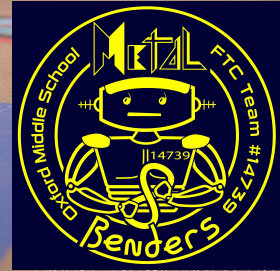
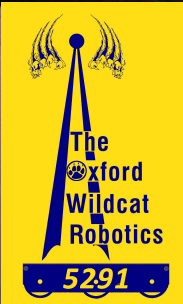


ROBOTICS PARENT MEETING 2019-2020

May 6, 2019



What is FIRST® ?



- FIRST (For Inspiration and Recognition of Science and Technology) was founded in 1989 by Dean Kamen (inventor of the Segway PT).
- FIRST is a not-for-profit, public charity.
- Its mission is to inspire kids (kindergarten - high school) to be science and technology leaders, by engaging them 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.

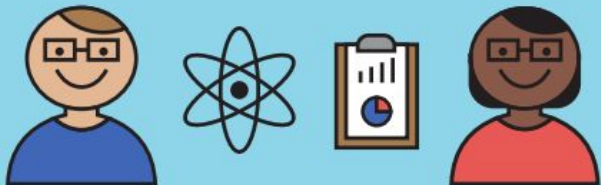




FIRST®

THE IMPACT

SUBSTANTIAL INCREASE IN STEM INTEREST.



FIRST[®] participants are
**SIGNIFICANTLY
MORE LIKELY** to
show gains in interest in:

- STEM
- STEM CAREERS
- UNDERSTANDING OF STEM

(than a matched comparison group of students)



**THEY ARE
OVER**

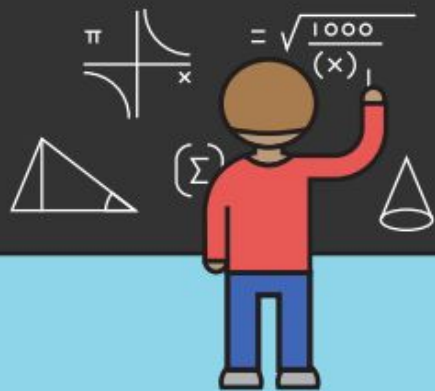
2X

**as likely to show gains in
their interest of STEM**

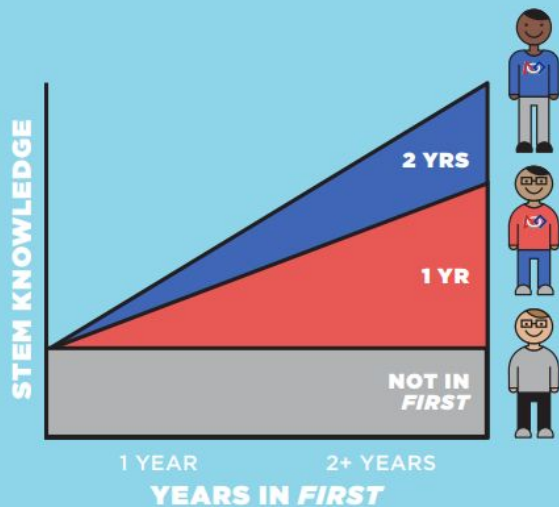
(than a matched comparison group of students)

87%

**OF PARTICIPANTS PLAN TO TAKE A
MORE CHALLENGING
MATH OR SCIENCE COURSE**

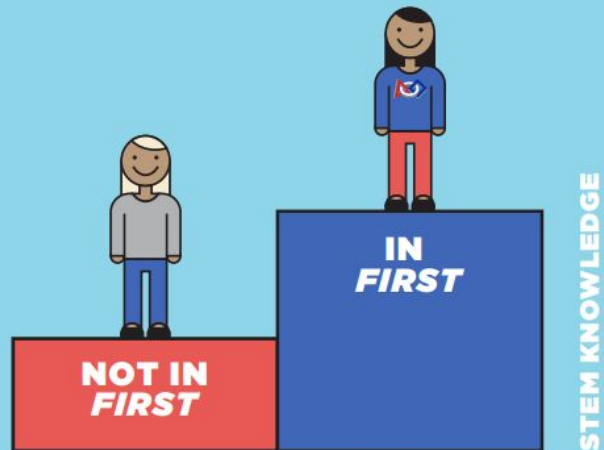


SUBSTANTIAL INCREASE IN STEM UNDERSTANDING.



STEM KNOWLEDGE CONTINUES TO GROW THE LONGER YOU STAY

Students who persist in *FIRST* for more than one year show significantly greater gains than those who left after a single year.



THE IMPACT ON GIRLS IS SIGNIFICANT

Females in *FIRST* have a dramatically increased understanding of STEM compared to females in the comparison group.

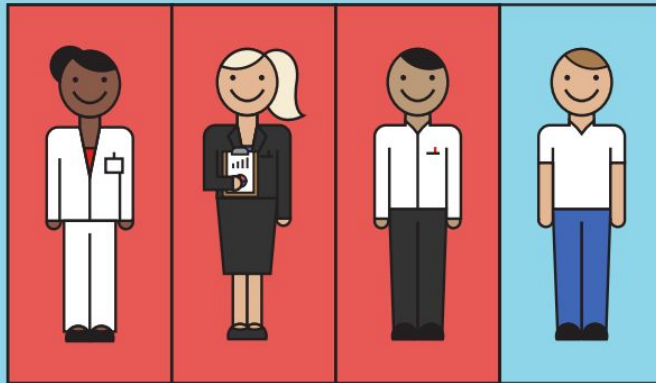
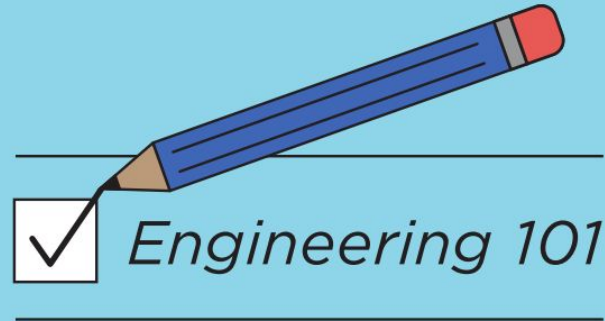
READY FOR A CAREER IN STEM.

FIRST ALUMNI ARE

2.6x

more likely to enroll in an
ENGINEERING
course their freshman year

(than a matched comparison group of students)



OVER
75%

of *FIRST* Alumni are in a
**STEM FIELD AS
A STUDENT OR
PROFESSIONAL**



LEARN MORE AT
firstinspires.org/impact

Based on decades of findings from external evaluations, external studies as well as internal surveys. Comparison claims based on data from *FIRST*® Longitudinal Study comparing average gains for *FIRST* participants vs. comparison students taking into account differences between the groups at baseline.

SOURCES:

Brandeis University (2016). *FIRST*® Longitudinal Study: Finding at Follow-Up. Waltham, MA.

FIRST®, 2015 *FIRST* Alumni Survey.

Brandeis University, 2011 *FIRST*® Tech Challenge - *FIRST*® Robotics Competition Evaluation & 2013 *FIRST*® LEGO® League Evaluation.

Michigan Loves Robots!

- More than 83,000 students on 3,336 teams from 25 countries competed during the 2017 season.
- There are currently nearly 1,700 FIRST teams in the state of Michigan alone *and growing!* That's nearly half of all worldwide teams combined!

“We are thrilled to be bringing FIRST Championship to Detroit.” “As a leader in the engineering and technology fields, Detroit is the perfect incubator for our students – the FIRST teams in the Greater Detroit area know this well – and we’re extremely grateful to the city and its leaders for welcoming us with open arms.”

(Dean Kamen, Founder of FIRST)

FIRST® @ Oxford



FIRST® LEGO® League Jr.

FLL Jr

Grades K to 3

Captures young curiosity by exploring real-world scientific challenges, learning teamwork, and working with motorized LEGO® elements.



FIRST® LEGO® League

FLL

Grades 4 & 5

Students research a real-world engineering challenge, develop a solution, and compete with LEGO® based robots of their own design.

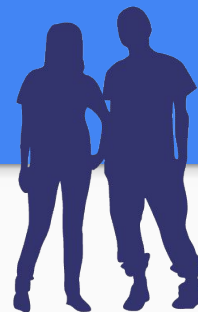


FIRST® Tech Challenge

FTC

Grades 6 to 8

Students are challenged to design, build and program a robot to play a floor game against other teams' creations.



FIRST® Robotics Competition

FRC

Grades 9 to 12

High-school aged teams compete head to head on a special playing field with robots they have designed, built and programmed.

2018-19

Teams/Students

22

Teams

132

Students

4

Teams

39

Students

4

Teams

60

Students

1

Teams

39

Students

Student Benefits & Outcomes

Oxford Community Schools Investment

OHS Mechatronics Lab

Classroom space plus a full machine shop providing facilities and equipment to both FRC & FTC teams.

Matching Curriculum Growth

Development of 3 Middle School and 15 High School Pre-Engineering STEM courses.

OHS Student Results



Students who continue on to join and graduate from the High School team average a .3 higher GPA than their peers and over the last 5 years:

- **100% have gone on to college**
- **45% have received internships**
- **94% are pursuing STEM related degrees**
- **\$1.2M in scholarships!**

What is FIRST Tech Challenge (FTC) ?

- Michigan FTC is a robotics program for middle school students to learn about science, technology, engineering, and math (STEM) by working on and competing with robots.
- Each year teams participate in a FIRST-designed game that requires them to design, build, test, and program an autonomous and driver-controlled robot that must perform certain challenging tasks.
- Each competition event has alliances, which are made of two teams, competing against one another on a 12' x 12' playing field.

What is FIRST Tech Challenge (FTC) ?

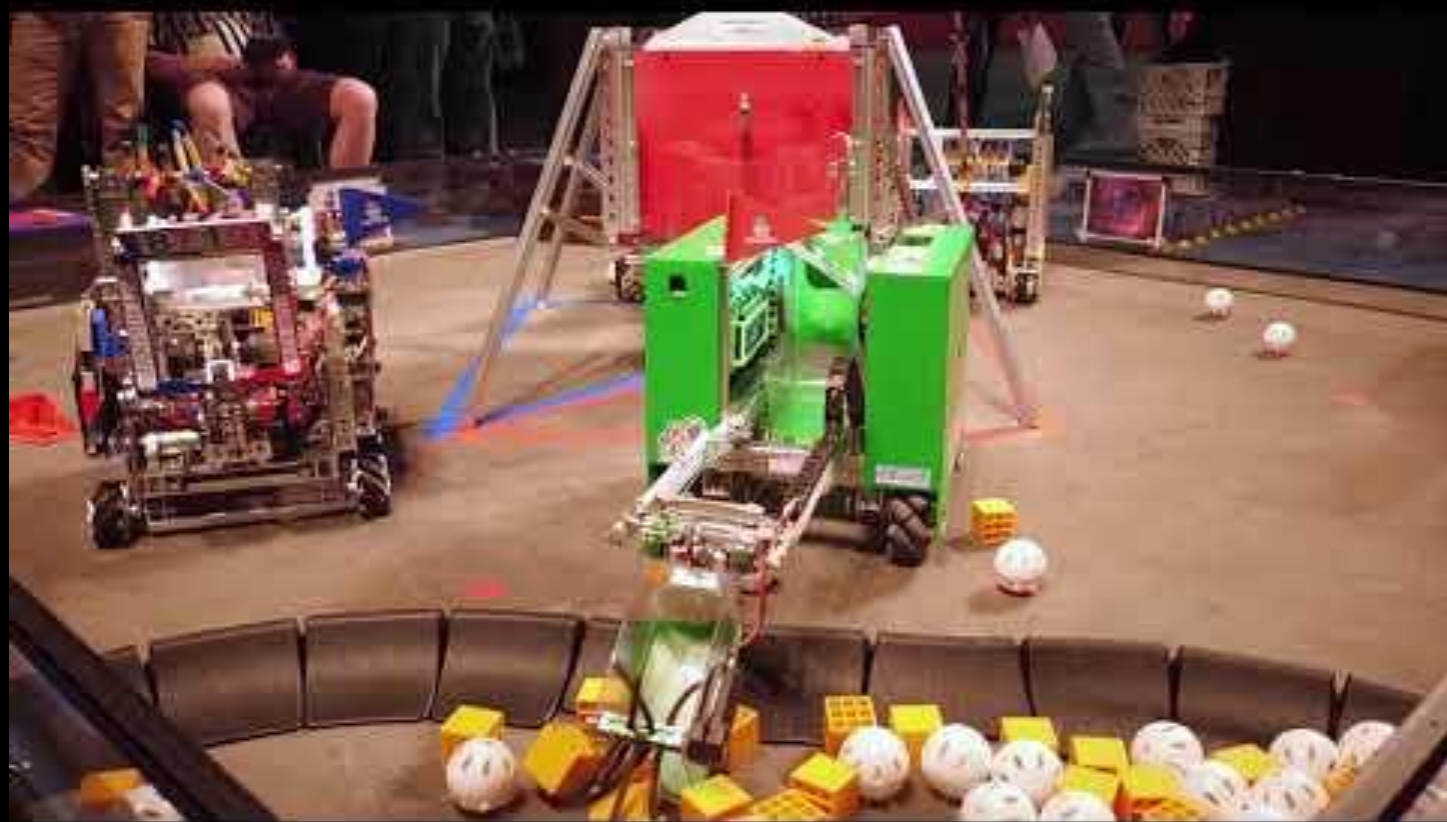
- Teams work to solve problems and perform challenging tasks by working with their team members and adult coaches and mentors.
- Teams create and maintain a team engineering notebook that shows their total work over the season (building, programming, outreach activities, business plan, etc.). These team notebooks are also judged at competitions.
- Teams typically participate in 2 local competitions in hopes of qualifying for the state championship competition.
- Winners from the state championship competition advance directly to Worlds FIRST Championship.

2018-2019 Season Challenge



Why join FTC?

- Learn to apply real-world math and science concepts
- Develop problem-solving, public speaking, and team-building skills
- Practice engineering principles (program management, notebook)
- Expand knowledge of STEM careers
- Build and become strong leaders
- Learn to appreciate and respect the ideas & contributions of others
- Realize the value of hard work, innovation, and sharing of ideas
- Celebrate hard work, have fun, and make new friendships!
- Experience the excitement of competitions!



FTC is *way* more than building robots!

Technical & non-technical skills are welcomed!

NO EXPERIENCE NECESSARY!

- Computer Programming & Electrical/CAD
- Metalworking/CNC
- Graphic Design
- Program Management
- Videography & Photography
- Marketing
- Many more!



Oxford Middle School FTC Teams

OMS has 4 FTC teams (max. 15 students per team):

- ★ Team 5291, TOWR (The Oxford Wildcat Robotics)
 - Coaches Ian Haden & Mary Rustoni
- ★ Team 11230, ElektraKatz
 - Coaches Dan Clark & Shannon Shafer
- ★ Team 11231, Cyborg Cats
 - Coaches Marc Musial & Kris Haselton
- ★ Team 14739, Metal Benders
 - Coaches Matthew Rice & Mark Rudnicki

How much time is involved?

MAY - JUNE - Recruitment

- Registration opens, Preseason
- Teams Formed and Students informed

JULY - AUGUST - Pre Season

- JAVA Practice, Learn Design Process, Team Building, Fundraising, Outreach Activities

SEPTEMBER - Kick-Off

- New game is revealed!!!!

How much time is involved?

SEPTEMBER - OCTOBER - DECEMBER - Build & Qualifying Season

- Robot build season begins - 7 weeks before first competition
- Outreach activities, Fundraising
- **Multiple** meetings per week, Robot build, Judges Presentation practice
- Typically 2 Qualifying events in November and December
- If qualified - team advances to States Championship in Battle Creek

Kickoff	Workshops / Scrimmages / Meets							Qualifiers/Meets				No Events - Thanksgiving	Qualifiers/ League Tournament	MI FTC State CMP
Week 0	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14
TBD	Week of	Week of	Week of	Week of	Week of	Week of	1 event?	5 events	5 events	5 events	5 events	no events	5 events	
Sept. 7	Sept 14	Sept. 21	Sept. 28	Oct. 5	Oct. 12	Oct. 19	Oct. 26	Nov. 1-2	Nov. 8-9	Nov. 15-16	Nov 22-23	Nov. 29-30	Dec. 6-7	Dec. 12-14

How much time is involved?

JANUARY - APRIL

- If team advances from State Championship to Worlds in Detroit,
 - continued practice & robot improvements/rebuild.
- If teams does not advance
 - off-season events - Optional Spring Events
 - Informal practices
 - Outreach & Recruiting

Last Week of APRIL - Worlds

- World Championship for all programs (JrFLL, FLL, FTC, FRC) Detroit

COST?

- EQUIPMENT FEE \$100 Per Family.
 - Covers new game elements revealed in September, Shared team costs.
 - Equipment fees are re-evaluated each year.
- The *average* veteran team season cost (*about* \$2,600) includes team registration to FIRST, robot parts, and 2 local qualifying event registrations.
- Additional costs typically include
 - Team shirts and/or accessories
 - Travel expenses.

Fundraising Requirements

- Fundraising Withheld Checks
 - Each team member will be required to submit a \$100 fundraising check that will be withheld until February 1.
 - Will be returned when the team member reaches the required fundraising amount.
- Team members are encouraged to lead the fundraising opportunities.
 - Don't forget company matching and grant opportunities!
- If you choose not to fundraise, you may opt to have your fundraising check deposited immediately.

Competition Commitments

- Qualifying competition events require a time commitment
 - Friday evening from about 6-9pm (optional)
 - Saturday from about 7:00 am to about 8:00 pm
 - 1 Parent volunteer per event (Not a coach or regular season mentor)
- Each event requires out of pocket expenses
 - Travel (including hotel, if necessary) and Food
- Additional team costs are required for events beyond the first 2 qualifying competitions.
 - States
 - Worlds

Application Process

- Every student (returning and new) interested in joining robotics is required to complete an application
- In the application packet, there is a student section, a parent section, and a references section to complete
- Students will be asked to pick a #1 and #2 choice for job concentration. Teams must be well balanced in skills
- Parent involvement improves the overall experience for everyone.
- In their own handwriting, new students will be required to write an essay regarding why they would be a valuable member of the robotics team

Application Process

- New students will also be required to obtain one teacher recommendation and one non-family reference recommendation.
- Applications are due to the student's *current* school's main office by **June 6**.
- Notification of the receipt of your application will be made via email by **June 14**.
- Team selection notification letters will be mailed around **June 28**.
- Team selection email confirmation will follow around **June 30**.



- OMS Club List 2018-19
- Art Club
- Drama Club
- Drumfire Drummers
- Homework Club
- Robotics 2019-2020
- Thunder Drummers

Oxford Middle School / Activities / Robotics 2019-2020

ROBOTICS 2019-2020

- FTC 2019-2020 Robotics Parent Information
- FTC 2019-2020 Robotics Application
- FTC 2019-2020 Parent Student Robotics Handbook

- OMS Club Activities 18-19
- Art Club
- Drama Club
- Drumfire Drummers
- Homework Club
- Robotics 2019-2020
- Thunder Drummers
- Wildcat Drummers

FIRST[®]

RISESM
THE FORCE IS BUILDING

POWERED BY

**STAR
WARS**[™]
FORCE FOR CHANGE

Thank you!

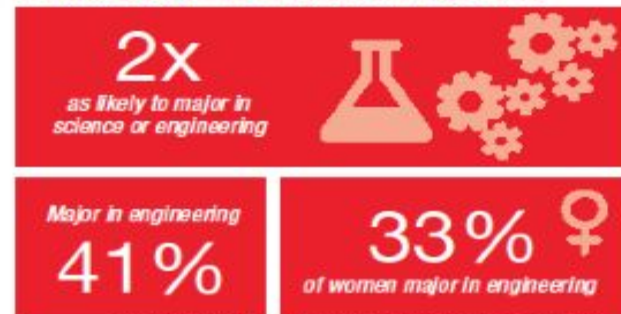
- The handbook, application, and this presentation will be available on the Oxford Middle School Website.
http://oxfordmiddle.oxfordschools.org/activities/robotics_2019-2020
- **If you are interested in becoming a coach of a new team, please see one of the current coaches or email the Oxford FTC board at oxford.mi.robotics@gmail.com.**
- Questions?

BACKUP

FIRST® IMPACT

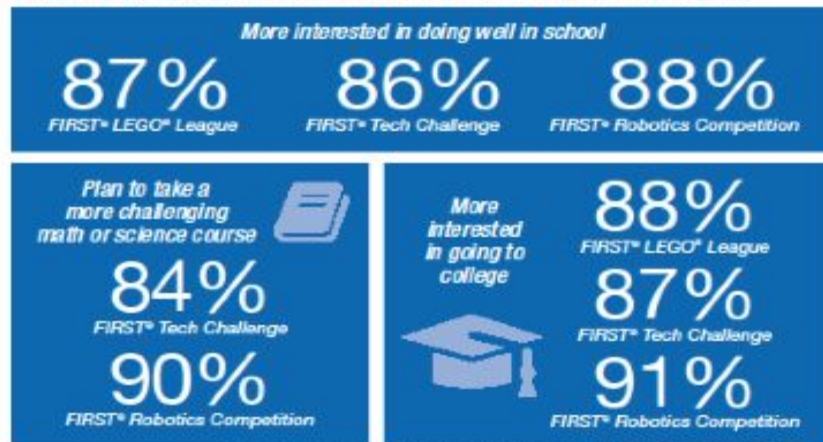
10 years of evaluation data indicates that with participation in **FIRST®** team members are:

STEM MAJOR CITED BY FIRST PARTICIPANTS



Source: Brandeis University, 2005 Evaluation of FIRST® Robotics Competition Alumni

SCHOOL ENGAGEMENT INCREASES FOR FIRST PARTICIPANTS



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

21ST CENTURY WORK-LIFE SKILLS GAINED BY FIRST PARTICIPANTS



REV 5/17

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

FIRST ALUMNI IN STEM CAREERS



Source: FIRST, 2015 FIRST Alumni Survey