In FIRST LEGO League, teams of 2-10 boys and girls of ages 9-14 work together to design, build, program and test robots and to do a research project and presentation that teaches them to think like scientists and engineers to solve real problems in their communities. The 2013 Challenge is Nature's Fury: Prepare. Respond. Recover. Team registration begins in early May. The Challenge releases in late August.

Los Angeles Region FIRST® LEGO® League

Los Angeles Region FIRST® LEGO® League (LAR FLL)
2013 Nature's Fury℠ Challenge: Prepare. Stay Safe. Rebuild.

See links to related pages on the right side of each page.

2013 Nature's Fury Teaser and Logo

Coming August 27, 2013

Can FIRST® LEGO® League teams help us master natural disasters? In the 2013 NATURE'S FURY℠ Challenge, over 200,000 children ages 9 to 16* from over 70 countries will explore the awe-inspiring storms, quakes, waves and more that we call natural disasters. Teams will discover what can be done when intense natural events meet the places people live, work, and play. Brace yourself for NATURE'S FURY! FLL challenges kids to think like scientists and engineers. During NATURE'S FURY teams will build, test, and program an autonomous robot using LEGO MINDSTORMS® to solve a set of missions in the Robot Game. They will also choose and solve a real-world problem in the Project. Throughout their experience, teams will operate under FLL's signature set of Core Values.

*9-14 in the US, Canada, and Mexico

Download Overview of 2013 Grants, Challenge, Calendar and Costs (PDF, 206 KB)

2013 Nature's Fury Challenge (Released August 27, 2013)

Nature's Fury Challenge with Field Overhead View (PDF, 28 pages, 1.3 MB)
Nature's Fury Challenge Supplemental Documents (PDF, 30 pages, 5.3 MB)

2013 Calendar

Download Overview of 2013 Grants, Challenge, Calendar and Costs (PDF, 206 KB)

2013 Costs for California - Los Angeles Teams

ITEM	PART #	COST	SALES TAX	SHIPPING	TOTAL
Team Registration	990305	$225.00	$20.25	$15.75	$261.00
FLL EV3 Robot Set (new teams)	992131	$499.00	$44.91	$34.93	$578.84
Subtotal (New Team Grants)		724.00	$65.16	$50.68	$839.84
Field Setup Kit	779664	$ 75.00	$ 6.75	$ 5.25	$ 87.00
Total Products (EV3)		$799.00	$71.91	$55.93	$926.84
Team Registration + Field Setup Kit (returning teams)		$300.00	$27.00	$21.00	$348.00
FLL NXT Robot Set	979792	$435.00	$39.15	$30.453	$504.60
Total Products (NXT)		$735.00	$66.15	$51.45	$852.60
Field Table (new teams) *		$30.00	to $70.00		
Project presentation materials & optional T-shirts (all teams)		$10.00	to $200.00		
Tournament Registrations - October (all teams) **		$60.00	to $250.00		
Total Cost (new teams)		$1,026.84	to $1,446.84		
Total Cost (returning teams)		$418.00	to $798.00		

* Practice field tables built with rigid foam insulation reduce weight and increase portability.
If you build a standard wooden table, use kiln-dried lumber to reduce weight and warping. Select boards that are not warped.
Stiffeners can be omitted if you support the field table with a standard table (preferably an 8' long table) instead of saw horses.

** Practice tournament fees are typically $40-$50. Qualifying tournament fees may be $60-$100. Attend one of each if possible.
LAR FLL Championship Tournament fees may be $70-$100 for the top 25% to 30% of teams that qualify.
Fees for qualifying and championship tournaments depend on sponsor support - more support means lower fees.
The maximum values assume no additional sponsors are confirmed. The minimum values assume potential sponsors are confirmed.
Recommended team budget for tournaments: $110. Budget $180 if you expect your team to qualify for the Championship.

For additional information about products, see 2013 FLL Products and Pricing.

Download Overview of 2013 Grants, Challenge, Calendar and Costs (PDF, 206 KB)

2013 Grants

Download Overview of 2013 Grants, Challenge, Calendar and Costs (PDF, 206 KB)

2013 Events

- **Demonstrations and Expositions**
- **Robotics Classes, Spring Camps and Summer Camps**
- **Coach and/or Teacher Training Workshops and Challenge Release Workshops**
- **Community Events and Official Tournaments**

How to Register for Workshops and Tournaments

2013 Map of Teams

2013 News

In FIRST LEGO League, teams of 2-10 boys and girls of ages 9-14 work together to design, build, program and test robots and to do a research project and presentation that teaches them to think like scientists and engineers to solve real problems in their communities. The 2013 Challenge is Nature's Fury: Prepare. Respond. Recover. Team registration begins in early May. The Challenge releases in late August.

Los Angeles Region *FIRST*® LEGO® League

Los Angeles Region *FIRST*® LEGO® League (LAR FLL) Information for New Teams

The *FIRST* LEGO League (FLL®) program is an excellent way for young people to experience the excitement of technical creativity and gain insights in the possibility of technical careers. No previous technical or programming experience is required to join a team or to coach a team.

Teams

FLL teams are made up of 2-10 young people between the ages of 9 and 14. Teams can be organized at schools, at clubs or troops, or in neighborhoods. The main requirement is that an adult take the responsibility for registering a team and scheduling the meetings. Most teams meet 3-6 hours per week, after school or on weekends, in September, October and November.

The optimum size for a team with one adult and one robot set is 4-6 kids. To effectively manage a team with 10 kids, it is best to have either

- A coach with skill managing many kids (e.g., a teacher)
- A second coach/mentor (could be a high school student)
- A couple kids on the team who are good leaders or
- A second robot set

See the complete 2012 Teams Map. See the partial 2013 Teams Map.

The Season

See the 2013 Season Calendar.

The FLL season starts in May with team registration at https://gofll.usfirst.org/. Team registration continues until the end of September or until capacity is reached. FLL Robot Sets and team registration kits, which include the Coaches Handbook and program CDs, are shipped as soon as the team registers and completes payment. Shipments to California typically take 5-10 days after your payment is received. Starting in late July or early August, the field setup kits, which include the field mat, the mission models, and a link to the online building instructions, will be shipped to registered teams that paid for them.

In late August or early September, the FLL Challenge including the Research Project, Robot Game and Core Values will be released online. New teams (coaches, mentors, students and parents) should attend a Challenge Release Workshop to get the season off to a good start. Teams design, build and program their robots and complete the research project during September, October and November. Teams register for tournaments in early October and attend practice tournaments in late October or early November and Qualifying Tournaments in November or early December. Tournaments are usually scheduled on Saturdays and Sundays. The top 20-30% of teams will advance to the Regional Championship Tournaments in mid-December.

Teams that start late may need to meet more hours per week to get ready for Qualifying Tournaments in mid-November:

Start Team Date	Weeks to Mid-November Qualifying Tournaments	New team: 40+ total hours Hours per week	Experienced team: 30+ total hours Hours per week
September 3	10	4	3
September 17	8	5	4
October 1	6	7	5

Teams that order robot sets or field setup kits late can start working on the Research Project and Core Values right away and can work on the Robot Game later.

Find out more about FLL at the official websites:

What is FLL Video: http://media.wpi.edu/News/Events/Robotics/First/2008/Videos/2008_FIRST_LEGO_League_LAN.wmv

What is the Challenge: http://firstlegoleague.org/challenge/thechallenge

Start a Team: http://firstlegoleague.org/challenge/startateam

Participation Rules: http://firstlegoleague.org/mission/participationrules

Find a team: https://my.usfirst.org/FIRSTPortal/login/fc_login.aspx?s=fc

Register a team: https://gofll.usfirst.org/ **(Also order FLL Robot Sets and Field Setup Kits here.)**

Team Costs

See the 2013 FLL Challenge for estimated season costs, including shipping and sales tax.

Team Grants

Grants are available for eligible teams. Priority consideration is given to teams that meet one of the economic needs criteria.
See 2013 Grant Information.

First Steps for New Teams

Tips for new teams to help you get off to a good start with the FLL Challenge.

Team Resources

Links to additional resources for teams.

In FIRST LEGO League, teams of 2-10 boys and girls of ages 9-14 work together to design, build, program and test robots and to do a research project and presentation that teaches them to think like scientists and engineers to solve real problems in their communities. The 2013 Challenge is Nature's Fury: Prepare. Respond. Recover. Team registration begins in early May. The Challenge releases in late August.

Los Angeles Region *FIRST*® LEGO® League (LAR FLL)
FLL Challenge
First Steps for New Teams

Before the Challenge is Released (If Possible)

- Register your team and purchase the Field Setup Kit and a FLL Robot Set (if you do not already have one).
- Build or acquire a field table. See Team Resources.
- Review the Coaches' Handbook.
- Attend a Training Class or Summer Camp or listen to the first few Coach Calls. See Team Resources.
- If you would like additional help or ideas, see the recommended books in Team Resources.
- If none of the students has worked with LEGO® MINDSTORMS® before, have some students work through the tutorials to build a simple robot and demonstrate the use of each sensor. Those students can teach the others.
- If you have time, additional Robot Building Examples and a Programming Tutorial are avalable on Team Resources.
- Check your robot's rechargeable battery. These batteries are sometimes dead on arrival, and they often loose their ability to hold a charge after a couple years.

When the Field Setup Kit is received

- Download the online Field Setup Kit Building Instructions by following the link printed on the paper in the box.
- Sort the bags of LEGO parts by number. The Building Instructions indicate how many bags you should have with each number. If you are missing any bags, call LEGO Education at 800-422-5346. Bags with no number have parts that are needed for several models.
- Open a set of bags of LEGO parts with the same number from your Field Setup Kit and spread the parts out on a light colored towel or similar textured surface to keep the small round parts from rolling onto the floor and under furniture.
- If there are beams or axles of the same color with several different lengths, It helps to sort them by length before you start building. Be careful to choose the ones with the right length by counting the holes on the beams.
- Build the mission models for this set of bags by following the Building Instructions.
- Repeat for each set of numbered bags.

When the Challenge is Released

- Attend a Challenge Release Workshop with your entire team (coaches, mentors, students, parents).

The Game

- Follow the online Field Setup instructions for proper placement of the mission models on the field mat with Dual Lock.
- Review the Challenge Robot Game Missions, Rules and Q&A. The Q&A is usually updated once each week.
- View the mission videos, if available.
- Figure out how many points you can get without activating your robot.
- Brainstorm easy ways that your robot could earn additional points.
- Start working on the easy missions first.

The Heart of FLL
FLL Core Values
Gracious Prof.
FLL Websites
New Teams
First Steps
Team Resources
Event Types
Judging
Awards
LOL Comets
Ambassador Teams
Sponsors
About
Contacts
LARobotics/SCRRF

The Project

- Review the Challenge Project.
- Brainstorm possible problems to research for your project.
- Assign students to research potential problems--what is known, who are the experts in the field--and possible solutions.
- Brainstorm possible experts that your team could interview about your project.

The Team

- Choose a team name and T-shirts to wear to competitions.
- Discuss roles and responsibilites.
- Discuss the Core Values.
- Record the activities, decisions and progress of your team each day. This record will be helpful when you are preparing for tournaments.

In FIRST LEGO League, teams of 2-10 boys and girls of ages 9-14 work together to design, build, program and test robots and to do a research project and presentation that teaches them to think like scientists and engineers to solve real problems in their communities. The 2013 Challenge is Nature's Fury: Prepare. Respond. Recover. Team registration begins in early May. The Challenge releases in late August.

Los Angeles Region FIRST® LEGO® League (LAR FLL) Team Resources

Field Table

The most challenging part of starting a new team is building a field table for the team to practice the robot game. Instructions for building two different versions are available on the FLL Team Resources web page. One is the standard wood table consisting of a sheet of sanded 3/8 to 1/2 plywood with kiln dried sanded 2x3 side walls. This makes a field table that is very robust but heavy and hard to transport and store.

We recommend that new teams build the lightweight portable alternative field table using rigid insulation foam board instead of wood. This field table is cheaper and easier to build, transport and store, but it needs to be handled more carefully to avoid damage. The online instructions can be simplified by using duct tape instead of wood screws and metal brackets to hold the foam insulation together until the adhesive sets. Here are the parts that you would need from Home Depot as of 4/24/13:

http://www.homedepot.com/p/t/202532855 - Bottom (cut in half): R-Tech 1-1/2 in. x 4 ft. x 8 ft. Foam Insulation
http://www.homedepot.com/p/t/202524156 - Side Walls (cut six 2.5" strips lengthwise): R-Tech 1-1/2 in. x 2 ft. x 4 ft. Foam Insulation
http://www.homedepot.com/p/t/202020474 - Adhesive: Loctite PL Premium 28 fl. oz. Polyurethane Construction Adhesive
http://www.homedepot.com/p/t/100142641 - Hinge and to hold pieces together: Scotch 2 in. x 180 ft. Cloth Duct Tape
http://www.homedepot.com/p/t/100577483 - Smooth surface (cut in half lengthwise and use to cover side walls and wrap around bottom): Con-Tact 180 in. x 18 in. Black Faux Leather Drawer/Shelf Liner
http://www.homedepot.com/p/t/203240686 - Husky Insulation Saw

Recommended Books

James Floyd Kelly, Jonathan Daudelin. *FIRST LEGO League: The Unofficial Guide*. San Francisco: No Starch Press, 2008.
James Jeffrey Trobaugh. *Winning Design!: LEGO MINDSTORMS NXT Design Patterns for Fun and Competition*. Berkeley CA: Apress, 2010.
Dave Astolfo, Mario Ferrari, Giulio Ferrari. *Building Robots with LEGO MINDSTORMS NXT*. Burlington MA: Syngress Publishing, 2007.
David J. Perdue, Laurens Valk. *The Unofficial LEGO MINDSTORMS NXT 2.0 Inventor's Guide*, 2nd ed. San Francisco: No Starch Press, 2010.
James Floyd Kelly. *LEGO Mindstorms NXT-G Programming Guide*, 2nd ed. Berkeley CA: Apress, 2010.

Coach Training Slides

These are the slides presented by FLL Partner LeRoy Nelson and LOL Comets coach Tony Ayad at Coach Training Workshops:
Introduction for FLL Coaches 2013 (PDF: 31 slides, 16 pages, 0.4 MB)
NXT Programming for FLL Coaches 2012 (PDF: 52 slides, 52 pages, 2.7 MB) -- Basic and Advanced
NXT Programming with Excel 2012 (PDF: 19 slides, 19 pages, 1.6 MB)
For a schedule of Coach Training Workshops, see Workshops.

Coach Calls

A series of recorded teleconference calls and handouts about how to start and run an FLL team. A new series of calls is offered live each season between August and November. Only the Robot Game and Project change significantly from one season to the next.
http://www.firstlegoleague.org/challenge/teamresources#Coach-Calls

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Links

FLL Team Resources: http://www.firstlegoleague.org/challenge/teamresources
TechBrick Robotics challenge worksheets and resources: http://www.techbrick.com
Robot Building Examples: http://www.nxtprograms.com and http://www.usfirst.org/roboticsprograms/fll/content.aspx?id=792
Programming Tutorials: http://www.catlin.edu/msrobotics/downloads or http://www.ortop.org/NXT_Tutorial/
Other programming resources: http://www.usfirst.org/roboticsprograms/fll/content.aspx?id=790
NXT Building Hints - Constructopedia: http://legoengineering.com/library/doc_details/150-nxt-constructopedia-beta-21.html
LEGO Parts Reference: http://www.education.rec.ri.cmu.edu/roboticscurriculum/teachertraining/legopartsreference.pdf
LEGO Engineering LEGO MINDSTORMS NXT-G Software Knowledgebase:
http://www.legoengineering.com/knowledgemanager/categories/LEGO+MINDSTORMS+NXT-G+Software/
LEGO Engineering building and programming resources for teachers: http://legoengineering.com/building-programming.html
Robotics Curriculum from Carnegie Mellon University's Robotics Academy:
http://www.education.rec.ri.cmu.edu/content/lego/curriculum/index.htm
Order LEGO MINDSTORMS NXT Educational sets, parts and software:
http://www.legoeducation.us/eng/categories/products/middle-school/lego-mindstorms-education
Order spare LEGO parts: http://www.bricklink.com
The NXT STEP - LEGO MINDSTORMS NXT Blog: http://thenxtstep.blogspot.com/
YouTube FLL videos: YouTube FLLGlobal Channel or youtube FLL search
Los Angeles Robotics (Affiliate Partner for Los Angeles Region FLL): http://larobotics.org
Southern California Regional Robotics Forum: http://larobotics.org/SCRRF.html
LEGOLAND California FLL: http://www.legoland.com/groups/education/fll.htm
California FLL: http://cafll.org
United States and Canada FLL: http://www.usfirst.org/community/fll/
International FLL: http://www.firstlegoleague.org/
FIRST Robotics: http://usfirst.org

Forms for Tournaments

See the Event Forms page for the current season.

Team Google Group

Joining this group allows coaches, mentors and other team volunteers to receive the Partner's announcements to teams. To review past announcements or to join the group, please visit
LA Region FLL Teams Google Group

Coach Training Workshops and Robotics Classes and Summer Camps

See the Events page for the current season.

Fundraising

Piggybackr is a free online platform that teaches young people how to fundraise. Piggybackr has helped thousands of students, including many *FIRST* robotics teams, fundraise tens of thousands of dollars! Here is a recent example of a successful fundraising campaign by a local *FIRST* Robotics Competition team: Piggybackr.com/team980.

Public school teachers can request funding for classroom projects using the DonorsChoose.org website at http://www.donorschoose.org. The organization partners with certain vendors, then purchases items selected by the teacher when the donation amount is reached. The items are then shipped to the school. It takes 45-60 minutes to complete the application process.

- Challenge: Overview and History
- Start a Team
- Participation Rules
- 2013 NATURE'S FURY Challenge
- Coach/Team Resources
- Judging & Awards
- Email Blast Archive
- Forums
- FLL Global Innovation

Coach/Team Resources

Quick links to help you navigate...

- Stay Connected with FLL (Blog, Twitter, YouTube, Facebook)
- Preparation (Coaches' Handbook, Products, Table Constructions, Storage, Coach Calls, Fundraising, Brainstorming)
- Project (How-To videos, FLL Blog posts)
- Robot Game (Building, Programming, Materials in Support of the Classroom)
- Events (What to Bring)
- General

Can't find what you are looking for? Email flllteams@usfirst.org

Stay Connected with FLL

FLL Blog - Stories from Our Community
Follow Us on Twitter
Subscribe to the FLL YouTube Channel
Like Us on Facebook - *FIRST* Facebook page

Preparation

Coaches' Handbook, version 2013
The Coaches' Handbook is your guide to the whole FLL season. It provides information and guidance to make your first (and second, third, fourth…) season a success.

Choose the download that is right for your device:

Coaches' Handbook (PDF - for computer, Kindle, etc.)
Coaches' Handbook (ePub - for e-readers such as Android devices, iPad, Nook, etc.)

Important Note on Child Safety

FLL Products

Video tutorials on all the FLL products sold through the FLL team registration system (US/Canadian teams)

Table Construction

Official table building instructions
Looking for a lighweight, portable table option? FLL team, The Inventioneers, created the STOW-or-GO Practice Table

Storage During Competition

Helpful option for object storage during competition. Designed by team Brainstorm

Coach Calls - NATURE'S FURY

Coach calls are a great way to get familiar with the Challenge. Don't worry if you miss a call, we post all recordings here! Agendas will be available before each call.

More calls may be added as the season progresses.

Call-In Information:
1-866-951-1151
Conference Room # - 9533018
1000 lines per call are available, Calls are approximately one (1) hour but may run over if there are many questions after the hosts go through the agenda.

Topic/Outline	Date/Time	Audio Recording
Where Do I Start? Coach Orientation	August 12, 2013 - 7pm ET	Recording
FLL Parents: What to Expect	August 19, 2013 - 7pm ET	
Coaching a Team	August 20, 2013 - 7pm ET	Recording
EV3/NXT - Technical Support Process	September 10, 2013 - 7pm ET	New this season.
The Robot Game (runs 2 hours)	September 12, 2013 - 7pm ET	Recording from last season - part 1 Recording from last season - part 2
The Project	September 17, 2013 - 7pm ET	Recording from last season
Core Values/Teamwork	September 19, 2013 - 7pm ET	Recording from last season
Robot Design	September 26, 2013 - 7pm ET	Recording from last season
Judging: A Perspective for the Coach	October 10, 2013 - 7pm ET	Recording from last season
Preparing for an FLL Event	October 24, 2013 - 7pm ET	Recording from last season
FLL Global Innovation	November 12, 2013 - 7pm ET	Recording from last season

Fundraising

- fundraising-ideas.org
- fundraiserhelp.com
- stepbystepfundraising.com

Brainstorming

- Design Squad Nation - Assortment of fun activities designed to get "creativity flowing".

Project

- Project How To Video - Official video on how to tackle the FLL Project.
- FLL Blog Posts about the Project. By Official FLL Blog correspondent, Heidi Buck.
    - Which comes *FIRST*, the Project or the Robot?
    - Engineering the Project
    - Forward Thinking Field Trips
    - How to Turn the Lightbulb On
    - The Dragon Ate My Project!
    - Elevator Pitch
- Watch this 9 webisode series on the FLL Project. Created by Official FLL Blog correspondent, Heidi Buck.

Robot Game

Building

- ldraw.org - Open standard for LEGO CAD programs that allow the user to create virtual LEGO models and scenes.
- brickplayer.com - Private, independent website featuring LEGO sculptures, mosaics, news, reviews, and building tips & tricks.
- brickjournal.com - BrickJournal is a magazine that spotlights the many aspects of the LEGO Community.
- brickshelf.com - Cool LEGO building stuff.
- peeron.com - More cool LEGO stuff, including a list of parts numbers and names; color chart, sets, building instructions
- classic-castle.com - For LEGO castle aficionados
- bricklink.com - Premium venue for individuals and businesses from all around the world to buy and sell new, used and vintage LEGO
- brothers-brick.com - The Brothers Brick is a LEGO blog for adult fans of LEGO
- lugnet.com - International **L**EGO **U**sers **G**roup **Net**work, a global community of LEGO enthusiasts.
- The Art of LEGO Design by Fred Martin- A slightly outdated, but still very useful guide to building with LEGO.

Programming

- NEW! Fundamentals of NXT-G Programming - A free, self-paced introductory programming course designed to cover the fundamentals of NXT-G programming. Students have the ability to earn Badges to represent their accomplishments. There is also an optional cumulative exam that lets students earn an "NXT-G Programming Fundamentals" badge.
- NEW! NXT Programming for Beginners - courtesy of Neil Rosenberg, Excellent resource for all levels of NXT users.
- NEW! nxtprograms.com - Step-by-step instructions to build & program robots to do various simple tasks
- NXT Programming Tutorial - Downloadable, excellent introductory and advanced programming tutorials for NXT. Provides step-by-step guidance and explanations of the skills needed to create simple and more advanced NXT-G robot code.
- NXT Programming Tutorial (IN SPANISH)
- NXTLOG - from LEGO.com, Share and archive your LEGO® MINDSTORMS® NXT projects.

Materials in Support of the Classroom

- GEAR-Tech-21- Includes six to nine activity modules introducing robot design, building and programming for the LEGO NXT

- Carnegie Mellon- Comprehensive *FIRST* LEGO League robotics and engineering resources can be found at the Robotics Academy site.. The Robotics Academy also offers free online training and access to free materials for students who are members of the Robotics Academy's Computer Science Student Network (CS2N). The online trainings cover everything that teams need to know to be successful at programming their FLL robots. The Robotics Academy also offers free training for TETRIX robots.
- NASA Educational Robotics Matrix This is a list of robotics and engineering educational materials, collected by NASA. Not all of the materials here apply to *FIRST* LEGO League.
- Tufts Center for Engineering Educational Outreach - Encyclopedia of LEGO part names and uses, building and programming hints, and physics concepts. Also, about 40 classroom activities and ideas using LEGO elements and ROBOLAB to help teach subjects, from science and engineering to reading and art, are available for download. Another database of activities is below under LEGO Invent & Investigate Database.
- Trifolioum Gears Lesson - A lesson plan about gear types and uses using LEGO gears to illustrate. Introduction to gears lesson.
- How Stuff Works - Explanations of how things work. It is not a curricula, and not specific to *FIRST* LEGO League, but has very good explanations of general engineering concepts. For example, How Gears Work, How Gear Ratios Work, and How Differentials Work.

Events

What to Bring to an Event:

- Robot and attachments
- Signed Consent and Release forms
- Parts kit
- Print out of programs and robot specification page
- Materials, props, and equipment needed for Project presentation
- Laptop computer with batteries and/or AC adaptor, extra batteries, extension cords
- Team scrapbook
- Team banner, posters, or other decorations for pit space
- Snacks and drinks
- Storage box for personal items
- USB cable or IR tower
- Programming garage
- Team introduction page
- Fun, inexpensive gifts to share with other teams (pins, hats, personalized, team playing cards)

Team Profile Sheet (Note: Please save this form to your computer prior to filling it out/printing it)
Some regions refer to these as Team Introduction, Team Profile or Team Information Pages; others prefer to use their own form. As each region determines if/how this form will be used (for example they may collect in advance via email or ask you to bring multiple copies to provide directly to the judges), please check with your local event organizer if you have any questions regarding plans for use in your area.

General

Engineering & Career Resources

- robotics.nasa.gov - NASA Robotics Alliance Project
- kids.gov - lots of links with career information for children
- engineergirl.org - Created by the National Academy of Engineering
- asce.org/kids - The American Society of Civil Engineering kids' pages
- civilengineeringdegree.org - Complete List of Accredited Engineering Degrees

2013-14 TechBrick Robotics — TechBrick.com Maryland, USA

FLL/JrFLL WORKSHEETS AND RESOURCES POSTED. DOWNLOAD THEM NOW!
Now featuring fields with elements.
In English, Portuguese, and Dutch

FIRST | FRC FIRST Robotics Competition | FTC FIRST Tech Challenge | FLL FIRST LEGO League | Jr.FLL Junior FIRST LEGO League

NATURE'S FURY DOCUMENTS ARE READY and HUGE KICKOFF NIGHT!

> All our worksheets are ready and up for you to use including the incredible ***FLL COMPLETE SEASON SCHEDULE AND RECOMMENDATIONS*** document from one of our mentors. We have strategy docs, field mat images (with and without elements), element images, and much more. **WHAT ARE YOU WAITING FOR? CLICK HERE NOW.**

> Check out our amazing kickoff night picture. More than 115 students have joined TechBrick! Wow! **CLICK HERE FOR THE STORY**

Scroll Down For Page Content

Resources for the 2013-14 Challenges: FLL Nature's Fury & JrFLL Disaster Blaster

English, Portuguese, and Dutch

NOTE: For now we are naming the elements by bag number. When the challenge in released we will update these with the real names.

We would like to create gallery of teams who use our worksheets! Just email a photo that shows your team using any of our resources and short description (include team name number, and city/state/country) and we'll post it... Send it to marco@techbrick.com

Interested in translating our documents? Please send an email to marco@techbrick.com with your name, email, phone number, and preferred language. *Special thank you to Tymen Kuperus for our first translations.*

Have you benefited from our work? Care to help defray our costs? Consider a small contribution via PayPal.

SCROLL DOWN FOR RESOURCES

What will you find on our 2013-2014 FLL resource page?

- Scoring Sheets
- Images For Your Own Worksheets, Posters, and Clothing
- Highres Logo.
- Worksheet for the Challenge Table
- 11x17 Field Worksheet for Strategy
- A Worksheet for the Challenge Elements
- A Strategy Worksheet for the Challenge Pieces
- Step-By-Step Programming Worksheet
- Awesome Lego parts that can win you a FLL tournament (5 pages)
- What is a Team Info Sheet?
- Cool LEGO Ruler With Stud Counters
- Mission Path Robot Speed Spreadsheet
- Digital Truths Articles

IN ENGLISH AND DUTCH

CHECK OUT THE NEW EV3 INFO PAGE

While you are waiting check out our other key resources:

- **NEW: General Resources for 2012 >> DONT MISS THIS**
- **Cool group exercises for team building. Help them learn to communicate well. Get Them Now!**
- **The ultimate helper for mission planning: Mission Cards.**
- **Read Team Tips for Cool Ideas!**
- **RoboDesigners Website**
  RoboDesigners is a VA team of former TechBrick members.
  http://www.robodesigners.com
  Latest Article on Updating NXT Firmware:
  http://robodesigners.blogspot.com/?view=classic
  Other great articles here:
  http://robodesigners.blogspot.com/?view=magazine

BE SURE TO SIGN UP FOR OUR NEWSLETTER TO KEEP UP WITH NEW RESOURCES. Click Here Now.

Main FLL 2012-13 Resources Page

Team Tips and General Resources 2012. Lot's of Great Stuff.

General Resources

KEEP UP WITH THE LATEST RESOURCES. SIGN UP FOR OUR NEWSLETTER TODAY

Get a copy of our PPT for New Teams

RESOURCES AT US FIRST
FLL Main Page
FIRST Forums ESSENTIAL

Previous Year's Resources:
Smart Move
Climate Connections
Power Puzzle
NanoQuest
Body Forward
Food Factor
Senior Solutions

How to Get Replacement Parts for Table Models

New Teams Click Here for Tons of Resources

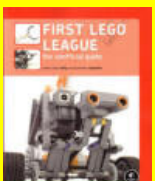
Cool group exercises for team building. Get Them Now!

The ultimate helper for mission planning: Mission Cards.

Resources for Jr. FIRST LEGO League

Must Visit Website
http://www.nxtprograms.com
nxtprograms.com
Home Projects Help Contacts
Hundreds of practical examples, photos, and full building instructions for programming.

FIRST LEGO LEAGUE: The Unofficial Guide



New Must Have Book! **OK. You're ready to start an JrFLL, FLL, or FTC team. What should you do next?** BUY THIS BOOK

Check back throughout the season as we add resources for education and research for JFLL, FLL, and FTC challenges.

Read Team Tips for Cool Ideas!
General Resources

Scroll down for lots of resources . Get them now!
Team Info Sheets, Maps, Rules, Worksheets, Rulers and more.

NOTE: IT IS BEST TO 'RIGHT CLICK' ON THE LINKS BELOW AND CHOOSE "Save Target As..." to download the documents.

CHECK OUT OUR FTC ROBOT THROWING OUT THE FIRST PITCH AT AN IRONBIRDS GAME...

Visit RobotMats.com for the best training tool ever for your FLL team.

A Note about Printing Elements at Fedexs or Similar Stores: Some stores have refused to print our documents based on corporate copyright policy. However, the documents below do not fall under the policy. Got to the FLL Legal Notices Page (http://www.usfirst.org/aboutus/legal-notices) and print out the PDF Titled: "Policy on the Use of FIRST Trademarks and Copyrighted Materials." See section II points 1 and 2

> **II. WHO May Use These Trademarks and Copyrighted Materials**
> **1. Currently registered FIRST teams and FIRST participants** may use the FIRST and the Joint FIRST and LEGO Trademarks (word marks and logos), and the LEGO word marks, in a way that relates to their FIRST team names and activities (e.g. the "FRC® Wonderbots" or the "FLL® Rocket Kids." They do not have to obtain advance permission, use Disclaimers, or provide advance notice to FIRST.
> **2. Registered FIRST teams or FIRST participants** (i.e., non-profit entities) may use the FIRST and the Joint FIRST and LEGO Trademarks (word marks, not the logos) and the LEGO word marks, and Copyrighted Material to conduct activities related to a FIRST program (e.g., an FRC team teaching skills to an FLL or Jr.FLL team) as long as they use the revenue to underwrite their cost of participation in FIRST programs and use the Disclaimers. They do not have to obtain advance permission or provide advance notice to FIRST, but as noted, they are not permitted to use the logos.

A Note about Acrobat Files for MAC/LINUX Users: The files below are in Acrobat 8 format for high quality reproduction. If you are on an older Mac or Linux system you may have problems opening them. Sometimes the MAC native PDF viewer does not show complex PDFs correctly. You should install the actual ACROBAT READER to view them. You can download the latest Acrobat Reader from Adobe at http://www.adobe.com. However, Acrobat Reader 8&9 is not available for all platforms.

A Note about Downloading Files: It is always preferable to use the HTTP download method rather than just clicking on a file link. All you need to do is right-click on a link (on most computers) or click and hold on older Mac and choose the 'save as...' option. Depending on your browser this will read: "Save Target As..." or "Save Link As..." or "Save File As..." You can then save the file to your desktop or other location for use instead of opening it directly into your browser.

US FIRST RESOURCES: READ EVERYTHING AT THE CHALLENGE PAGES. DON'T SKIP ONE DOCUMENT.

Main FLL Site: http://firstlegoleague.org

Challenge: http://www.firstlegoleague.org/challenge/2013naturesfury
BE SURE TO VISIT THIS PAGE FOR ALL RESOURCES

TEAM RESOURCES: http://www.firstlegoleague.org/challenge/teamresources
A MUST READ

The Challenge for 2013-14

Can FIRST® LEGO® League teams help us master natural disasters? In the 2013 NATURE'S FURY(r) Challenge, over 200,000 children ages 9 to 16* from over 70 countries will explore the awe-inspiring storms, quakes, waves and more that we call natural disasters. Teams will discover what can be done when intense natural events meet the places people live, work, and play. Brace yourself for NATURE'S FURY! FLL challenges kids to think like scientists and engineers. During NATURE'S FURY teams will build, test, and program an autonomous robot using LEGO MINDSTORMS(r) to solve a set of missions in the Robot Game. They will also choose and solve a realworld problem in the Project. Throughout their experience, teams will operate under FLL's signature set of Core Values.

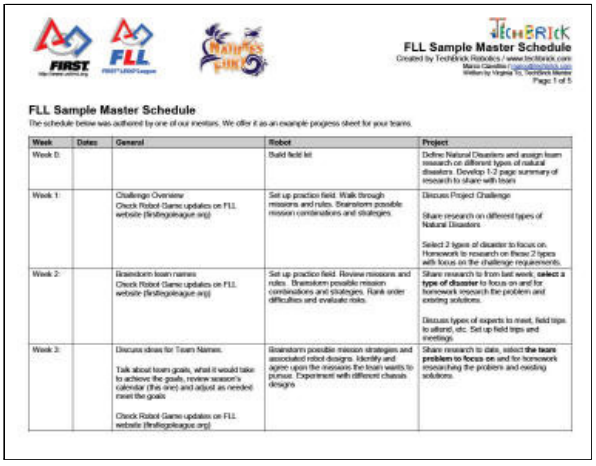
NEW! Season Planning Schedule: From Week 0 to Your Tournament in 16 weeks and Beyond (to Mars). A great resource from one of our mentors.

Ginny To, the lead mentor of the FLL ELECTROBOTS in Maryland (Delaware state champions in 2012-13) has prepared a very useful schedule for FLL teams. I know this is in the handbook and other places, but her presentation is concise.

DOWNLOADS

FLL-2013-NaturesFury-SampleSchedule.pdf

Right click and choose 'Save Target or Link As..." to save to your local computer.


FLL Sample Master Schedule

The schedule below was authored by one of our mentors. We offer it as an example progress sheet for your teams.

Week	Dates	General	Robot	Project
Week 0:			Build field kit	Define Natural Disasters and assign team research on different types of natural disasters. Develop 1-2 page summary of research to share with team
Week 1:		Challenge Overview Check Robot Game updates on FLL website (firstlegoleague.org)	Set up practice field. Walk through missions and rules. Brainstorm possible mission combinations and strategies	Discuss Project Challenge Share research on different types of Natural Disasters Select 2 types of disaster to focus on. Homework to research on these 2 types with focus on the challenge requirements.
Week 2:		Brainstorm team names Check Robot Game updates on FLL website (firstlegoleague.org)	Set up practice field. Review missions and rules. Brainstorm possible mission combinations and strategies. Rank order difficulties and evaluate risks.	Share research to from last week, **select a type of disaster** to focus on and for homework research the problem and existing solutions. Discuss types of experts to meet, field trips to attend, etc. Set up field trips and meetings
Week 3:		Discuss ideas for Team Names. Talk about team goals, what it would take to achieve the goals, review season's calendar (five one) and adjust as needed meet the goals Check Robot Game updates on FLL website (firstlegoleague.org)	Brainstorm possible mission strategies and associated robot designs. Identify and agree upon the missions the team wants to pursue. Experiment with different chassis designs	Share research to date, select **the team problem to focus on** and for homework researching the problem and existing solutions.

Element Images For Your Own Worksheets, Posters, and Clothing

We extracted the table element images from the PDFs in various formats.

- PNG files below contain a high and low res version.
- All graphics are RGB format and compatible with Word, PPT, and Web applications.
- PNGs have a transparent background.
- You can also download a layered Photoshop files if you want to do advanced graphic work.
- Some of the elements have been further broken down for fun.

NOTE: The naming is preliminary since we do not know what these are officially called. When the challenge in released we will update these with the real names. The main group is numbered 00. If the bag contains multiple unique items they are number 01, 02, etc.

Send us back samples of your creative work and we may post them.

DOWNLOADS

- **Element Files in Four Resolutions**
  - FLL2013-NaturesFury-Elements-70.zip
  - FLL2013-NaturesFury-Elements-150.zip
  - FLL2013-NaturesFury-Elements-1500.zip
  - FLL2013-NaturesFury-Elements-3000.zip
- **Layered Photoshop File with all elements for advanced work**
  - FLL2013-NaturesFury-Elements-3000-Photoshop.zip

Right click and choose 'Save Target or Link As..." to save to your local computer.

Very High Resolution Version of the Nature's Fury

Looking for a really high resolutions version of the logo? The hi-res version below is 4400 pixels wide. It can be resized easily. The lo-res is 400 pixels wide. The PNGs have a completely transparent background.

Nature's Fury Logo Lo-Res (400 px wide) Color
FLL2013-NaturesFury-400px.png

Nature's Fury Logo Hi-Res (4400 px wide) Color
FLL2013-NaturesFury-4400px.png

We've also included a zip file with source Photoshop (PSD) and Illustrator (AI) files.
FLL2013-NaturesFuryLogos-PhotoshopIllustrator.zip
* Contains a Photoshop, Illustrator, and EPS version.

A Worksheet for the Challenge Elements

Use these to plan your missions and programming and make assignments during assembly..

- In order of effort for assembly.
- Contains a small image of each of the elements.
- Shows the number of pages of instructions..

DOWNLOADS

- **ENGLISH:** FLL-2013-NaturesFury-BuildGuide.pdf
- **DUTCH:** FLL-2013-NaturesFury-BuildGuide-DUTCH.pdf
- **PORTUGUESE:** FLL-2013-NaturesFury-BuildGuide-PT.pdf

Right click and choose 'Save Target or Link As..." to save to your local computer.

A Strategy Worksheet for the Challenge Pieces

We will send this home with our team on our next meeting. Their homework will be to read the challenge, write out each task, and come with at least two ideas for each task. Use this in conjunction with the table worksheet.

DOWNLOAD

- **ENGLISH: FLL-2013-NaturesFury-Strategy.pdf**
- **DUTCH: FLL-2013-NaturesFury-Strategy-DUTCH.pdf**
- **PORTUGUESE: FLL-2013-NaturesFury-Strategy-PT.pdf**

Right click and choose 'Save Target or Link As..." to save to your local computer.


Table Items Strategy

Use this sheet to take your team through pre-challenge brainstorming or post challenge release strategic exercises.

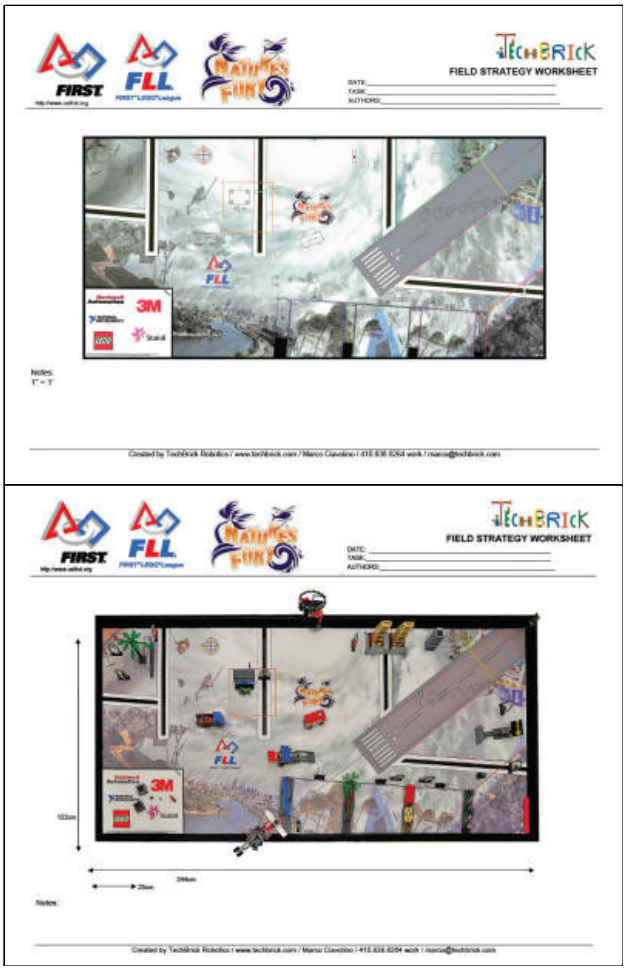
NOTE: This is preliminary sheet since we do not know what these are officially called. When the challenge in released we will update these with the real names.

ELEMENT	STRATEGY
Bag 1	
Bag 2	
Bag 3	

Worksheet for the "Nature's Fury" Challenge Table

Use these to plan your missions and programming.

- Scaled 1" to 1' or Metric
- Versions in US Letter or UK/EU A4 paper.
- PDF full color image
- Images are sharp


FIELD STRATEGY WORKSHEET

MAT ONLY
DOWNLOADS Right click and choose 'Save Target or Link As..." to save to your local computer.

SIZE >>	US Inches	US Metric	A4
ENGLISH	DOWNLOAD	DOWNLOAD	DOWNLOAD
DUTCH	DOWNLOAD	DOWNLOAD	DOWNLOAD
PORTUGUESE	DOWNLOAD	DOWNLOAD	DOWNLOAD

MAT WITH ELEMENTS
DOWNLOADS Right click and choose 'Save Target or Link As..." to save to your local computer.

SIZE >>	US Inches	US Metric	A4
ENGLISH	DOWNLOAD	DOWNLOAD	DOWNLOAD

11x17 Field Worksheet for Strategy

This is a press-ready PDF in 11 x 17 intended for use as a planning tool with dry markers. Have it output at a vendor like Kinkos. Have mounted and gloss laminated. You can then use dry markers to try different ideas for missions.

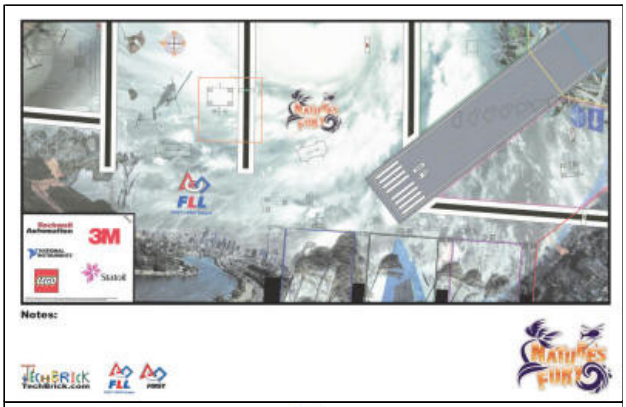
NOTE: When you go to Fedex/Kinkos or a similar vendor you should specify:

- Print 11x17 no bleeds (no color off the edge)
- Print at 100% (not fit to margins or page)
- Mount on foamcore or a similar stiff material.
- Gloss laminate.

This should cost between $9-12 per board (USD)

DOWNLOADS Right click and choose 'Save Target or Link As..." to save to your local computer.

- **FLL-2013-NaturesFury-FieldWorksheet11x17F.pdf**
  US Tabloid Size
- **FLL-2013-NaturesFury-FieldWorksheet11x17-ElementsF.pdf**
  US Tabloid Size: With Elements

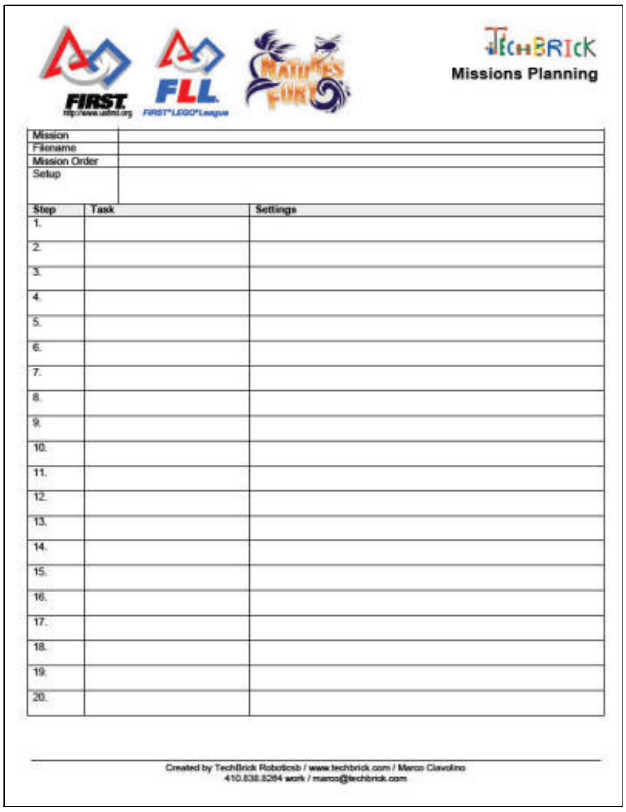


Step-By-Step Programming Worksheet

A simple worksheet for mission/programming sequences. Right click and choose 'Save Target or Link As..." to save to your local computer.

DOWNLOAD

- **ENGLISH: FLL-2013-NaturesFury-StepByStepProgramming.pdf**
- **DUTCH**: **FLL-2013-NaturesFury-StepByStepProgramming-DUTCH.pdf**
- **PORTUGUESE: FLL-2013-NaturesFury-StepByStepProgramming-PT.pdf**



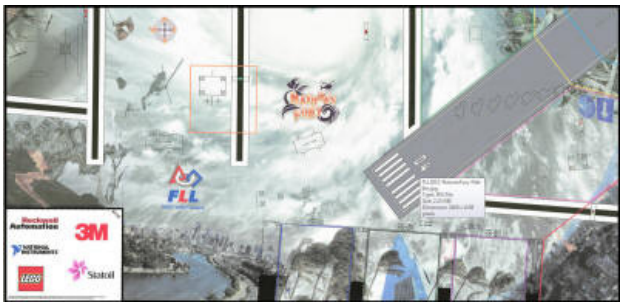
Nature's Fury Mat Art

NOTE: This was scanned so there may be some minor deviations in alignment.

DOWNLOAD MAT ONLY

- **FLL2013-NaturesFury-Mat-8in.zip (8 inches at 300dpi)**
  Right click and choose 'Save Target or Link As..." to save to your local computer.
- **FLL2013-NaturesFury-Mat-FullSize.zip (full size at 300dpi)**
  Right click and choose 'Save Target or Link As..." to save to your local computer.

NOTE: This was scanned so there may be some minor deviations in alignment.



DOWNLOAD MAT WITH ELEMENTS

- **FLL2013-NaturesFury-Mat-FullSize-Elements-8in.zip**
- **(8 inches at 220dpi)**
  Right click and choose 'Save Target or Link As..." to save to your local computer.
- **FLL2013-NaturesFury-Mat-FullSize-Elements.zip**
- **(full size at 300dpi)**
  Right click and choose 'Save Target or Link As..." to save to your local computer.

Awesome Lego parts that can win you an FLL tournament

This will be updated after the challenge is released.

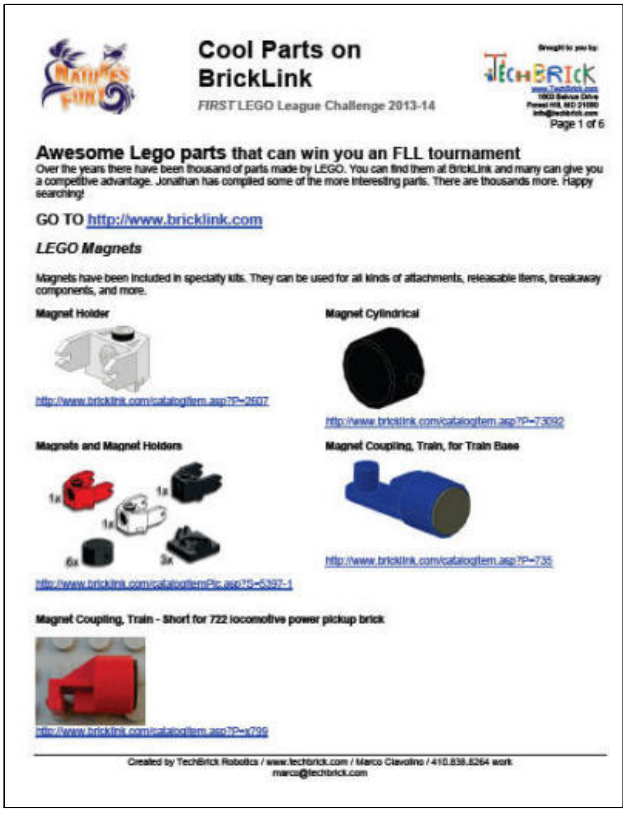
Over the years there have been thousand of parts made by LEGO. You can find them at BrickLink and many can give you a competitive advantage. Jonathan has compiled some of the more interesting parts. There are thousands more. Happy searching!

- **ENGLISH: JonathansBricklinkTips2013.pdf**
- **DUTCH: JonathansBricklinkTips2013-DUTCH.pdf**
- **PORTUGUESE: JonathansBricklinkTips2013-PT.pdf**

Angela W from the Netherlands Asked: "We saw the info about the parts made by LEGO. We looked at the link for the Lego parts and it is indeed a perfect link but for teams in the Netherlands it is hard to get parts. In the Netherlands there are no shops were you can get single items only boxes with total cars etc. BRICKSHOP Holland stores have none of the items and we don't know where we can go now. Can you help us?"

click on the image for a full size version.

Answer: You can buy these parts directly from BrickLink sellers. Most ship internationally. All you need is a free bricklink account https://www.bricklink.com/regCountry.asp?a=WN and a PayPal Account (also free http://www.paypal.com. **We have ordered parts from Europe, Asia, Australia, Canada, etc.** In fact many of the parts on BrickLink are not available from LEGO which is why it is fascinating. According to FLL rules you can use any official LEGO item every manufactured!



Cool Parts on BrickLink

FIRST LEGO League Challenge 2013-14

Page 1 of 6

Awesome Lego parts that can win you an FLL tournament

Over the years there have been thousand of parts made by LEGO. You can find them at BrickLink and many can give you a competitive advantage. Jonathan has compiled some of the more interesting parts. There are thousands more. Happy searching!

GO TO http://www.bricklink.com

LEGO Magnets

Magnets have been included in specialty kits. They can be used for all kinds of attachments, releasable items, breakaway components, and more.

Magnet Holder

http://www.bricklink.com/catalogItem.asp?P=2607

Magnet Cylindrical

http://www.bricklink.com/catalogItem.asp?P=73092

Magnets and Magnet Holders

http://www.bricklink.com/catalogItemPic.asp?S=5397-1

Magnet Coupling, Train, for Train Base

http://www.bricklink.com/catalogItem.asp?P=735

Magnet Coupling, Train - Short for 722 locomotive power pickup brick

http://www.bricklink.com/catalogItem.asp?P=x709

Created by TechBrick Robotics / www.techbrick.com / Marco Ciavolino / 410.838.8264 work marco@techbrick.com

Community Service

US FIRST encourages teams to get involved in the community. TechBrick has will be working with a new national STEM initiative.

TechBrick is assisting a new national STEM initiative as part of our public service work. Click here to learn more about this exciting program.

TechBrick has been involved in advising a new national STEM curriculum offering. This is a hugely exciting program. Please read below and visit the

LGBG website to learn more. ***If you attend or have a Boys & Girls Club or YMCA in your town that would like to introduce a successful STEM program Dr. Corky Graham would like to talk to you.***

Find a school or organization near you and get involved.

Click here to learn more about this exciting program.

What is a Team Info Sheet?

Terry Stevens asked: "The Coaches Manual refers to a Team Introduction Page to be used at the tournaments. I have searched high and low but can't find it. Do you guys have one ? Thanks, Terry"

Some tournaments provide a form. However, in general, the team info sheet is a simple document that reminds the judges of the following:

- Team name
- Location/Town
- Team members (include names and a photo)
- Your robot (for technical interview)
- Your project (for research presentation)
- Your team (for the teamwork interview)

As you can see, there can be up to three of these (Tech, Teamwork, and Presentation).

We've included some samples of our previous team info sheets. Some are form-based, others of our own design.

Remember, in most tournaments the judges may see 10-20 teams. A good info sheet provides a reminder for them when it gets down to final scoring.

Some sample sheets from the past few years.
Right click and choose 'Save Target or Link As..." to save to your local computer.

- TechTeamInfo2006.pdf
- TechTeamInfo2007Presentation.pdf
- TechTeamInfo2007Programs.pdf
- TechTeamInfo2007Robot.pdf
- TechTeamInfo2007TeamInfo.pdf
- TeamInfoSheetTeam1_Ohio2009.pdf

Bottom Line:
Be concise, be creative, be clear. Make sure you have good photos.

From the Ohio Open

Cool LEGO Ruler With Stud Counters for 2013-14

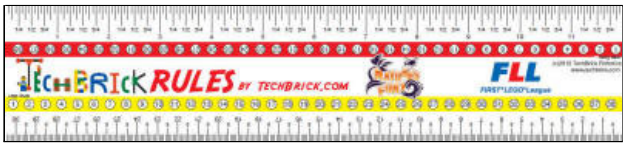
You can download a press ready PDF of the cool TechBrick ruler we've been giving out at tournaments.

The ruler features:

- English and metric scales.
- LEGO stud counter.

Read these special instructions first:

- You must print this on US Legal Paper (8.5 * 14 inches US)
- Print it on card stock for best results.
- Trim carefully at crop marks.
- Make **SURE** that Acrobat is set to print at 100% and NOT fit to page or margins.
- This file can be used for commercial CMYK (4 color) printing or printing on home or office color printers.



BE SURE TO READ THE INSTRUCTIONS TO THE LEFT FOR PROPER PRINTING OF THIS RULER.

Right click on the link below and choose "Save Target As..." to download the ruler PDF.

TechBrickRules2013FLL.pdf

Mission Path Robot Speed Spreadsheet

In 2009 our 'Senior Team' (FLL Team 1), which includes our older FLL students and some younger ones in their 5th year of FLL, is took a different approach.

We are teaching them to do true product development by describing the challenge in detail BEFORE they pick up one brick.

One of the tasks as do a real calculation of the speed the

robot must achieve to make it through all the missions. So Nathan W developed this spread sheet to make sure the robot can complete the missions.

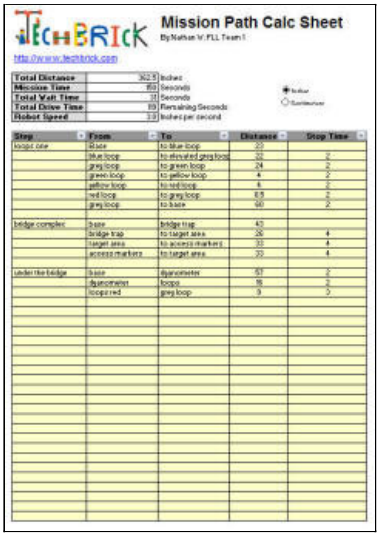
We've left some sample data in the sheet so you can see how it works.

Begin by measuring the distance your robot must travel to complete all its missions.

Then enter any stop times (in seconds) that represent the time you take to do a particular task.

What you have left is the time your robot can drive. Divide into distance and you your IPS/CPS measurement.

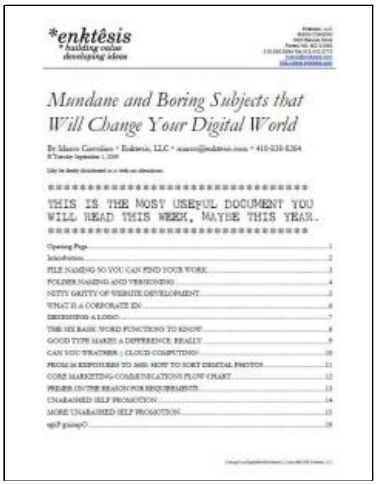
We will leave the calculations of IPS/CPS to you and of course the test of whether your robot can maneuver at that speed.



DOWNLOAD

- **TechBrickRobotDistanceCalculator.zip**
  Right click and choose "Save File/Link as..." to save this to your local hard disk.

Mundane and Boring Subjects that will Change Your Digital Life



This a series one page articles that summarize all the key points of critical communications issues. The topics in red below will be of particular interest to mentors and teams. But you should still read the all them.

This document will be updated in the next with a number of new, useful articles so be sure to subscribe to our NL. Click Here To Subscribe.

DOWNLOAD

- **ChangeYourDigitalWorldEnktesisLLC.pdf**
  Right click and choose "Save File/Link as..." to save this to your local hard disk.

Back to top

[History*Awards*Methodology*Schedule*Main Resources*Highlights*Teams*Contact*Team Tips]
[2013-14Home * 2013-14 Resources]

Sites [2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013]

TechBrick Robotics
Forest Hill, MD USA
http://www.techbrick.com

Contact Marco Ciavolino
info@techbrick.com
410.838.8264

FLL Sample Master Schedule

The schedule below was authored by one of our mentors. We offer it as an example progress sheet for your teams.

Week	Dates	General	Robot	Project
Week 0:			Build field kit	Define Natural Disasters and assign team research on different types of natural disasters. Develop 1-2 page summary of research to share with team
Week 1:		Challenge Overview Check Robot Game updates on FLL website (firstlegoleague.org)	Set up practice field. Walk through missions and rules. Brainstorm possible mission combinations and strategies.	Discuss Project Challenge Share research on different types of Natural Disasters Select 2 types of disaster to focus on. Homework to research on these 2 types with focus on the challenge requirements.
Week 2:		Brainstorm team names Check Robot Game updates on FLL website (firstlegoleague.org)	Set up practice field. Review missions and rules. Brainstorm possible mission combinations and strategies. Rank order difficulties and evaluate risks.	Share research to from last week; **select a type of disaster** to focus on and for homework research the problem and existing solutions. Discuss types of experts to meet, field trips to attend, etc. Set up field trips and meetings
Week 3:		Discuss ideas for Team Names. Talk about team goals, what it would take to achieve the goals, review season's calendar (this one) and adjust as needed meet the goals Check Robot Game updates on FLL website (firstlegoleague.org)	Brainstorm possible mission strategies and associated robot designs. Identify and agree upon the missions the team wants to pursue. Experiment with different chassis designs	Share research to date, select **the team problem to focus on** and for homework researching the problem and existing solutions.

http://www.usfirst.org

FIELD STRATEGY WORKSHEET

DATE: _____

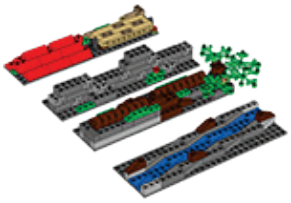
TASK: _____

AUTHORS: _____

1” = 1’

Use this sheet to take your team through pre-challenge brainstorming or post challenge release strategic exercises.

NOTE: This is a preliminary sheet since we do not know what these are officially called. When the challenge in released we will update these with the real names.

ELEMENT	STRATEGY
 Bag 1	
 Bag 2	
 Bag 3	

TECHBRICK

Missions Planning

Mission	
Filename	
Mission Order	
Setup	

Step	Task	Settings
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		
17.		
18.		
19.		
20.		

Robot Design Executive Summary (RDES)

To help the Robot Design judges quickly and consistently learn about your robot and the design process used, we are requiring a short presentation. An "executive summary" is often used by engineers to briefly outline the key elements of a product or project. In other words, the purpose of the RDES is to give the Robot Design judges an outline of your robot and all that it can do. The RDES is intended to help your team consider in advance the most important information to share with the judges. What you chose to share will enable the judges to effectively evaluate your team and provide more helpful feedback.

Your team is free to determine how much time you invest, but realistically it should only take a few hours to develop and practice the RDES. The RDES is NOT intended to be as extensive or time consuming as your Project.

Your team will present your RDES at the beginning of your Robot Design judging session. The entire presentation, including the trial run, should not take any longer than **four (4) minutes**. Following your Robot Design presentation the judges will pose questions for your team to answer. You are not required to provide a written version of the RDES to leave with the judges.

Basic Outline: The RDES should include the following elements: *Robot Facts*, *Design Details*, and a short *Trial Run.*

Robot Facts: Share with the judges a little bit about your robot, such as the number and type of sensors, drivetrain details, number of parts, and the number of attachments. The judges would also like to know what programming language you used, the number of programs and the amount of memory used by each program, and your most consistently completed mission.

Design Details:

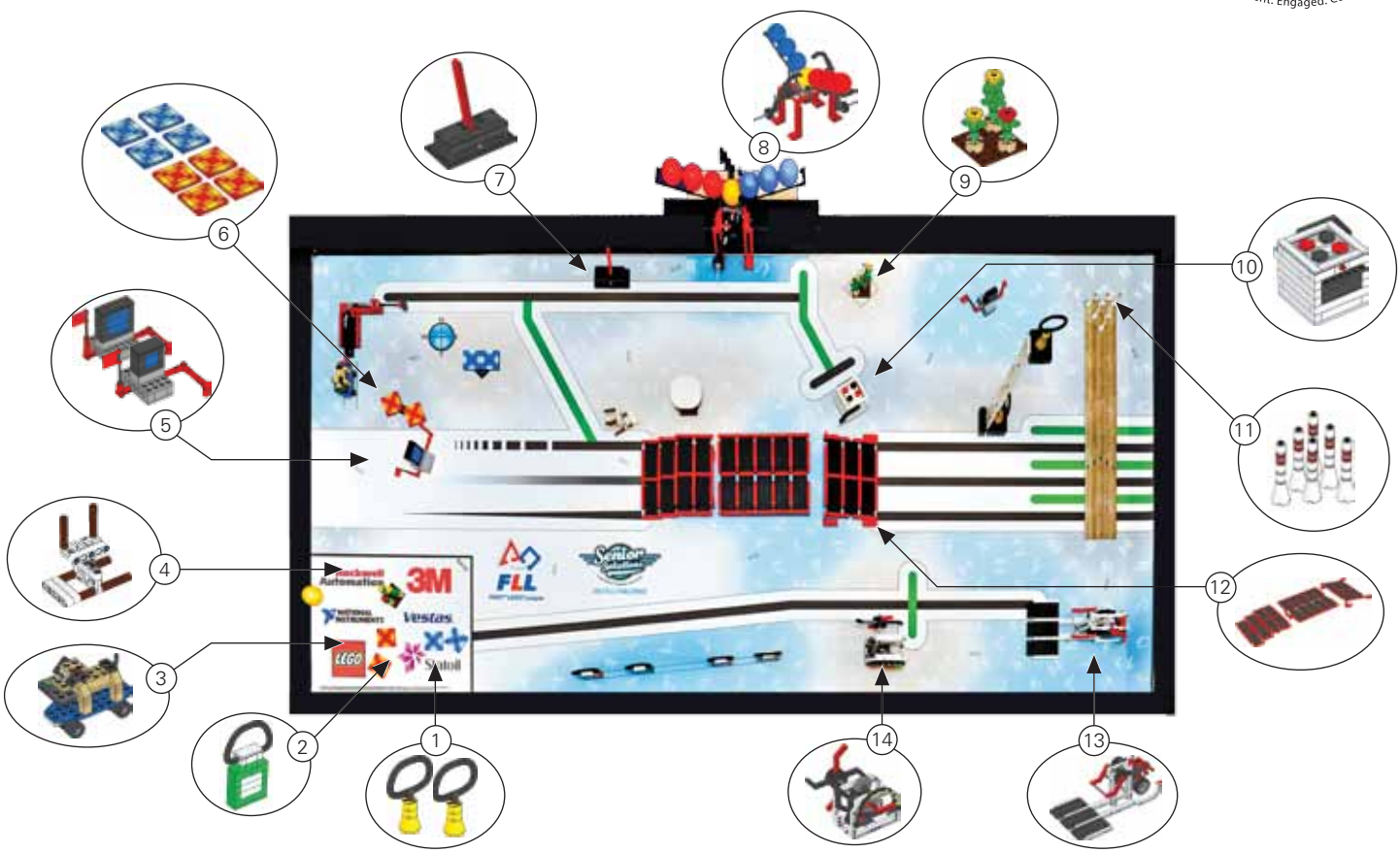
1. **Fun:** Describe the most fun or interesting part of robot design as well as the most challenging parts. If your robot has a name, who chose the name and why. If your team has a fun story about your robot please feel free to share.
2. **Strategy:** Explain your team's strategy and reasoning for choosing and accomplishing missions. Talk a little bit about how successful your robot was in completing the missions that you chose. Judges may like to hear about your favorite mission and why it is your favorite.
3. **Design Process:** Describe how your team designed your robot and what process you used to make improvements to your design over time. Briefly share how different team members contributed to the design and how you incorporated all the ideas.
4. **Mechanical Design:** Explain to the judges your robot's basic structure, how you make sure your robot is durable and how you made it easy to repair or add/remove attachments. Explain to the judges how the robot moves (drivetrain), and what attachments and mechanisms it uses to operate or complete missions.
5. **Programming:** Describe how you programmed your robot to ensure consistent results. Explain how you organized and documented your programs, as well as, mention if your programs use sensors to know (and ensure) the location of the robot on the field.
6. **Innovation:** Describe any features of your robot design that you feel are special, different or especially clever.

Trial Run: Demonstrate the operation of your robot for the judges performing the mission(s) of your choice. Please do not do an entire robot round; time will be needed for judges to ask questions of your team.

FIRST® LEGO® League

Team #: _____ Referee: _____

Round: _____ Table: _____



(please circle all selections)

1 Flexibility

Yellow loops in base — 0 1 2

2 Medicine

Green bottle in base. Orange unmoved. — Yes No

3 Service Animals

Dog in base — Yes No

4 Wood Working

Chair fixed and in base — Yes No

Chair fixed and under table — Yes No

5 Video Call

Flags all the way up — 0 1 2

6 Quilting

Blue squares touching target — 0 1 2

Orange squares touching target — 0 1 2

7 Similarity Recognition and Cooperation

Both pointers parallel — Yes No

8 Ball Game

Balls on racks — 0 1 2 3 4 5 6 7

Center ball — Yours Theirs Neither Both

9 Gardening

Plant's base touching target — Yes No

10 Stove

All 4 burners black — Yes No

11 Bowling

Pins Down — 0 1 2 3 4 5 6

12 Transitions

Robot touching tilted platform only — Yes No

Robot touching balanced platform only — Yes No

Platform touching only robot and mat — Yes No

13 Strength Exercise

Weight height — LOW HIGH Neither

14 Cardiovascular Exercise

Pointer major tick — 1 2 3 4 5 6 7 8 9

Pointer minor tick — 0 1 2 3 4 5

Team Initials: _____

FIRST® LEGO® League

UNITED STATES FOUNDATION FOR INSPIRATION AND RECOGNITION OF SCIENCE AND TECHNOLOGY
(*FIRST* ®)

CONSENT AND RELEASE AGREEMENT

Participant Name: _____
If Participant is under 18 years of age, Parent/Guardian Name: _____
Participant Date of Birth if under 18 years of age [MM/DD/YYYY]:_____
Participant Address: _____
Participant Email (If Participant is under 18 years of age, Parent/Guardian Email):_____
Participant Team Number_____

The Participant identified above ("Participant") desires to participate (as a team member, coach, mentor, judge, or in some other manner) in the *FIRST*® Robotics Competition, *FIRST* Tech Challenge, *FIRST* LEGO® League, Junior *FIRST* LEGO League, or another *FIRST* program (the "Programs"). As a condition of allowing Participant to participate in a Program, United States Foundation for Inspiration and Recognition of Science and Technology ("*FIRST*") requires that the Participant (by his or her Parent/Guardian if under 18 years of age) agree to the terms of this Consent and Release Agreement.

1. Participant (and the Parent/Guardian of a Participant under 18 years of age) understands that participation in the Program will expose Participant to risks of injury including, without limitation, injury from: building, lifting, and using electrical/mechanical robots and robot components; using tools; other participants; dancing and other associated activities. Participant (and the Parent/Guardian of a Participant under 18 years of age) understands that *FIRST* does not select, employ, supervise or otherwise exercise authority or control over the coaches, mentors, and other participants in the Program. Participant, if 18 years of age or older, acknowledges and agrees that he/she is primarily responsible for his/her safety. The Parent/Guardian of a Participant under 18 years of age acknowledges and agrees that the Parent/Guardian is primarily responsible for the Participant's safety and that the Parent/Guardian will monitor, as appropriate considering the age of the Participant and other factors, the Participant's participation in the Program.

2. In consideration for *FIRST* allowing the Participant to participate in a Program, Participant (and the Parent/Guardian of a Participant under 18 years of age for and on behalf of the Participant and the Parent/Guardian) assumes all risk of such participation and hereby releases *FIRST* and (except as expressly provided below) all of *FIRST's* directors, officers, employees, volunteers, and agents from any and all claims for any injury of any kind to the Participant (and the Parent/Guardian) or other damages that may occur as a result of the Participant's participation in the Program, including without limitation any injuries or other damages that may be caused by the negligence of *FIRST* or negligence of any of *FIRST's* directors, officers, employees, volunteers, or agents (including without limitation negligently failing to adequately investigate or screen coaches, mentors, volunteers, etc.), and agrees not to file any lawsuit or otherwise make any claim against *FIRST* or any of *FIRST's* directors, officers, employees, volunteers, or agents for any such injury or other damages. The Participant (and the Parent/Guardian of a Participant under 18 years of age) does not hereby release any claims against any individual person who intentionally causes injury to the Participant.

3. Participant (and the Parent/Guardian of a Participant under 18 years of age) understands that photographs, videotapes, and other recordings will be made of participants in the Programs, including the Participant. Participant (and the Parent/Guardian of a Participant under 18 years of age) consents to those photographs, videotapes, and other recordings and the use thereof (i) as part of a record of the Program and (ii) to promote *FIRST* and the Programs.

Participant (and the Parent/Guardian of a Participant under 18 years of age) has read this document and understands that this Consent and Release Agreement includes a waiver of the right to make injury claims that is intended to be legally binding. By signing below, Participant (and the Parent/Guardian of a Participant under 18 years of age) agrees to this Consent and Release Agreement.

_____
Signature (of Participant if 18 years of age or older or Parent/Guardian if Participant under 18)

_____ _____
Printed name of person signing Date

FLL Coaches' Promise

As the coach of a *FIRST*® LEGO® League (FLL) team, please read the information below for further understanding of FLL Core Values. As coach, you are responsible for honoring and communicating FLL Core Values to team members, team volunteers, parents, and others affiliated with your team.

All teams are expected to abide by FLL rules and guidelines as they exist now and as they may be set forth during the season. Team rules, guidelines, and policies and procedures are detailed in this handbook.
Any updates, additions, participant consent forms, volunteer recruitment, screening, and supervision guidelines for the team will be communicated to FLL coaches via email and posted on the *FIRST* website (www.usfirst.org/fll).

My Promise as Coach:

1) The children come first. FLL is about the children having fun and getting excited about science and technology. Everything my team does starts and ends with this principle.

2) The children do the work. This is their opportunity to learn and grow. The children on my team do all of the programming, research, problem solving, and building. Adults can help them find the answers, but cannot give them answers or make decisions.

3) My team is comprised of ten or fewer members (all team members participate on only one team), registered as an official FLL team, and all team members are no older than 14 on January 1st of the Challenge year.

4) FLL communicates with my team via my primary email address as listed on the Team Registration and Event Management System (gofll.usfirst.org). I am responsible for reading and relaying all aspects of FLL guidelines and rules to my team, other coaches, volunteers, and parents. I will also update my team's profile as necessary.

5) I will encourage my team members, other coaches, volunteers, parents and team supporters to develop and practice a set of FLL Core Values that reflects *FIRST*'s goal to change culture in a positive way by inspiring others through our team's actions and words.

Signature: _____

Team Number: _____ Role: Coach / Assistant / Mentor

FLL
FIRST LEGO® League