FIRST® TECH CHALLENGE

FIRST RISE: THE FORCE IS BUILDING — POWERED BY STAR WARS: FORCE FOR CHANGE

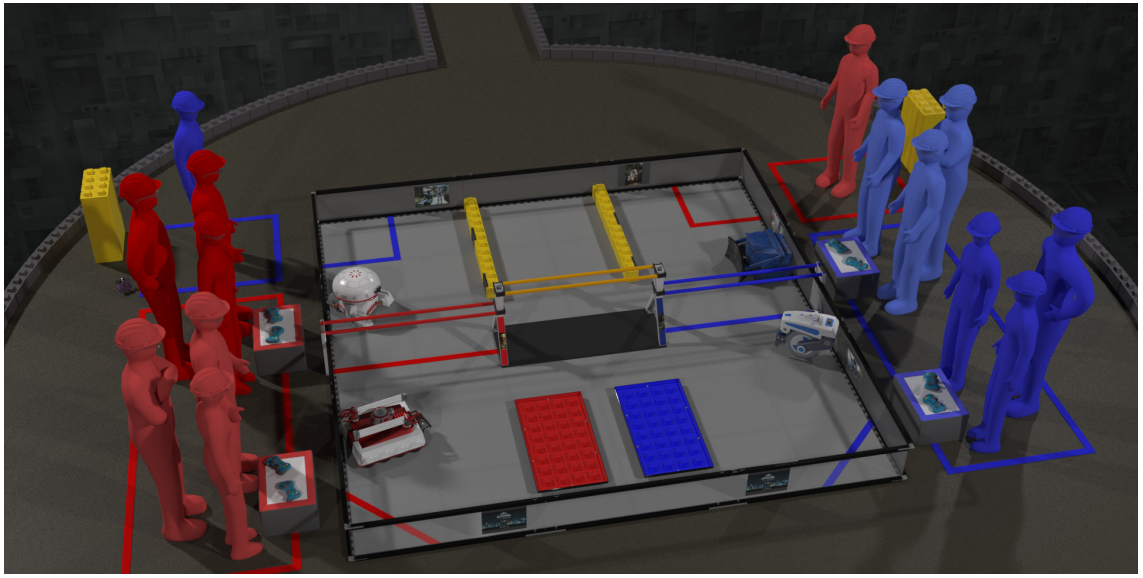
SKYSTONE
PRESENTED BY Qualcomm

FIRST TECH CHALLENGE

Alliances of two or three teams each, compete head to head with their robots to build towers to astounding heights, while racing against the clock to achieve the highest score possible in SKYSTONE℠ presented by Qualcomm.

This year's game is played on a 12'x12' field, which is divided by the **Skybridge** into two zones – the **Loading Zone** and the **Building Zone**. The **Skybridge** is divided into 3 segments. There are two **Alliance-Specific Depots**, **Foundations**, and **Building Sites**. Around the field are navigation targets that can be used to help the robots orient themselves. Scoring elements are **Alliance-Neutral Stones** that are placed into play by one human player for each **Alliance**. 24 **Stones** start stacked behind the **Human Player Station**. Two sets of four regular **Stones** and two **Skystones** are placed on the field in a random order which make up the **Quarry. Alliances** may also have their robots preload a team designed **Capstone**.

As the alliances move each structure into its optimal space, they'll top it off with a crown of achievement—a final capstone to symbolize their reach into the sky, and dreams of a peaceful future. The alliance with the highest score at the end of the match wins.



SCORING PERIODS

0:30 Autonomous:

Robots operate using only pre-programmed instructions and sensor inputs. The pre-programmed robot may score points by:

Repositioning Foundation to Building Site ..... 10 points

Delivering Skystones ..... 10 points/Skystone
(if delivered in correct order)

Delivering Stones ..... 2 points/Stone

Placing Stones on Foundation..... 4 points/Stone

Navigating under Skybridge..... 5 points/Robot
(Alliance-Specific)

2:00 Driver-Controlled:

A human player may drive and operate their robot from the drive station and score points by:

Delivering Stones..... 1 point/Stone

Placing Stones on Foundation..... 1 point/Stone

Skyscraper Bonus ..... 2 points/Level

0:30 End Game:

The final 30-seconds of the Driver-Controlled period and features new scoring opportunities for the robots. In addition to the Driver-Controlled period tasks, Alliances earn points by:

Capping Skyscraper.....5 points/Capstone

Capping Bonus..... 1 point/Level

Moving Foundation from Building Site..... 15 points

Parking in Building Site..... 5 points/Robot

WELCOME SPECTATORS!

FIRST® is a robotics community that prepares young people for the future. The world's leading youth-serving nonprofit advancing STEM education outcomes, *FIRST* designed mentor-guided research and robotics programs for kids from pre-kindergarten through high school. Boosted by a global support system of mentors, coaches, volunteers, alumni, and sponsors, teams conduct research, fundraise, design, and build robots of their creation. For 30 years, students from all walks of life have developed self-confidence in STEM, meaningful friendships, and valuable, real-world skills through *FIRST* that open pathways and help young people build a better future.

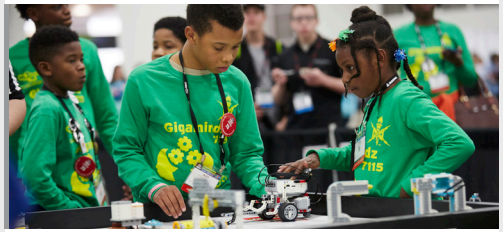
AGES 6-10 — FIRST LEGO LEAGUE JR.

FIRST® LEGO® League Jr. teams build and program a model that moves using LEGO® Education WeDo 2.0 and present their research journey on a *Show Me* poster.

Students will:

- Learn about a real-world theme
- Explore challenges facing today's scientists
- Discover real-world math and science
- Begin developing teamwork skills
- Practice presentation skills
- Celebrate at noncompetitive events
- Engage in team activities guided by *FIRST*® Core Values

AGES 9-16* — FIRST LEGO LEAGUE



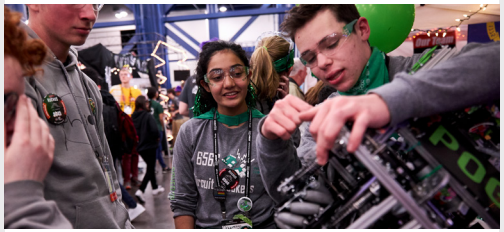
FIRST® LEGO® League teams build robots using LEGO® MINDSTORMS® technology and develop an Innovation Project based on a real-world Challenge that changes annually.

Students will:

- Create innovative solutions to challenges facing today's scientists
- Strategize, design, build, program, and test an autonomous robot
- Apply real-world math and science concepts
- Develop career and life skills, including critical thinking, time management, collaboration, confidence, and communication
- Participate in official tournaments and local events
- Engage in team activities guided by *FIRST* Core Values

*Ages very by country

AGES 12-18 — FIRST TECH CHALLENGE

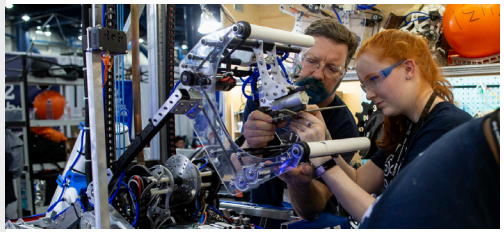


FIRST® Tech Challenge students learn to think like engineers. Teams build robots from a reusable kit of parts, develop strategies, document their progress, and compete head to head.

Students will:

- Design, build, and program robots
- Model a real-world engineering process
- Apply math and science concepts
- Develop strategic problem-solving, organizational, and team-building skills
- Build life skills while building robots and work towards participating in tournaments and *FIRST* Championship
- Compete and cooperate in Alliances at tournaments
- Access exclusive scholarships from hundreds of colleges/universities

AGES 14-18 — FIRST ROBOTICS COMPETITION



FIRST® Robotics Competition teams compete with 120-pound robots of their own design, combining the excitement of sport with the rigors of science and technology.

Students will:

- Work alongside professional engineers
- Build and compete with a robot of their own design
- Learn and use sophisticated hardware and software
- Develop design, project management, programming, teamwork, strategic thinking, and *Coopertition*® skills
- Earn a place in the *FIRST* Championship
- Access exclusive scholarships from hundreds of colleges/universities

FIRST®

At the heart of *FIRST* are its Core Values, which emphasize the contributions of others, friendly sportsmanship, teamwork, learning, and community involvement. These include: *Gracious Professionalism*® – Respect for others, being a good sport, and sharing what you learn. *Coopertition*® – Competing hard, but also helping the other teams.

For information about *FIRST*® in your area:
www.firstinspires.org/contactus