewards and excitement of education and careers in science, engineering, and technology. FRC challenges high-school-aged students – working with professional Mentors – to design and build a robot, and compete in high-intensity events that reward the effectiveness of each robot, the power of team strategy and collaboration, and the determination of students. In 1992, the initial *FIRST* Robotics Competition took place with 28 teams in a high school gym in New Hampshire. In 2015, the largest-ever FRC season is expected to include more than 3,000 teams from 17 companies competing in over 100 Regional or District events, 5 State/Region Championships, and the *FIRST* Championship at the Edward Jones Dome in St. Louis, April 22-25, 2015.

Why involve a professional Mentor? Why don't students build the robot themselves?

FIRST creates powerful mentoring relationships between the students and professional Mentors. FRC teams include engineers and other professionals from some of the world's most respected companies. Students work closely with and learn from these “stars” of the engineering world. Meaningful involvement of adults in children's lives is proven as an essential component for developing young people's potential.

How is the game played?

Each year's Kickoff event unveils a new, exciting, and challenging game. From the Kickoff, teams have just six weeks to build a robot to compete in the game using a kit of parts provided by *FIRST* and a standard set of rules. The 2015 game, RECYCLE RUSHSM, is played by two Alliances of three teams each. Alliances compete by trying to score as many points as possible during a two-minute and 30-second match by stacking large totes, topping the stacks with a large recycling garbage can and "cleaning up" by removing pool noodles representing garbage. Additional points can be earned by littering the other Alliance's side of the field with this "garbage."

Who participates in the competition?

During the 2015 season, approximately 74,000 high-school students on more than 3,000 FRC teams are expected to compete in over 100 Regional and District Competitions (in the U.S., Canada, Israel, and Mexico), 5 State/Regional Championships and the *FIRST* Championship. FRC teams are comprised of professional Mentors and 10 or more students in grades 9-12. In addition, each *FIRST* team has one or more Sponsors. Those Sponsors include companies, universities, or professional organizations that donate their time, talent, funds, equipment, and

Is scientific, technology, or mathematic expertise required for students to participate in the *FIRST* Robotics Competition?

FIRST invites students who may not be predisposed to science, math, or technology to participate. In fact, FRC is designed to inspire, motivate, and encourage students to learn basic principles while challenging more experienced students. Since there are critical roles for students in everything from design and building, to fundraising and research, to marketing, every student can actively participate and benefit.

What do the students gain from participating?

Throughout their *FIRST* experience, students gain maturity, build self-confidence, learn teamwork, and gain an understanding of professionalism. Students have fun while building a network of friends and professional Mentors who enrich their lives.

Any FRC participant is eligible to apply for more than \$19 million in scholarships from leading engineering colleges and universities.

A series of awards honor accomplishments in areas including engineering, design excellence, competitive play, sportsmanship, and high-impact partnerships between schools, businesses, and communities. A judging committee of distinguished professionals makes award decisions. The most prestigious award is the Chairman's Award, which recognizes the team that best represents a model for other teams to emulate and best embodies the purpose and goals of *FIRST*.

Are there other benefits to participating?

Young people gain the skills and knowledge to fill one of the more than two million STEM-related positions available in the U.S. today. Sponsors benefit by finding future employees and interns. Mentors benefit from renewed inspiration and a reminder as to why they chose science, technology, engineering, and math (STEM) as a career. Volunteers are recognized as an integral and vital part of the way in which young people connect to the real world, in their own communities and in the world at large.

A 2005 Brandeis University evaluation of *FIRST* participants primarily from urban and low-income schools found that, compared to a group of students with similar backgrounds in high school math and science, FRC participants were:

- Nearly twice as likely to major in science or engineering (55% vs. 28%).
- More than three times as likely to major specifically in engineering (41 %vs. 13%), and they majored in engineering at roughly seven times the average among US college students overall.
- More than twice as likely to expect to have a science or technology-related career after college (45%vs. 20%).