

Become a FLL Mentor (Coach):

Coaches can suggest and hint, but FLL Rules require that THE KIDS MUST DO THE WORK.

The time commitment and responsibilities for an FLL coach are similar to those of a coach for a little league sports team. Coaches will spend about 3-5 hrs per week preparing. FLL Coaches must get supplies; arrange meeting times; plan lessons to advance skills; raise money; read the coaches' handbook; learn the challenge rules; order T-shirts; guide development of a Research presentation; register for events; plan transportation to tournaments; and give structure to the Robot design process. Coaches or students assemble the Mission Models which are made of LEGO®s. Coaches must also know the basics about the robot and the software. Many coaches also elect to build and practice with an official competition table made from a 4'x8' sheet of plywood with 2"x4" rails.

In addition to prep tasks, FLL Coaches spend 3-8 hrs per week, for ~fifteen weeks, meeting with the team. Activities start in September, and end with participation in the Maryland State FLL Tournament in January.

One person can't do it alone: parents, teachers and community members may be tapped to act as Head FLL Coaches and Supporting FLL coaches. At planning meetings, coaches agree upon team structure, team goals, division of tasks, and season schedules.

Competitive teams meet more often and have coaches who organize lessons on research, robot design, sensor use, and programming. Sessions are planned out in advance and well managed. Teams with a more casual mission statement will minimize formal lessons.

Consider leading a new team:

- Explore the (FLL) website at <http://www.usfirst.org/what/fll/default.aspx?id=390>
- How to Start a Team: <http://www.usfirst.org/what/fll/content.aspx?id=394>

Once you register a FLL team, you will be given even more information to help you get your team started. Existing teams often help mentor new teams. Also, look online for FLL coaches' resources, and forums like these: <http://www.legoengineering.com/>
<http://www.roboticslearning.com>
<http://www.hightechkids.org>
<http://www.ortop.org>



FLL Robotics is growing faster than our volunteers can support. We need help to meet the incredible demand. Here's how you can help:

Become a Volunteer:

You don't have to be a parent or teacher to be involved in MD FLL Robotics. Get involved as a mentor (coach), referee, or judge at a local tournament. To volunteer for any of these positions, please visit <http://www.umbc.edu/fll/>

Become a Sponsor

Sponsor a Maryland FLL Robotics Team.

To find a MD FLL team to sponsor, contact FLL coach Miss Mary at HEM.Robotics@gmail.com or Deborah Harris at harrisd37@msn.com. FLL Teams are happy to advertise names of their sponsors on their T-shirts and websites.

Sponsor a FLL Robotics Tournament.

If you, or your organization, want to support FLL Robotics at a larger level, please consider contributing funds, supplies, or space to host a local tournament. Contact FLL Partner, Dr. Anne Spence aspence@umbc.edu.

Donate to FIRST.

FIRST is a 501(c)(3) foundation. Donations to FIRST are tax deductible to the extent provided by current IRS tax laws and regulations (EIN # 22-2990908).

FIRST

200 Bedford St.
Manchester, NH 03101

Why we do this: Robotics is a great way to get the next generation interested in Robotics and related career paths! Without a shift in the interests of American youth, the Congressional Report "Rising Above the Gathering Storm" predicts there will be a critical shortage of skilled Scientists and Engineers within the US over the next twenty years.

Info on



LEAGUE ROBOTICS...



Competitions and Activities in *Maryland*

FIRST:

<http://www.usfirst.org/>

For Inspiration and Recognition of Science and Technology -

"FIRST is an INTERNATIONAL non-profit organization whose Vision is: "To create a world where science and technology are celebrated... where young people dream of becoming science and technology heroes".

FIRST sponsors 4 Levels of competitions:

- **JrFLL** - Junior FIRST LEGO® League (ages 6-9)
- **FLL** - FIRST LEGO® League (ages 9-14)
- **FTC** - Tech Challenge (ages 15-18)
- **FRC** - Robotics Competition (ages 15-18)

The top FIRST teams from around the world compete at the FIRST World Championships held each April in Atlanta. Over \$9 million in scholarships was awarded to participants in 2008.

FIRST LEGO® League Team formation:

Anyone can form, and register a FIRST LEGO® League Robotics team. FLL Teams are formed by schools, churches, community groups and even just a group of friends.

Joining an existing FIRST LEGO® League team is usually difficult. Existing teams are usually filled to their capacity and do not accept new members. The easiest way to participate is by forming a new team with your peers. Start by reviewing the sample budgets, and season schedules to determine if you can commit to being part of a FIRST FLL Robotics team.

Please note: the FIRST organization and their local representatives do not set up teams, or coordinate new member enrollment.

Fundraising:

Just like sports teams, FIRST FLL teams seek local sponsors, and hold fund raisers to help pay for their supplies and fees.

Fundraising info and hints & tips for parents can be found at FIRST NEMO (Non-Engineering Mentor Organization) <http://www.firstnemo.org/>

FIRST LEGO® League (FLL)

<http://www.firstlegoleague.org>

<http://www.umbc.edu/fll/>

In the US, FIRST LEGO® League Robotics is for ages 9-14. FLL Teams consist of 3-10 team members and at least one adult mentor. FLL Teams use LEGO® Mindstorms™ RCX or LEGO NXT™ robots.

Estimated cost per FLL Team is \$1000. This covers national and state registrations, a Field Setup Kit, a challenge table, optional parts, T-shirts, and a reusable LEGO® MindStorms NXT kit.

The Field Setup Kit contains the Challenge Mat, and LEGO® Mission Models used in the FLL Challenges. The Coaches' Handbook comes with the Field Setup Kit and explains how to run a team.

Each year FLL releases a new Challenge based on current, real-world engineering issues. Registration opens in May at <http://www.register4fll.com>, and closes when the max number of teams has been reached. This usually occurs sometime in early September.

FLL estimates that the 2008 "Climate Connections" challenge will involve over 12,000 teams worldwide with 110,000 children participating. In the U.S. and Canada, 7,800 teams will hold over 300 qualifying tournaments and nearly 70 state championship tournaments (projected).

Supplies are available for order throughout summer via the registration log in. The actual Challenge and missions are revealed in early September 2008.

Time Commitment for participants:

Commitment to FLL Robotics is similar to that required by a little league sports team: FLL Robotics team members must be ready to dedicate at least 3-8 hrs per week during the fifteen week robot build cycle (Sept. thru Dec.). Team members must also complete a short Research presentation.

FLL Teams must also be available to compete in regional events at year's end. In Maryland, the State Championship is held in January in Catonsville at UMBC (University of Maryland, Baltimore County).

Please refer to <http://www.umbc.edu/fll/> for rules on how teams become eligible to attend the MD State FLL Tournament. UMBC, the partner for FLL in Maryland, runs the MD state FLL tournament.

Basics of the FLL Robot Matches:

Rookie teams usually start by building a base robot out of a book or from the LEGO® website. Next, they design attachments that accomplish one or more missions in a timed round. Missions require the robot to interact with models made of LEGO®'s. The robot must be programmed to act AUTONOMOUSLY to complete missions (no remote control). Points are earned every time a mission is completed successfully. Many teams only succeed in getting a few missions to work -- but that's OK! The kids learn and have fun anyway. As teams progress, the base robot, attachments, and programs become highly customized and more complex, allowing teams to complete more missions.

FLL is not just about the Robot:

At FLL State Competitions, FLL Robotics teams are scored in 4 distinct areas:

1. **Robot Challenge Matches**
2. **Technical complexity of the Robot's design and its mission programs.**
3. **A five minute Research Presentation**
4. **Teamwork (interviews and problem solving)**

A Rubric in the Coaches' Handbook explains how teams are judged in each of the four categories.

What the Kids Learn:

- Principles of simple electric motors
- Basic design of moving robots
- Teamwork – design of attachments
- Simple object oriented programming
- Trial and Error
- Software and System Integration

The Robot must be programmed with the official LEGO® Software that ships with MindStorms Kits.

Beyond FLL:

Many other groups hold challenges and summer camps for Robotics. Just search the internet to find them! A great online resource is **Robot Events:** <http://www.robotevents.com> and the calendar on www.firstnemo.org

Carnegie Mellon's Robotics Academy

<http://www.education.rec.cmu.edu>

The CMU Robotics Academy has great resources for students, teachers, and parents. The Academy holds student summer camps and educator workshops. Some FIRST FLL teams use the CMU materials to work on their robotics skills year round.