
Varsity Sport for the Mind

Gracious Professionalism®

Hardest Fun You'll Ever Have!

STEM Skills

Coopertition®

Where all participants can go

Crazy Hats

"**pro**"

Robots!!

Teamwork

# What is FIRST®?

## **F**or **I**nspiration and **R**ecognition of **S**cience and

(Show FIRST Intro video featuring Morgan Freeman) http://www.youtube.com/watch?

FIRST®

Where kids walk in and innovators walk out

| Jr. FLL® Junior FIRST® LEGO® League | FLL® FIRST® LEGO® League | FTC® FIRST® Tech Challenge | FRC® FIRST® Robotics Competition |
|---|---|---|---|
|  |  |  |  |
| Introduces the youngest children to the fascinating worlds of science and technology. | Children discover exciting career possibilities and learn to make positive contributions to society. | Teams develop strategy, build robots using cutting-edge technologies, and compete head to head. | Teams compete with 120-pound robots, combining the excitement of sport with the rigors of science and technology. |

ages

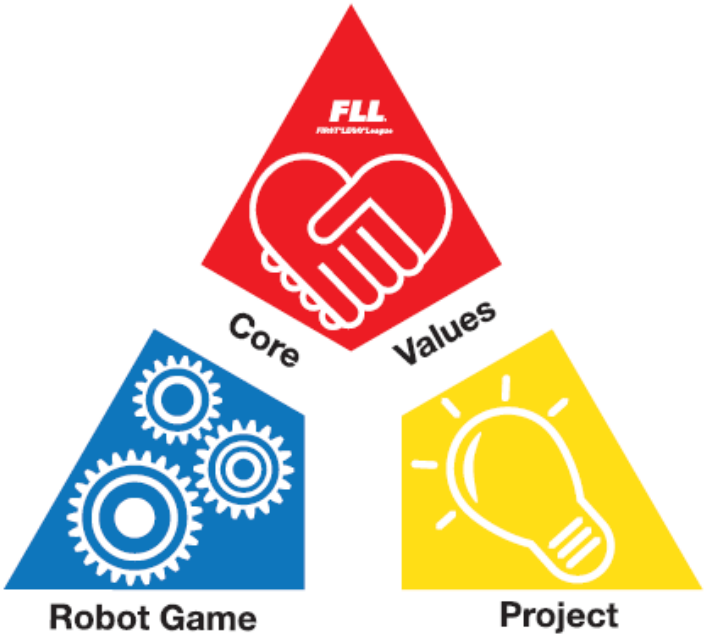
~20,000 teams register each year

Variety of skills make up a team

No prior experience

FIRST® LEGO® League

# Three Essential Parts




Each yearly Challenge has three parts: Core Values, the Robot Game, and the Project.

# The Challenge

## 2013

NATURE'S FURY℠

| 2012 | 2011 |
|---|---|
| Senior Solutions — Independent. Engaged. Connected. | food FACTOR |
| Quality of life for seniors<br>20,500 TEAMS (PROJECTED) | Keeping food safe<br>18,323 TEAMS |
| **2010** | **2009** |
| BODY FORWARD | SMART MOVE |
| Explore cutting-edge world of biomedical engineering<br>16,762 TEAMS | Transforming transportation<br>14,725 TEAMS |

# Core Values

**Gracious Professionalism ™**

"It's a way of doing things that encourages high-quality work, emphasizes the value of others, and respects individuals and the community."

- We are a team.
- We do the work to find solutions with guidance from our coaches and mentors.
- We know our coaches and mentors don't have all the answers; we learn together.
- We honor the spirit of friendly competition.
- What we discover is more important than what we win.
- We share our experiences with others.
- We display Gracious Professionalism® and Coopertition® in everything we do.
- We have FUN!

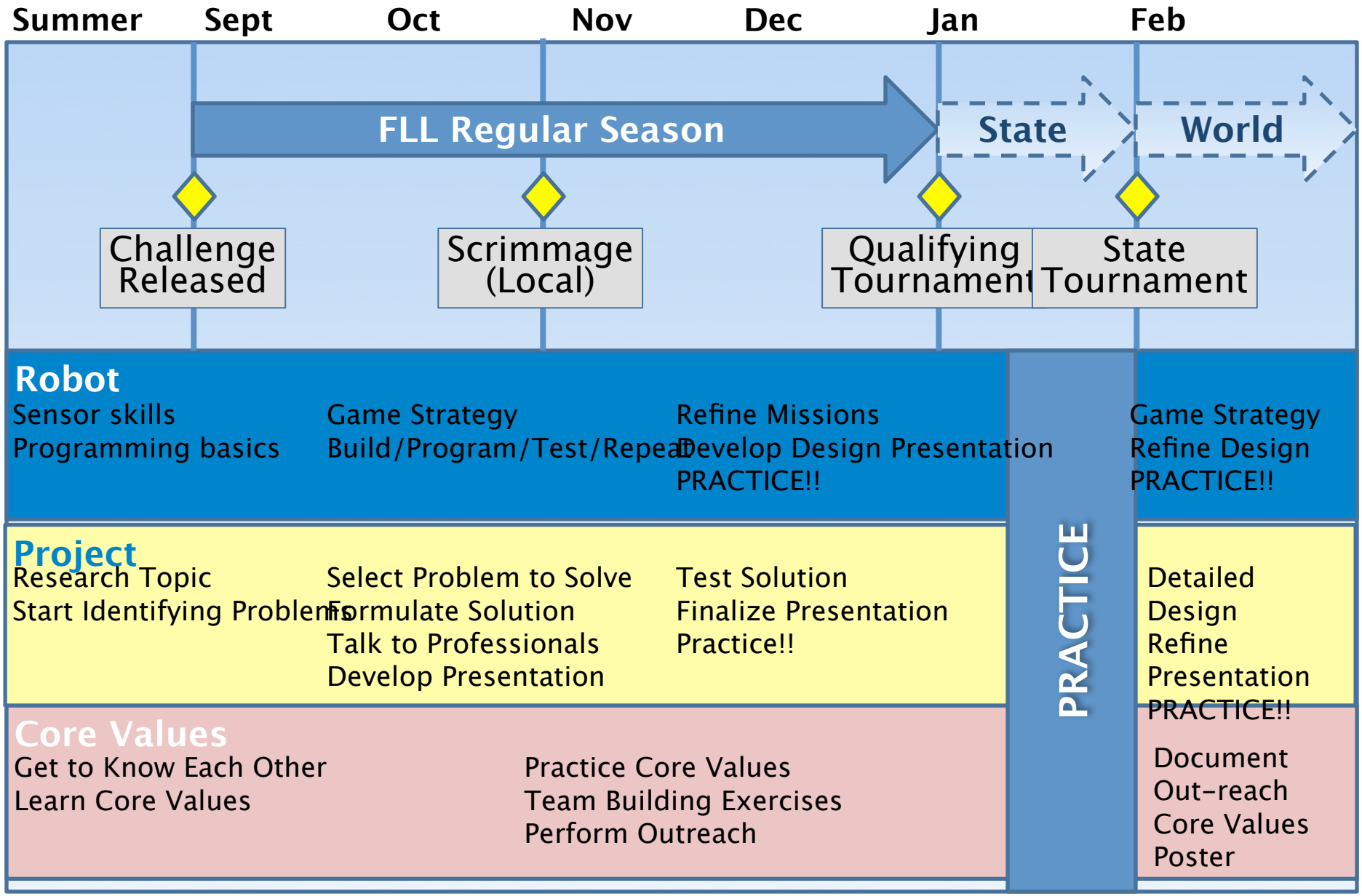
# FLL Project

- Teams **find a technical problem** related to the Challenge theme and **innovate a solution** they present in competitions
- Teams are encouraged to **talk to experts** to help define scope of problem and limitations of current solutions
- Projects can be hardware or software solutions and don't have to be "real" for the judged presentation
- Teams should **consider manufacturing** aspects of the proposed solution
- **Sharing the solution** with the community gives kids experience with public speaking and can be beneficial in judging
- **Project presentations (5 minutes only)** at competition, and contribute to overall score and qualify for specific

# Robot Game

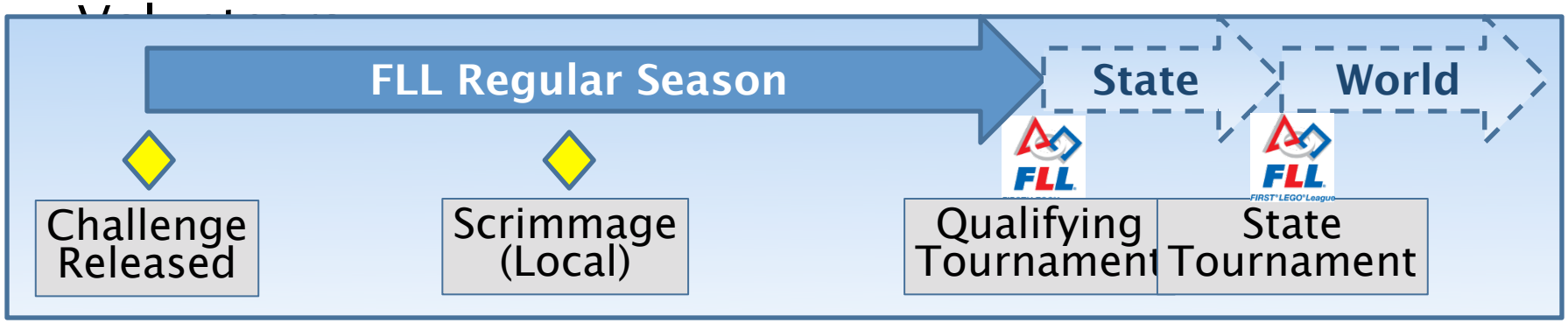
- Teams compete in **2:30 minute rounds**
- Robot “missions” score points
- Missions vary in complexity and points score accordingly
- Teams pick **game strategy** to decide which missions to attempt
- Compete in **3 rounds** – only highest score counts
- Contributes about 40% to overall team performance
- Rules for Game released with Challenge on 27 August
  - Watch for YouTube video explaining the game

# How We Get it Done



# Competitions

- Day-long events composed of formal scoring by:
  - Project presentations
  - Core Values session
  - Robot design presentation
  - Robot Game competition
- Teams are observed anonymously and interviewed directly for demonstration of Core Values, Coopertition® and Gracious Professionalism®
- Awards given for Robots, Project, Core Values, Judge's selection and Special Recognition of Mentors or



# Time Commitment

- Kids
  - 1-2 sessions per week as a team
  - Project Research and Programming study outside of group setting
  - 1 Saturday scrimmage (Oct/Nov)
  - Field Trips/Guest speakers
  - Qualifying tournament (Dec/Jan)
- Parents
  - Read about FIRST (http://www.firstlegoleague.org)
  - Support consistent attendance at sessions/tournaments
  - Encourage time for external assignments and learning about FLL

# Volunteer Opportunities

Many talents contribute to a successful team

Volunteers can help in a range of time increments (1 hr, 1 day, throughout the season)

Examples of team support needed:

_____Field Trip Coordinator
_____Engineering Mentor
_____Project Design Mentor
_____Project Presentation Mentor
_____Table Construction (one-time task)
_____Team Communications
_____Programming Mentor
_____ Marketing Mentor
_____Team T-shirt Coordinator
_____Team Buttons Coordinator

# Start a Team Checklist

- Group of interested kids aged 9 – 14 (min. team size –2 kids)
- Identify parent/teacher coach
- Determine means of funding
- Register team with FLL
- Start reading/researching FLL resources on building models, programming and prior FLL projects
- Establish regular meeting time/place
- Build a Robot Game table
- Identify scrimmage and qualifying

# Typical FLL Team Funding

| Category | Item | Cost | One-time | Recurring Costs |
|---|---|---|---|---|
| FIRST Team Expenses | Team Registration (1) | $225 | | X |
| | 2013 Field Set up Kit | $75 | | X |
| Robot & Software | EV3 (2,3) | $499 | X | |
| One robot – either model is acceptable | | | OR | |
| | NXT (2,3) | $435 | X | |
| Support Equipment | Project Table | $80 | X | |
| | Laptop computer | varies | X | |
| | Additional Sensors | $35 | X | |
| | Project Materials | $100 | | X |
| Event Registration | Scrimmage(s) | varies | | |
| | Qualifying | $60 | | X |
| | State Tournament | $75 | | X |
| Team Event Materials | T-shirts (team of 10) | $200 | | X |
| | Tournament Give- | $150 | | X |
| Typical 1st year Cost | (not including laptop) | $1,500 | | $885 |

(1) FLL Team Registration site: https://gofll.usfirst.org/pages/team_registration
(2) Product Description/Pricing: https://gofll.usfirst.org/pages/product_description_and_pricing

(3) LEGO Education: http://www.legoeducation.us
(4) Table Instructions: http://www.firstlegoleague.org/sites/default/files/SenSolTableWeb.pdf

# Valuable Team Resources

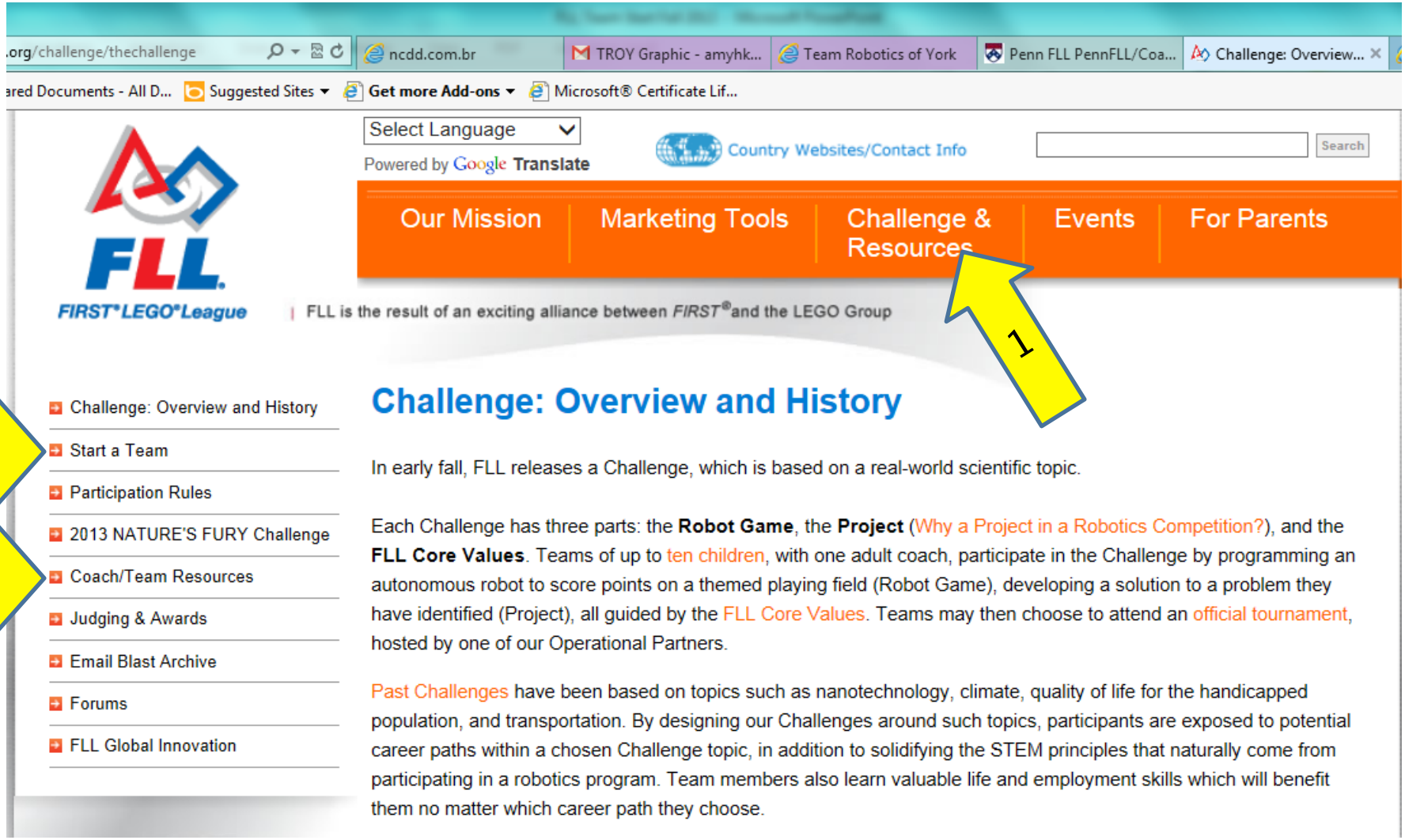
- FLL Coaches Resources: http://www.firstlegoleague.org/challenge/teamresources#Preparation
  - Coaches calls
  - Coaches handbook
  - Table Construction

- FLL Social Media
  - FLL Blog
  - YouTube Channel
  - Twitter
  - FLL Facebook page

- Penn FLL page – https://alliance.seas.upenn.edu/~pennfll/wiki/index.php?n=PennFLL.CoachResources

- Programming/Training Resources
  - Carnegie Mellon Robotics Academy http://www.cs2n.org
  - Oregon Robotics http://www.stemcentric.com/nxt-tutorial/
  - NXT Programs: www.nxtprograms.com (for NXT robots)
  - YouTube videos
  - Books

# www.firstlegoleague.org



# FLL Coaches Calls

| Topic/Outline | Date/Time | Audio Recording |
|---|---|---|
| Where Do I Start? Coach Orientation | August 12, 2013 - 7pm ET | Recording from last season |
| FLL Parents: What to Expect? | August 19, 2013 - 7pm ET | New this season. Great for parents! |
| Coaching a Team | August 20, 2013 - 7pm ET | Recording from last season |
| 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<br>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 |
| 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 |

# What's Next?

- Read more about FIRST© and FLL http://www.firstlegoleague.org
- Register your teams
- Encourage your teams to explore weather and its effects
- Get Ready to Work Hard and Have Fun!!

For Questions/Support:

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410-499-1498

# BACKUP SLIDES

# NXT Kit ($435)

- The NXT is still a recommended package for FIRST® LEGO® League teams.
- Reusable year to year
- Includes all components needed to build and program a robot capable of completing challenge objectives.
- Each set contains:
  *NXT Educational Software: The PC-and MAC-compatible software interface has intuitive, icon-based drag and drop environment for “building” programs need to control the robot.
  *Includes 40 interactive tutorials to help the novice [illegible]started. This software is complete with a FLL Team license. Requi[illegible]Vista or MacOSX.


- ALSO CONTAINS:
  1 Intelligent NXT Brick
  1 Rechargeable DC Battery
  1 DC Battery Charger
  3 Interactive Servo Motors (rotation sensor built in)
  2 Touch Sensors
  1 Sound Sensor
  1 Light Sensor
  1 Ultrasonic Sensor
  1 USB Wire for downloading programs onto the Intelligent Brick
  7 Connection cables of various lengths
  1,000+ LEGO elements
  Building Instructions for one model

# EV3 Kit ($499)

The new EV3 Robot Set is the third generation of robotics technology from LEGO Education and is great for both veteran and rookie teams because it enables a smooth transition from NXT and also provides excellent getting started tools for new teams.

The Robot Set also includes the EV3 graphical programming software and an FLL Team License that allows for installation on all (up to 10) computers

The software comes with a newly revised Robot Educator, a set of 48 multimedia tutorials

EV3 Core Set :

- EV3 Intelligent Brick
- DC battery and Charger
- two Touch sensors
- one ultrasonic sensor
- one color/light sensor
- one gyro sensor
- three intelligent servo motors 2 large, 1 medium
- hundreds of building elements, including a new ball wheel element

EV3 Expansion Set:

- Large collection of extra standard elements
- Special elements like a turntable, rubber tank tread inserts, and unique structural frames.
- All sets come with sturdy plastic storage bins for easy organization, storage, and transportation

# Robot Game Tournament Table Set-up