FIRST and Colorado FIRST
Overview
What is FIRST®?

FIRST® LEGO® LEAGUE JR.
FIRST® LEGO® LEAGUE
FIRST® TECH CHALLENGE
FIRST® ROBOTICS COMPETITION
What’s FIRST®?

• It’s a competitive sport.
• It’s More Than Robots<sup>SM</sup>.
• It’s a life experience.
• It’s opportunity.
• It’s community.
• It’s amazing.
Inspiring youth to become science & technology leaders & innovators, by engaging them in exciting, experiential, mentor and project-based programs that teach science, technology, engineering, and math (STEM) skills, inspire innovation, and foster well-rounded life capabilities.

FIRST® is...

FIRST® LEGO® LEAGUE JR.

FIRST® LEGO® LEAGUE

FIRST® TECH CHALLENGE

FIRST® ROBOTICS COMPETITION
FIRST® Impact: More Than Robots℠

- **STEM Awareness, Skills and Intent**
  - Increase the number of students who pursue post-secondary education and careers in STEM-related fields and industries

- **Innovation and Entrepreneurship**
  - Inspire youth to become leaders and innovators in their field and society

- **21st Century Work-Life Skills**
  - Enable young people to develop valuable, transferrable, real-world skills, including: teamwork, leadership, creative problem solving, critical thinking, time & project management, and communication/presentation skills
10 years of evaluation data indicates that with participation in FIRST® team members are:

**STEM MAJOR CITED BY FIRST PARTICIPANTS**

- **2x** as likely to major in science or engineering
- **41%** major in engineering
- **33%** of women major in engineering

<table>
<thead>
<tr>
<th>FIRST® LEGO® League</th>
<th>FIRST® Tech Challenge</th>
<th>FIRST® Robotics Competition</th>
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<tbody>
<tr>
<td>87%</td>
<td>86%</td>
<td>88%</td>
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</table>

**SCHOOL ENGAGEMENT INCREASES FOR FIRST PARTICIPANTS**

- More interested in doing well in school: 87%
- Plan to take a more challenging math or science course: 84%
- More interested in going to college: 88%
- 90% in FIRST® Robotics Competition
- 91% in FIRST® Robotics Competition

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

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

**FIRST ALUMNI IN STEM CAREERS**

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

Source: Brandeis University, 2005 Evaluation of FIRST® Robotics Competition Alumni
Source: FIRST, 2015 FIRST Alumni Survey
**FIRST® At-a-Glance**
(2016-2017 FIRST Season)

- **445K** Students on 50K teams in 86 countries
- **225K** Mentor, Coach, Judge & Volunteer roles
- **16M** Volunteer hours
- **$50M+** scholarship opportunities from nearly 200 providers
- **2,700 +** official events in 70 countries
- **60K+** participants at annual FIRST® Championship
**FIRST® Progression of Programs**

**FIRST® learning** never stops building upon itself, starting at age 6 and continuing through middle and high-school levels up to age 18. Young people can join the international, K-12, after-school, STEM programs at any level.

**FIRST inspires** innovation excellence, teaching 21st century skills, and immersing participants in project-based learning and robotics competitions.

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**FIRST LEGO® LEAGUE JR.**
Ages 6-9 (Grades K-3)

**FIRST LEGO® LEAGUE**
Ages 9-16* *(Grades 4-8)*

**FIRST TECH CHALLENGE**
Ages 12-18 (Grades 7-12)

**FIRST ROBOTICS COMPETITION**
Ages 14-18 (Grades 9-12)

*Ages vary by country*
Teams of up to 6 kids build interest in science with a real-world scientific challenge solved by guided research and imagination.
• Introduction to science and technology
• Design and build Challenge-related model using LEGO® elements
• 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 *FIRST® LEGO®* League Jr. Core Values
2016/2017 Season

- 11,400+ teams (projected)
- 68,800+ children, ages 6-10 (Grades K-4)
- Up to 6 students per team
- 400+ local Expos, World Festival Expo
- 41 countries
Teams of up to 10 kids build LEGO®-based robots and develop research projects based on real-world scientific challenges.

*Ages vary by country

*Ages vary by country

2016/2017 Season
• Create innovative solutions to challenges facing today’s scientists
• Strategize, design, build, program and test an autonomous robot using Challenge-related model using LEGO® MINDSTORMS® technology
• Apply real-world math and science concepts
• Develop career and life skills
• Become involved in their local and global community
• 32,000 teams (projected)
• 255,000+ students, ages 9-16* (Grades 4-8)
• Average 8 students per team
• 1,297 Qualifying Tournaments, 166 Championship Tournaments, World Festival
• Approx. 85 countries

*Ages vary by country
Teams of 10 (avg.) or more students develop strategy, design and build sophisticated robots using a modular kit-of-parts, then compete head to head.
- Head-to-head competition using a sports model
- Teams design, build, and program robots based on sound engineering principles
- Reusable platform, powered by Android technology, programmed using Java
- Develop strategic problem-solving, organization, team-building skills
- Awards for competition, community outreach, design
- Qualify for >$50 million in scholarships
• 5,500+ teams (projected)
• 55,000+ students, ages 12-18 (Grades 7-12)
• Average 10 students per team
• ~310 League and Meet events, 255 Qualifying Tournaments, 83 Championship Tournaments; 4 Super-Regional Championship Tournaments; World Championship
• 25 countries
Teams of 25 (average) or more students compete with 120-pound robots in this Varsity Sport for the Mind™ combining the excitement of sports with the rigors of science and technology.

Ages 14-18 (Grades 9-12)
• Strict rules, limited resources, time limits
• Students mentored by professional engineers
• Learn and use sophisticated hardware and software
• Build and compete with robots of their own design
• Develop design, project management, programming, teamwork, strategic thinking, and Coopertition® skills
• Qualify for >$50 million in scholarships
• 3,357 teams
• 84,000 high-school-age students
• 10 or more students per team (average 25)
• 65 Regionals & District Championships; 80 District Competitions; FIRST Robotics Competition Championship
• 26 countries
Who is *FIRST*® For?

- For Students (grades K-12, ages 6-18): the hardest fun you’ll ever have
- For Mentors, Coaches, Volunteers: the most rewarding adventure you’ll ever undertake
- For Sponsors/Donors: the most enlightened investment you could ever make
FIRST Scholarships
FIRST Founding Sponsors

Boston Scientific  DEKA  Baxter

The Chrysler Foundation  GM  Johnson & Johnson  Delphi

Xerox  Motorola Solutions Foundation  KPCB

FIRST
FIRST Strategic Partners

- BAE Systems
- National Instruments
- DEKA
- Boeing
- GM
- PTC
- NASA
- Rockwell Automation
- Johnson & Johnson
- Rockwell Collins
- FedEx
- Motorola Solutions Foundation
- Time Warner Cable
- FIRST
More Information

- On the web:
  - www.firstinspires.org
  - www.firstlegoleague.org
  - www.firstlegoleaguejr.org
- Call: 1-800-871-8326
Colorado FIRST Overview
Colorado FIRST Mission

To promote FIRST robotics programs in Colorado by hosting tournaments and supporting coaches, mentors and teams with training, coordination and financial assistance. We strive to be a high quality, sustainable entity that can pursue long term initiatives and set an example for FIRST Regions across the US.
Colorado FIRST Overview

- Founded in 2001 to represent and achieve the mission of FIRST®
- Achieved 501(c)(3) status in 2008
- 100% volunteer organization
- Uniquely positioned with the programs of FIRST to identify, recruit and develop the technical leaders of tomorrow for Colorado
- Board of Directors is currently 8 current or former executives from industry and education
- Strong collaboration with industry and education partners
- Goals:
  ✓ Grow overall student participation by 5% every year
  ✓ To have teams in at least 75% of the 1800 high schools, middle, and grade schools in Colorado
  ✓ To make the study of STEM fields mainstream by including all students regardless of geographic location and socio-economic status
# ColoradoFIRST Board of Directors

<table>
<thead>
<tr>
<th>Name</th>
<th>COFIRST Title</th>
<th>Occupation</th>
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<tbody>
<tr>
<td>William Schneider</td>
<td>President</td>
<td>President, Teocali Energy, LLC</td>
</tr>
<tr>
<td>Dawn Lutz</td>
<td>Chief Operating Officer</td>
<td>Retired President, Technetronic Solutions, Inc.</td>
</tr>
<tr>
<td>Mark Valerio</td>
<td>Director</td>
<td>Retired VP, Lockheed Martin Space Systems</td>
</tr>
<tr>
<td>Rodger Stewart</td>
<td>Chief Growth Officer</td>
<td>Retired CEO, UltraShape, Inc.</td>
</tr>
<tr>
<td>Tribby Warfield</td>
<td>Chief Marketing Officer</td>
<td>SVP, Business Dev. &amp; Strategy (EMEA) at Nitta Industries</td>
</tr>
<tr>
<td>Denise Henry</td>
<td>Director</td>
<td>Outreach Manager, Ball Aerospace &amp; Technologies Corp.</td>
</tr>
<tr>
<td>Scott Springer</td>
<td>Team Growth Officer</td>
<td>Retired, Principal of CEC Early College, DPS</td>
</tr>
<tr>
<td>Marsha Williams</td>
<td>Development Director</td>
<td>Retired CIO, E-470 Public Highway Authority</td>
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2016/17 Season Colorado Metrics

- 2017 Colorado Regional FIRST Robotics Competition (FRC):
  - 36 Colorado teams, 64 total
  - >1500 high school students compete

- 11 FIRST Lego League (FLL) competitions and events held:
  - 329 teams and >2600 students (ages 6-14) participated

- 13 Expos and local events held:
  - 84 teams and >500 students (ages K-3) participated

- 3 Colorado FRC and 1 FLL teams qualified to compete in the FIRST Championship in St. Louis, MO.

- Over 2000 coaches, mentors and event volunteers support all FIRST competitions in Colorado
Colorado FIRST Programs Student Participation

Season Year | Total # Colorado K-12 Students
--- | ---
99/00 | 90
00/01 | 223
01/02 | 247
02/03 | 438
03/04 | 882
04/05 | 1054
05/06 | 1123
06/07 | 1749
07/08 | 2059
08/09 | 2464
09/10 | 2774
10/11 | 2914
11/12 | 3327
12/13 | 3895
13/14 | 4218
14/15 | 4686
15/16 | 4751
16/17 |

10 Year 10% CAGR
Colorado FIRST® 2016/17 Season Total Student Participation

- **FLL**: 322 Teams, 2,576 Students
- **FLL Jr**: 120 Teams, 720 Students
- **FTC**: 58 Teams, 580 Students
- **FRC**: 35 Teams, 875 Students

**Total**: 4,751 Total Students Participating
Colorado FIRST Programs Student Geographic Distribution

>4700 Students
>500 Teams
>2000 Volunteers
Colorado FIRST® 2016/17 Season Student Gender

- Male: 71%
- Female: 29%
Colorado FIRST® Demographics

Colorado FIRST® 2016/17 Season Program Diversity

- White/ Caucasian: 74.6%
- Black/ African American: 9.8%
- Asian: 9.7%
- Hispanic: 4.3%
- Native American/ Alaskan: 0.3%
- Hawaiian/ Pacific Islander: 0.1%
- Two or more races: 1.3%

Legend:
- Blue: White/ Caucasian
- Green: Black/ African American
- Red: Asian
- Yellow: Hispanic
- Gray: Native American/ Alaskan
- Orange: Hawaiian/ Pacific Islander
- Yellow: Two or more races
Income:
- Cash donations $195,749
- Other income $38,383

Total income $234,132

Expenses:
- FRC support $130,426
- FLL support $79,851
- FLL Jr support $5,189
- G&A $7,476

Total Expenses $222,960

Net Income $11,172

(1) Audited results for July 2016 thru June 2017
(2) G&A is 3.4% of expenses and 3.2% of revenue
Colorado FIRST Financial Trends

<table>
<thead>
<tr>
<th>Year</th>
<th>Revenue</th>
<th>Program Expenses</th>
<th>G&amp;A</th>
<th>Net Income</th>
<th>Total Liabilities &amp; Equity</th>
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<tbody>
<tr>
<td>2010</td>
<td>$174,835</td>
<td>$115,849</td>
<td>$3,664</td>
<td>$55,322</td>
<td>$70,377</td>
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<tr>
<td>2011</td>
<td>$194,461</td>
<td>$156,741</td>
<td>$9,738</td>
<td>$27,981</td>
<td>$101,707</td>
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<tr>
<td>2012</td>
<td>$183,066</td>
<td>$182,690</td>
<td>$6,875</td>
<td>$(6,499)</td>
<td>$96,402</td>
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<tr>
<td>2013</td>
<td>$246,655</td>
<td>$188,075</td>
<td>$5,882</td>
<td>$52,698</td>
<td>$147,417</td>
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<td>2014</td>
<td>$206,399</td>
<td>$187,171</td>
<td>$8,278</td>
<td>$10,950</td>
<td>$160,467</td>
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<td>2015</td>
<td>$216,103</td>
<td>$206,091</td>
<td>$21,367</td>
<td>$(11,355)</td>
<td>$147,012</td>
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<tr>
<td>2016</td>
<td>$213,335</td>
<td>$191,094</td>
<td>$13,394</td>
<td>$8,847</td>
<td>$155,859</td>
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Colorado FIRST In-Kind Partners
Get Involved!

Opportunities

- Financial support
- Equipment/parts
- Scholarships
- Facilities for teams and events
- Mentors, volunteers, consultants
- Internships

Benefits

- Strengthens reputation and community relations
- Builds technological literacy
- Pipeline for interns and future employees
- Motivating volunteer opportunities for employees
- Applied professional development for employees