

What's **FIRST**?

FIRST®

For Inspiration and Recognition of Science and Technology

Solving the Critical Challenge of Inspiring Our Youth to be Innovators and Leaders

– or –

How FIRST Can be Used to Inspire and Motivate Students to be Interested in STEM



What's **FIRST**?

Innovation Leads to Great Inventions

- Innovation and creativity have been at the core of advances in our society
 - Telephone
 - Computer
 - Television
 - Automobile
 - Cotton gin

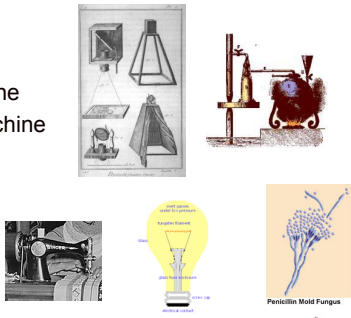


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What's **FIRST**?

Innovation and Inventions

- Camera
- Steam engine
- Sewing machine
- Light bulb
- Penicillin

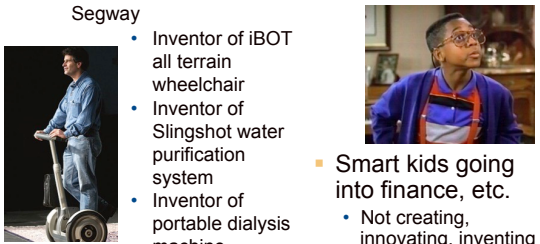


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What's **FIRST**?

Inventors are Cool!

- Dean Kamen
 - Inventor of the Segway
 - Inventor of iBOT all terrain wheelchair
 - Inventor of Slingshot water purification system
 - Inventor of portable dialysis machine
- Kids think engineers are like Urkel
 - Smart kids going into finance, etc.
 - Not creating, innovating, inventing



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What's **FIRST**?

Current Situation

- US ranked 31st in world in Math*
- US ranked 23rd in world in Science*
- Not enough youth starting careers in science and engineering
- Standard of life in US is being affected by this

*PISA (Program for International Student Assessment) – 2012 study

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What's **FIRST**?

How to Overcome Cultural Attitudes?

- Culture gets what it celebrates.
- “Let’s celebrate science and technology.”
 - Dean Kamen – inventor
 - Segway
 - iBOT all terrain wheelchair
 - Slingshot water purification system
 - Portable dialysis machine
- FIRST borrows from the excitement of sports, and creates role models in professions that are achievable for its participants.



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(501(c)(3) not-for-profit organization)

What's FIRST?

Igniting young minds.
Teaching life skills.
Nurturing passions for science and technology.
Practicing "Gracious Professionalism™."

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FIRST Programs

What's FIRST?

Jr.FLL
Junior FIRST® LEGO® League
Grades K-3

FLL
FIRST® LEGO® League
Grades 4-8

FTC
FIRST® Tech Challenge
Grades 7-12

FRC
FIRST® Robotics Competition
Grades 9-12



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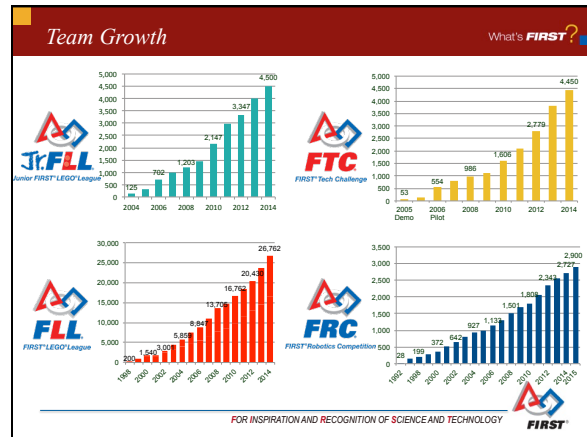
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Founded in 1989 by Inventor Dean Kamen


What's FIRST?

Devoted to helping young people discover and develop a passion for science, technology, engineering, and math (STEM).

- 400,000+ Students
- 180,000+ Mentors/Volunteers/Adult Supporters
- 3,500+ Sponsors/Suppliers
- 80+ Countries
- \$20M+ College Scholarships

Note: 10% of MIT's incoming Freshman class were FIRST participants

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Jr.FLL


Junior FIRST® LEGO® League

- ✓ Introduction to science and technology
- ✓ Design and build challenge-related model using LEGO® components
- ✓ Create a Show-Me poster and practice presentation skills
- ✓ Explore challenges facing today's scientists
- ✓ Discover real-world math and science
- ✓ Engage in team activities guided by Jr.FLL Core Values


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Jr. FLL What's **FIRST**?



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FLL
FIRST LEGO League

- ✓ Create innovative solutions to challenges facing today's scientists
- ✓ Strategize, design, build, program and test an autonomous robot using LEGO MINDSTORMS® technology
- ✓ Apply real-world math and science concepts
- ✓ Develop career and life skills
- ✓ Become involved in their local and global community

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FLL Robots What's **FIRST**?



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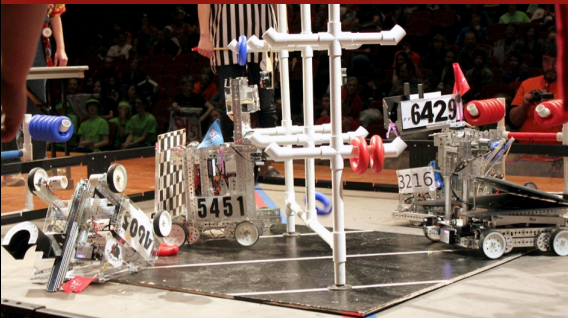

FTC
FIRST Tech Challenge

- ✓ Head-to-head competition using sports model
- ✓ Teams design, build, program robots based on sound engineering principles
- ✓ Platform is reusable from year to year
- ✓ Develop strategic problem-solving, organization, and team-building skills
- ✓ Awards for competition, community outreach, design
- ✓ Qualify for >\$20 million in scholarships


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FTC Robots What's **FIRST**?




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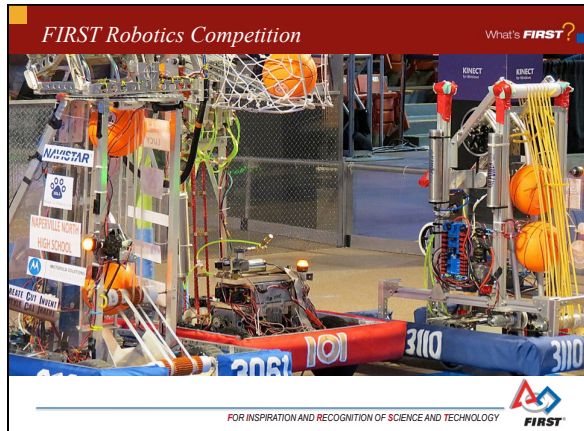



FRC
FIRST Robotics Competition

- ✓ Varsity Sport for the Mind™
- ✓ Strict rules, limited resources, time limits
- ✓ Students mentored by professional engineers
- ✓ Teams learn, use sophisticated hardware and software
- ✓ Build and compete with robots of their own design
- ✓ Qualify for >\$20 million in scholarships

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Impact

Building Academic Achievement

- Compared to a group of students with similar backgrounds and achievement in high-school math and science, **FIRST** alumni are:
 - Significantly more likely to attend college
 - Twice as likely to major in science and engineering

Category	FIRST Alumni	Matched Comparison Group
Attend College	88%	43%
Aspire to Post-Graduate Degree	77%	63%
Major in Science or Engineering	69%	28%
Major Specifically in Engineering	41%	13%

Enabling Careers in Science & Technology

- FIRST** alumni are:
 - 10 times as likely to have had an apprenticeship, internship, or co-op job in their college freshman year
 - More than twice as likely to expect to have a science or technology-related career after college

Category	FIRST Alumni	Matched Comparison Group
Internship/Co-op Job During Freshman Year	27%	3%
Expect to Have SA-Related Career	46%	20%
Pursue Career in Engineering	31%	8%

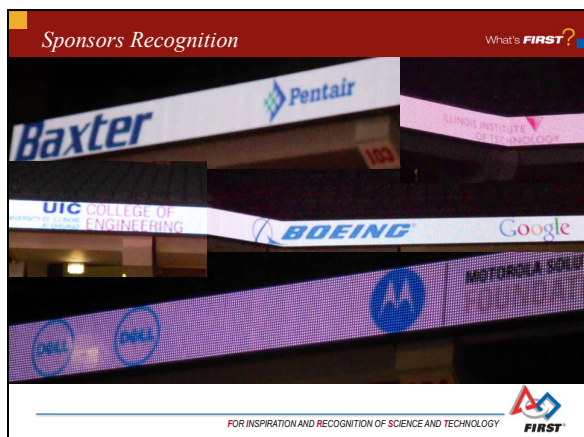
FIRST Sponsors

As of August 2011

FIRST FOUNDING SPONSORS	
FIRST STRATEGIC PARTNERS	
FIRST TECH CHALLENGE (FTC) SPONSORS	
FIRST LEGO LEAGUE (FLL) FOUNDING PARTNER AND OFFICIAL SUPPLIERS & SPONSORS	

Sponsors' Employees Believe ...

- 95%** believe company's involvement with **FIRST** benefits firm's reputation.
- 77%** indicate their firm's support of **FIRST** made them feel more positive about their employer.
- 66%** believe support of **FIRST** would help attract and retain good employees.




Noteable Supporters of FIRST

President Obama welcomes **FIRST** to the White House

Senator Durbin and Mayor Daley visit the Midwest Regional in Chicago

Why Companies Support FIRST What's FIRST?







- Corporate citizenry / goodwill
- Recruitment of future workforce
- Name recognition
- Positive employee morale
- Tax deductible

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FIRST in Illinois (~1000 teams, 8000 students) What's FIRST?

- Jr. FLL (151 teams last year → ~175 teams)
 - Expos year round (throughout Illinois)
- FLL (525 teams last year → ~575 teams)
 - Qualifiers Dec 2015 (throughout Illinois)
 - 2 State Championships in Jan 2016
 - Champaign (U of I)
 - Elgin (ECC)
- FTC (120 teams last year → ~150 teams)
 - Qualifiers Dec 2015 – Feb 2016 (throughout Illinois)
 - State Championship Feb 2016 – Chicago-area (tbd)
- FRC (59 teams last year → ~65 teams)
 - Regional March 2016 – Peoria (Bradley)
 - Regional March/April 2016 – Chicago (UIC)


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Anyone Can Facilitate and Start a Team What's FIRST?

- Technical or non-technical teachers can run a FIRST team
- Program management is key
- Jr. FLL and FLL teams need guidance, not technical expertise
- FTC teams only need minimal technical expertise – students can handle the technology
- FRC teams need technical guidance – recommendation is that teachers partner with engineers

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How to Start a Team What's FIRST?

- Info to start teams is available on-line
- Go to www.ilfirst.org and follow instructions
- If you need help, use our contact info and we will work with you

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