



FIRST® LEGO®  
League

# Core Values

## Judge

# Preparation Pack

*All Tournaments*

**CITY**  
**SHAPER**



[www.firstinspires.org](http://www.firstinspires.org)

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FOR INSPIRATION & RECOGNITION OF SCIENCE & TECHNOLOGY



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## *FIRST* Core Values

We express the *FIRST* philosophies of *Gracious Professionalism*® and *Coopertition*® through our Core Values:

- **Discovery:** *We explore new skills and ideas.*
- **Innovation:** *We use creativity and persistence to solve problems.*
- **Impact:** *We apply what we learn to improve our world.*
- **Inclusion:** *We respect each other and embrace our differences.*
- **Teamwork:** *We are stronger when we work together.*
- **Fun:** *We enjoy and celebrate what we do!*



# 10 Things to Know as a *FIRST*® LEGO® League Judge

Please be sure to check out [www.firstlegoleague.org](http://www.firstlegoleague.org) for additional information, including Judging Q & A from throughout the season:

**FIRST LEGO League Challenge:** [www.firstlegoleague.org/challenge](http://www.firstlegoleague.org/challenge)

**Judging Questions:** [fljudge@firstinspires.org](mailto:fljudge@firstinspires.org)

Thank you for agreeing to be a judge with *FIRST* LEGO League. The information in this packet is designed to help you prepare as a judge this season. It is intended to offer background information that will be useful to review prior to your tournament. You should also participate in training sessions that may be offered through your local tournament organizer and/or *FIRST* LEGO League. We hope your experience as a judge is rewarding and enjoyable!

## 10. Have fun – you and the kids

The most important thing to know about a *FIRST* LEGO League tournament is that it is supposed to be **FUN**. The mission of *FIRST* is to get kids excited about science and technology. A competition is a celebration of what the children have accomplished throughout the season. It should be serious and competitive, but not so much that the fun is lost.

## 9. Exhibit Gracious Professionalism and honor *FIRST* Core Values

These are the basic foundations of *FIRST* LEGO League, and should always be at the forefront in everyone's minds. We offer specific awards to recognize Core Values excellence, but a significant concern can impact team eligibility in *any* award category.

## 8. Be a good role model for technology and engineering careers

Give the kids a chance to see what makes engineers, scientists, computer programmers and educators special. Share your experiences without sharing your agendas. Be professional – show the kids that what they have accomplished is appreciated and valuable. Show interest in their presentations and discussions, and be personable.

## 7. Respect the children

Please keep negative comments to yourself, away from the ears of the kids, parents, and coaches. All teams should be given the benefit of the doubt when questions arise about adult involvement. If you suspect the kids did not do the work, it is your job to probe further to prove it, rather than assuming the kids did not do the work. Remember that these are kids who worked hard all season to make it to the tournament. Treat their accomplishments with respect, and be sure that other judges do so as well. One negative comment from a judge can have a devastating effect on teams. Make it your goal as a judge to ensure that the teams know what they did well, and that they have a positive experience showcasing their achievements.

## 6. Respect the judging process

Stay on schedule. The kids have a more challenging schedule than you do. Remember the *FIRST* LEGO League

awards philosophy. Remember that the whole judging process is subjective. Concentrate on providing a great experience for the kids and try not to get caught up in the mechanics of the process. Do not share scores or awards discussions with the kids, coaches or parents.

## 5. Evaluate teams completely and fairly

Each rubric is designed to evaluate many areas of a team's performance, and gives equal weighting to several factors tied to specific awards. All Required Awards are of equal importance, except for our Champion's Award that recognizes all-around excellence. Be objective, both on a team-by-team basis and a total rubric evaluation basis. Familiarize yourself with the levels of achievement. Identify any conflicts of interest you have before the competition, and refrain from involving yourself in discussions about any team when you have a conflict.

## 4. Consider age appropriateness and experience

Consider age when evaluating teams. Certain skills, knowledge, and capabilities are more likely to be exhibited by the kids as they get older and more experienced in general and in *FIRST* LEGO League in particular. You may also see rookie teams that are more polished and understand *FIRST* LEGO League better than experienced teams.

## 3. Reward excellence and celebrate achievement

For a team to be considered for an award, they should be evaluated at an Exemplary level of achievement in that category whenever possible. Award distribution is spread as equitably as possible among the teams, with the goal of no team winning more than one judged award.

## 2. Provide specific and constructive feedback

Please be specific when providing feedback comments to teams. This will also help when it comes to awards deliberations – specific examples are very helpful when differentiating between teams. "This team's willingness to help other teams (by providing programming mentorship, for example) is exemplary" is more descriptive and helpful than "that team was so nice and polite and exhibited gracious professionalism." Take lots of notes if you need to!

## 1. See #10 again



# Core Values Judging Primer

Core Values may initially seem more difficult to judge than Robot Design or Project. Some Judges consider Core Values judging to be inherently more subjective than the other two areas because “data” for criteria such as Discovery, Inclusion and *Coopertition*® are perceived to be difficult to obtain or use to differentiate teams. While Core Values elements may be less tangible, a number of tools and techniques exist to help Judges gain insight about teams, and reinforce for all why Core Values and Core Values judging is such an important component of *FIRST* LEGO League.

As a Judge, here are some overall things to consider:

- There is tendency for teams that “practice” Core Values “speeches” to be looked upon unfavorably by some Judges. The premise is that these teams are just acting to score well with the Judges. However, teams **should** practice talking about Core Values just like they practice their Project presentations and Robot mission runs. The more they practice Teamwork activities and talk about Core Values, the more they internalize these abstract ideas.
- Remember that you are evaluating how a team approaches Core Values throughout the season in addition to what they do at the tournament. The journey of the team and how much they learn and grow are important.
- Teams (including coaches, mentors, parents and others associated with the team) must uphold and display *FIRST* Core Values at all times, not just during Core Values judging sessions.
- Information about Core Values criteria can be obtained in several ways. Many Core Values judging sessions will include a Teamwork Activity and/or Core Values Poster to help Judges observe and learn about specific behaviors, as well as focus and guide the discussion and interview time more effectively.

Rubric Criteria	Primary Method of Observation	Core Values Represented
Discovery	Core Values Poster	What we discover is more important than what we win.
Team Spirit	Observation	We share our experiences with others.
Integration	Core Values Poster	We have fun!
Effectiveness	Teamwork Activity	We are a team.
Efficiency	Teamwork Activity	We do the work to find solutions with guidance from our coaches and mentors.
Kids Do the Work	Teamwork Activity	We know our coaches and mentors don't have all the answers; we learn together
Inclusion	Core Values Poster	We honor the spirit of friendly competition.
Respect	Observation	We display Gracious Professionalism™ in everything we do.
Coopertition	Core Values Poster	

- For instances where the whole judging session is a presentation/interview/Q&A, all the information must be gathered through conversations with the team.
- When Core Values judging includes a Teamwork Activity, a great deal of information can be learned from direct observation of the team working through the activity. It is important to remember that the purpose of the activity is to observe the team working on the problem, and not to focus on the result of their work.
- When a Core Values Poster is required, it should be used as a tool to jumpstart a conversation between the team and the Judges. It is designed to help teams focus their thoughts and examples in advance of the judging session so that they may be conveyed more easily and effectively to the Judges.
- In addition to the judging sessions, many Core Values Judges like to observe the teams in their natural environment, the pits and competition area to gather additional data about all aspects of Core Values.



## Inspiration

These three criteria measure how effective a team is at getting teams and others excited about science and technology while gaining awareness and understanding about the world and themselves.

**Discovery** – Teams must be able to describe how they balance all three aspects of *FIRST LEGO League*, especially if they really wanted to focus on only one sometimes. They should provide examples from the season about things their team discovered that were more about gaining knowledge than about gaining an advantage in the competition or winning an award.

**Team Identity** – The important thing to look for here are teams that are enthusiastic and spirited about their team and *FIRST LEGO League*. It's not about yelling the loudest, but rather about establishing a cohesive team identity, having a good time with your team and showing a great *FIRST LEGO League* spirit to people outside the team.

**Impact** – Look for concrete examples of how a team applies Core Values and other things learned through *FIRST LEGO League* to situations outside of *FIRST LEGO League*. Listen for stories about how teams integrate new knowledge, skills and abilities into everyday life.

## Teamwork

All teams operate differently, and teams can be successful with different styles. Some teams have a strong leader, some have a democratic approach, some have specialized roles, some share responsibilities for all aspects. Sometimes teams that predominately use one approach will even adapt their style depending on the problem. When evaluating teamwork, it is important to know that one “type” of team is not better than another. What matters is whether the team is aware of the approach they use (and its risks), and how successful they are at getting things done.

**Effectiveness** – No matter the approach used, a team should have a clear process to make decisions and resolve problems appropriately. Additionally, goal setting and realizing progress towards goals helps teams take ownership of their experience in *FIRST LEGO League*.

**Efficiency** – Judges need to assess whether teams used their time, energy and other resources wisely. Accomplished teams know how to manage roles and their time to ensure most goals are achieved --and they know how to self-correct if they veer off course.


**Kids Do the Work** – This is hopefully fairly self-explanatory. It is all about how much direct involvement there is by the coach. It is allowable (actually encouraged!) for coaches to be involved. We just don't want them programming robots, performing research, dictating ideas and making decisions that the team should be making about what they are doing.

## Gracious Professionalism®

**Inclusion** – Look for how well a team incorporates ideas from everyone and makes each team member feel like a valued part of the team. Determine how well the team understands that working together allows them to accomplish more than they could by working alone. An Accomplished team will exhibit balanced involvement, with most team members actively contributing ideas.

**Respect** – Judges must look beyond teams that show good manners and are a “nice group of kids”. We expect decent behavior to be the norm. Accomplished teams act and speak with integrity; they understand that what they say and do has the power to impact others and situations.

**Coopertition®** – Look for ways that a team honors the spirit of friendly competition, including any assistance provided or received from other teams. Determine how team members help each other and other teams, prepare for and approach potentially stressful competition experiences throughout the season.





# Core Values

Team Number \_\_\_\_\_  
Judging Room \_\_\_\_\_

For each skill area, clearly mark the box that best describes the team's accomplishments. If the team does not demonstrate skill in a particular area, then put an 'X' in the first box for Not Demonstrated (ND). Please provide as many written comments as you can to acknowledge each team's hard work and to help teams improve. Use the back for additional comments if needed.

Beginning		Developing		Accomplished		Exemplary	
Inspiration	Discovery		Team explored and improved skills or ideas within all three aspects (Robot, Innovation Project, Core Values) of <i>FIRST</i> ® LEGO® League; used creativity & persistence to solve problems				
	N D	minimal examples / all examples from 1 aspect	some examples / examples from 2 aspects	multiple examples / examples from all 3 aspects	multiple examples of exploring <b>new</b> skills & ideas; extensive examples of <b>improving</b> in all 3 aspects		
	Team Identity		Fun expression of team identity; team expresses how they enjoy <i>FIRST</i> LEGO League				
	N D	minimal identity; minimal enjoyment	some identity; enjoyment is unclear	clear identity; team clearly expresses their enjoyment	clear identity; team engages others in their enjoyment		
	Impact		Team applied knowledge, skills and/or values learned in <i>FIRST</i> LEGO League to improve themselves and their world				
	N D	unclear impact of <i>FIRST</i> LEGO League	knowledge, values or skills impacted some team members	knowledge, values or skills impacted all team members	knowledge, values or skills impacted all team members <b>AND</b> team used values or skills to help others		
Teamwork	Effectiveness		Problem solving and decision-making processes help team achieve their goals				
	N D	team goals AND team processes unclear	team goals OR team processes unclear	clear team goals and processes	clear processes enable team to accomplish well defined goals		
	Efficiency		Resources used relative to what the team accomplishes (time management, distribution of roles and responsibilities); team is stronger together than its individual members				
	N D	limited time management / role definition	clear time management / role definition	good time management / role definition allows team to avoid wasting effort <b>OR</b> resources	excellent time management / role definition allows team to avoid wasting effort <b>AND</b> resources		
	Kids Do the Work		Appropriate balance between team responsibility and coach guidance				
	N D	limited team responsibility AND excessive coach guidance	limited team responsibility OR excessive coach guidance	Good balance between team responsibility and coach guidance	team independence with appropriate coach guidance		
Gracious Professionalism®	Inclusion		Consideration and appreciation for the contributions (ideas and skills) and differences of all team members.				
	N D	limited consideration / appreciation for contributions	consideration / appreciation for contributions of most team members	clear consideration / appreciation for contributions of all team members	all team members' contributions actively welcomed & recognized		
	Respect		Team members act and speak with deference so others feel valued—especially when solving problems or resolving conflicts				
	N D	not evident with majority of team members	evident with majority of team members	clearly evident with all team members	clearly evident with all team members <b>AND</b> team encourages respect in others		
	Coopertition®		Learning is more important than winning; Team learns from, teaches, and cooperates with each other and competing teams. Team competes in the spirit of friendly competition				
	N D	unclear or lack of team members cooperating with each other	team members cooperate with each other	team actively learns from and teaches teammates / celebrates other teams' successes	team actively helps, learns from, or collaborates with other teams <b>AND</b> celebrates other teams' successes		

Comments

Great Job...

Think about...



# What to Expect as a Judge

## Day of the Event

### Before Judging Sessions

- Meet with the Judge Advisor to review
  - Event schedule
  - Judging procedures
  - Judging Deliverables
  - Last minute items
- Meet your judging partner(s) and the rest of the panel
- Attend the Opening Ceremonies

### During Team Evaluations

- Interview teams
- Make sure sessions stay on schedule
- Evaluate each team according to rubric criteria and note constructive comments
- Keep additional notes of team specifics if needed
- Note and report:
  - cases of adult intervention
  - demonstrations of Core Values

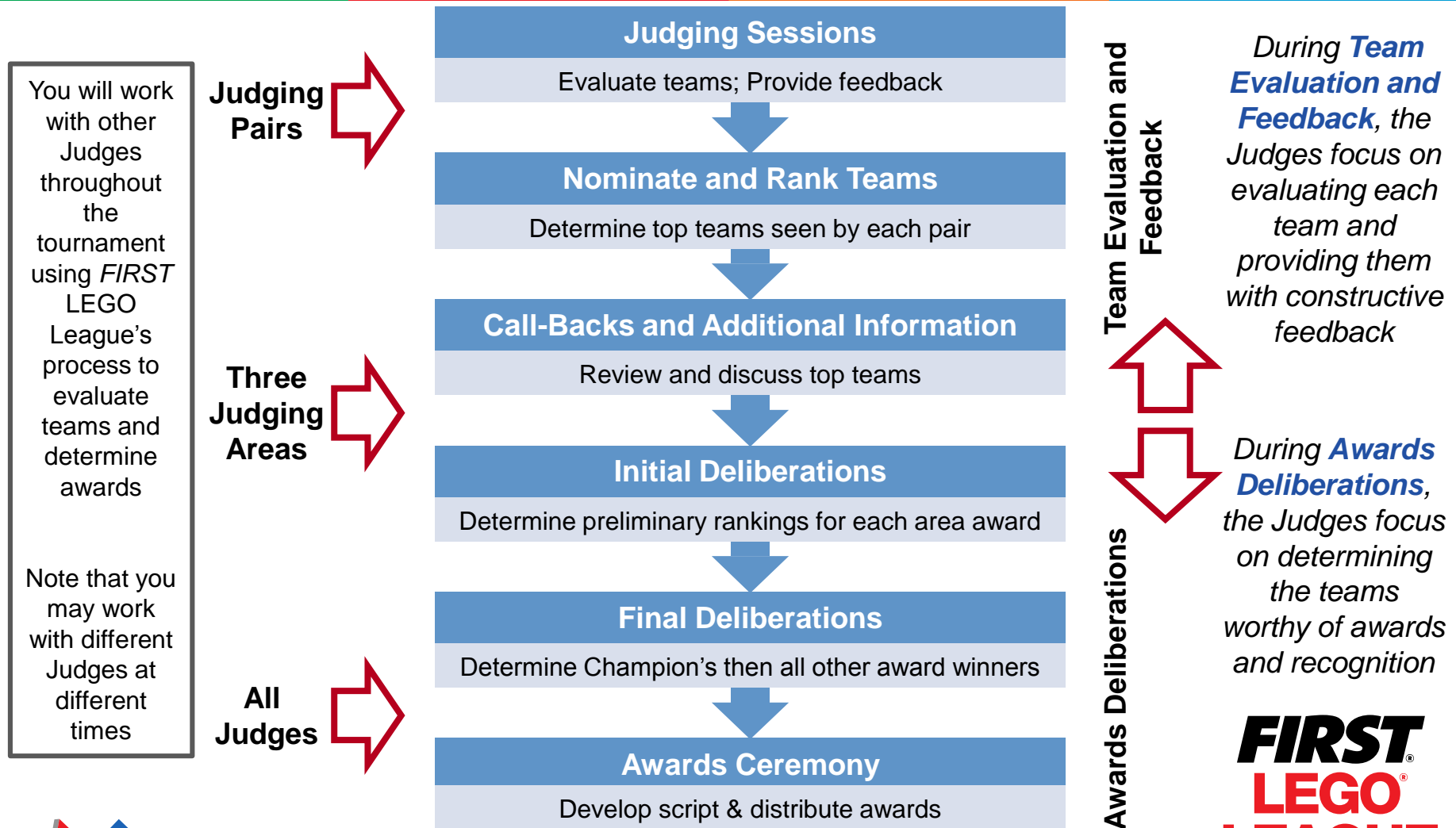
### During Deliberations

- Submit award nominations and rankings by your judging pair
- Participate with all area Judges to determine award candidates/merged preliminary ranking
- Work with Judges of other areas to determine the Champion's Award winner(s)
- Work with all Judges to finalize remaining awards and prepare scripts

### During the Awards Ceremony

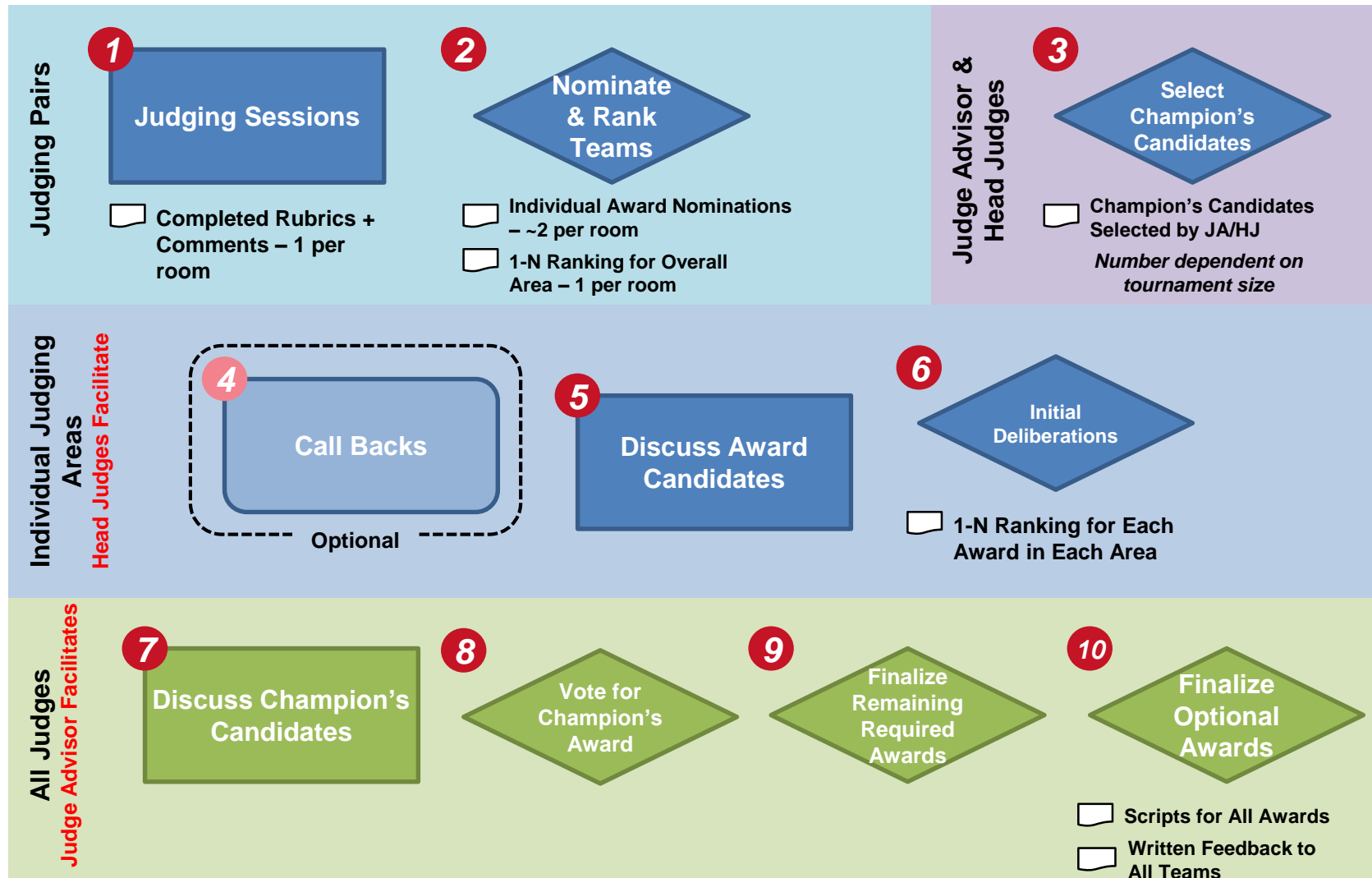
- Attend the Awards Ceremony (if possible)
- Help distribute medals, awards and other team recognition
- Join the high-five line, congratulate all teams and have fun!

# The Judging Process





# The Judging Process





# **FIRST<sup>®</sup> LEGO<sup>®</sup> League Awards**

## **All Awards Structures**

### **Champion's Award**

This award recognizes a team that embodies the *FIRST* LEGO League experience, by fully embracing our Core Values while achieving excellence and innovation in both the Robot Game and Project. Considered the most prestigious, the Champion's Award is included in both approved awards structures.

### **Robot Performance**

This award recognizes a team that scores the most points during the Robot Game. Teams have a chance to compete in at least three 2.5 minute matches and their highest score counts.

### **Judges Awards**

During competition, the judges may encounter teams whose unique efforts, performance or dynamics merit recognition. Some teams have a story that sets them apart in a noteworthy way. Sometimes a team is so close to winning an award that the judges choose to give special recognition to the team. Judges Awards allow the freedom to recognize remarkable teams that stand out for reasons other than the Required Award categories. Examples include:

#### **Against All Odds or Overcoming Adversity or Perseverance**

This award goes to the team that improvises and overcomes a difficult situation while still making a respectable showing, with an attitude that shows, "We can overcome incredible odds if we never give up, no matter what!"

#### **Rising Star**

This award recognizes a team that the judges notice and expect great things from in the future.

## **Special Recognition Awards**

### **Outstanding Volunteer Award**

The *FIRST* LEGO League program would not exist without its volunteers. This award honors an extraordinary volunteer(s) whose dedication to *FIRST* LEGO League has a positive impact on the team experience.

### **Coach/Mentor Award**

Coaches and mentors inspire their teams to do their best, both as individuals and together. This award goes to the coach or mentor whose leadership and guidance is clearly evident and best exemplifies the *FIRST* Core Values.



# Full Awards Structure

*Required for all Championship events; an option for qualifying tournaments*

## Core Values Awards

### Inspiration

This award celebrates a team that is empowered by their *FIRST* LEGO League experience and displays extraordinary enthusiasm and spirit.

### Teamwork

This award recognizes a team that can accomplish more together than they could as individuals through shared goals, strong communication, effective problem solving and excellent time management.

### Gracious Professionalism®

This award recognizes a team whose members show each other and other teams respect at all times. They recognize that both friendly competition and mutual gain are possible, on and off the playing field.

## Project Awards

### Research

This award recognizes a team that utilizes diverse resources to formulate an in-depth and comprehensive understanding of the problem they have identified.

### Innovative Solution

This award recognizes a team's solution that is exceptionally well-considered and creative, with good potential to solve the problem researched.

### Presentation

This award recognizes a team that effectively communicates the problem they have identified and their proposed solution to both the judges and other potential supporters.


## Robot Awards

### Mechanical Design

This award recognizes a team that designs and develops a mechanically sound robot that is durable, efficient and highly capable of performing challenge missions.

### Programming

This award recognizes a team that utilizes outstanding programming principles, including clear, concise and reusable code that allows their robot to perform challenge missions autonomously and consistently.





### Strategy & Innovation

This award recognizes a team that uses solid engineering practices and a well-developed strategy to design and build an innovative, high performing robot.

## Consolidated Awards Structure

*An option for qualifying tournaments*

### Project Award


This award recognizes a team that excels across the Research, Innovative Solution and Presentation categories. This team utilized diverse resources for their Project to help them gain a comprehensive understanding of the problem they identified, develop a creative, well-researched solution and effectively communicate their findings to judges and the community.

### Core Values Award

This award recognizes a team that excels across the Inspiration, Teamwork and Gracious Professionalism® categories. This team displays extraordinary enthusiasm and spirit, knows they can accomplish more together than they could as individuals, and shows each other and other teams respect at all times.

### Robot Design Award

This award recognizes a team that excels across the Mechanical Design, Programming and Strategy & Innovation categories. This team uses outstanding programming principles and solid engineering practices to develop a robot that is mechanically sound, durable, efficient and highly capable of performing challenge missions.





# Core Values

## Sample Questions

- ***Could you share your Core Values Poster with us?***

### Discovery

- What's the most important thing you learned this season?
- Would you still do *FIRST* LEGO League even if there were no awards? Why?
- If a team can't attend an event because there isn't one nearby, is *FIRST* LEGO League still worth doing? Why?
- Do any of your team members mentor others? If so explain.
- What was the most surprising thing you learned this season?
- Which aspect of *FIRST* LEGO League did your team like best? Least?
- How did your team decide which aspect of *FIRST* LEGO League to do first?
- Describe any struggles your team had making sure they addressed all 3 aspects (Project, Robot, Core Values) of *FIRST* LEGO League.

### Team Spirit

- How would you describe your team?
- How did your team decide its name?
- What's the most important thing we should know about your team?
- What does your team do when it is having a bad day?
- How does your team share with others your excitement and enthusiasm?
- Do you participate on any other teams (i.e., sports, debating, chess club, drama club) and, if so, is there anything different about your *FIRST* LEGO League team experience?

### Integration

- Tell us what you have learned about *FIRST* LEGO League and how you think it will help you in the future.
- Name one of the Core Values and explain how your team uses it (or could use it) outside of *FIRST* LEGO League.
- Who can give me an example of a way they used a *FIRST* Core Value this year on their own away from the team?
- Does anyone have an example of someone they know (on the team or off) using *FIRST* Core Values in a way that impressed you?

### Effectiveness

- What were your team goals this season?
- How did you decide on your team goals?
- Tell me about a problem you had on your team and how it was resolved.
- Tell me about how your group makes decisions together.
- What do you do when your group doesn't agree?
- How does your team solve problems that come up?
- Does your team have a set of rules? If so, what are they, and how are they enforced?



## Efficiency

- How did your team decide what to do each time you met?
- Did your team get everything done this season that you set out to do?
- How does your team manage its time?
- If we gave your team one more week to work together, how would you use it?
- Tell us about the roles each of you had on the team and how this worked.
- How did you decide who would do each role?
- What happens if a team member is not getting his/her job done?
- Can someone else do your job? What happens when someone is sick?
- Do you have team leaders? If so, explain how that works.

## Kids Do the Work

- What's the most important thing you learned from your coach?
- What does your team do when it gets stuck?
- Describe a situation when your coach helped you. What did he/she do?
- What makes a good coach?
- What kinds of things does a coach need to know?
- What would your team do if it didn't have a coach?
- How did your coach help the team be successful?

## Inclusion

- How does your team get its ideas?
- How does your team decide which ideas they will pursue?
- Tell me about one thing each of you contributed to the team.
- What do you do when you don't like someone else's idea?


## Respect

- What does *Gracious Professionalism*® mean to you?
- How do you show Gracious Professionalism when you relate to your team? To your coach? To others?
- How do you make someone feel valued when you talk to them?

## Coopertition

- What example of *Gracious Professionalism* have you seen another team do today?
- If you saw something happening to another team and thought it wasn't fair, what would you do and why?
- Explain how *Gracious Professionalism* is like good sportsmanship. And how is it different?
- Can you give an example of *Gracious Professionalism* that your team displayed this season?
- Competitions can sometimes be stressful. How does your team prepare each other or maybe other teams to get ready for a big event?

## Look for:

- Confidence and enthusiasm of team members.
  - Concrete descriptions and examples.
  - Are team members listening to each other and to the Judges? Are they interrupting or waiting their turn?
  - Are team members looking at the Judges when they speak or at team members when they are talking?
  - Is everyone answering questions or just a few?
  - Do they encourage each other to participate?
  - Does the team look to the coach for direction?
- 





# Comment Starters

The best comments on *FIRST* LEGO League rubrics include at least one item the team did well and one challenge or item for improvement.

Use these starters and key words to help you write meaningful comments appropriate for *FIRST* LEGO League teams. Be sure ***cite evidence or examples*** and ***explain to teams why they received the levels you marked*** (Beginning, Developing, Accomplished, Exemplary).

<b>Positive</b> <i>Include at least one positive in each comment box.</i>	<b>Improvement Needed</b> <i>Include at least one item to improve in each comment box.</i>
<ul style="list-style-type: none"> <li>We liked how you...</li> <li>Excellent job on...</li> <li>Thanks for telling us about...</li> <li>_____ was an innovative way to accomplish...</li> <li>Your (diagram/poster/etc.) helped us understand your ...</li> <li>We appreciated that you...</li> <li>_____ was an effective way to...</li> <li>_____ showed us how your team...</li> <li>Your approach to...</li> <li>_____ was an example of how your team...</li> <li>Your team worked through...</li> <li>Your _____ process helped your team...</li> </ul>	<ul style="list-style-type: none"> <li>We would have liked to hear more about...</li> <li>Your (project/robot/etc.) could be even better if you...</li> <li>How could you change your design to improve...?</li> <li>It seemed like your team struggled with...</li> <li>We were still a little confused by...</li> <li>Consider changing...</li> <li>Think about...</li> <li>Maybe you could add...</li> <li>One suggestion would be...</li> <li>We noticed that...</li> <li>We weren't sure how...</li> <li>_____ could have been clearer.</li> </ul>

Some words to inspire your comment writing:

- |                     |                 |                |
|---------------------|-----------------|----------------|
| • Challenging       | • Especially    | • Solve        |
| • Consistent        | • Example       | • Specifically |
| • Demonstrate       | • Explain       | • Strategy     |
| • Decide / decision | • In particular | • Strength     |
| • Describe          | • Process       | • Thorough     |
| • Disciplined       | • Resourceful   | • Try          |
| • Display           | • Show          | • Wonder       |



# FIRST LEGO League Challenge Documents



**Challenge** – This four-page color document includes the essential information about what the teams need to do to be successful in the Project and Robot Game. It includes the Core Values that should guide the experience.



**Challenge Guide** – This document serves to provide guidance and tools to help support teams in their process of working on the Project, Robot Game and using the Core Values.



**Challenge Updates** – This document serves to communicate any clarifications or changes to the content of the Challenge that happen after Challenge release. It is largely driven by the frequently asked questions we receive from teams.

All Challenge documents are available at <http://www.firstlegoleague.org/challenge#block-block-19>

**Architects** design and construct **buildings**. They combine science and art to make buildings and **structures** for their **clients**. Sometimes they make new buildings and sometimes they redesign old ones.



They work as part of a larger team, just like yours. **Structural, civil and environmental engineers** make sure a project suits its **site**. Construction workers like electricians, plumbers and carpenters, and **project managers** make sure the job stays on time and within budget. Every role is important to get the job done.

Our cities and towns face big issues, like transportation, **accessibility** and even natural disasters. How can we shape a better future for everyone? It will take teamwork and imagination. Are you ready to build a better tomorrow together?

## Throughout your season, you'll be guided by the **FIRST® Core Values**

We express the **FIRST®** philosophies of *Gracious Professionalism®* and *Coopertition®* through our **FIRST Core Values**:



## In the Robot Game, your team will:

- **Identify** Missions to solve.
- **Design**, build and program a LEGO Robot to complete the Missions.
- **Test** and refine your program and design.

Your Robot will have to navigate, capture, transport, activate, or deliver objects. You and your Robot will only have **2½ minutes** to complete as many Missions as possible. So, be creative!

## In the Innovation Project, your team will:

- **Identify** a problem with a building or public space in your community.
- **Design** a solution.
- **Share** your solution with others and then refine it.

At official events, your team will present your Project, including the problem, your solution, and how you shared it, in a 5-minute presentation.

**ROBOT GAME**
**PROJECT**

# CORE VALUES



**FIRST® LEGO® League** is the result of an exciting alliance between **FIRST®** and the **LEGO® Group**.





# CITY SHAPER<sup>SM</sup>

## Challenge Updates

Challenge Updates are posted throughout the season to answer the most common questions from teams. The Updates included here are likely incomplete by the time you're reading them. Review the most current Challenge Updates on [firstlegoleague.org](http://firstlegoleague.org) a few days before your event.

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**Week of 26 August 2019**

**Innovation Project Updates – 0**  
**Robot Game Updates – 3**

### Robot Game Updates

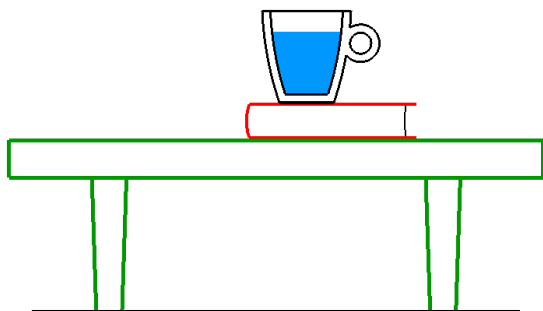
#### **RG12 - BRIDGE BARRIERS NOT ALLOWED**

The only way Robot X can stop Robot Y from scoring Flag points is to be faster or stronger at scoring Flag points. Robot clashes are expressly allowed in the text of Mission 1 by Rule 30's first sentence, but all other competitive action is governed by Rule 30's second sentence.

#### **RG11 - SUPPORTED VS SUPPORTED “ONLY BY”**

These two situations are scored differently. Remember the example below when reading Robot game text:

- The water is Supported by the cup, since 100% of its weight is held by the cup.
- The water is Supported by the book, since 100% of its weight is held by the book.
- Therefore, the water is NOT Supported “only by” the cup (nor the book).



#### **RG10 - BOXES AND TRAYS**

- You can carry your Equipment to the Field in any box or tray.
- When you get to the Field, place all your Equipment in one of the Inspection Areas and store the box/tray as directed by the Referee.
- After Inspection, all your Equipment is stored in Home, as directed by Rule 19.

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## Week of 19 August 2019

Innovation Project Updates – 0  
Robot Game Updates – 1

### Robot Game Update

(Update RG02 was clarified)

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## Week of 12 August 2019

Innovation Project Updates – 0  
Robot Game Updates – 6

### Robot Game Updates

#### RG09 - LAUNCH AREA STRANDING

Things Stranded partly or completely in the Launch Area \*can be taken into Home if you wish. If that action clearly/directly produces a scoring condition, the score won't count.

\*This exception to Rules 22 and 29 does not apply if the Stranded thing reaches out of the white/logo arc area.

#### RG08 - HAND USE FOR INSPECTION

Your hands can be used to restrain/confine Equipment within the volume of an Inspection Area.

#### RG07 - MIS-LAUNCH

If you Interrupt the Robot so soon after Launch that it hasn't yet reached a Launch Area perimeter line, you will need to re-Launch, but you will not lose a Precision Token. This is an exception to Rule 27.

#### RG06 - STRATEGIC/PRECISION STOP

If a new scoring condition is produced by the strategic timing of an Interruption (your eyes did the work of a timer or sensor), and this is obvious to the referee, Missions benefitting will not score.

#### RG05 - RULE 28 CLARIFIED

Here are the three possibilities and their outcomes:

- 1 - If the Cargo came with the Robot from the latest Launch: You get the Cargo back.
- 2 - If the Cargo was Completely in Home when the Robot was Interrupted: You get the Cargo back.
- 3 - Otherwise: The Referee takes the Cargo.

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## Week of 4 August 2019

Innovation Project Updates – 0  
Robot Game Updates – 1

### Robot Game Update

(Update RG01 was revised)

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## Week of 28 July 2019

Innovation Project Updates – 2  
Robot Game Updates – 4

### Innovation Project Updates

#### IP02 – MISSION 11 AND THE (MOSTLY) WHITE BRICKS

In your CITY SHAPER<sup>SM</sup> challenge set, you will find LEGO elements in the bags labelled “10” to make a team-designed model for robot game Mission 11. **The model can be of any design if it meets the requirements of Mission 11.** This model is supposed to represent your team’s Innovation Project in some way, but you will not be *required* to explain your model’s design or discuss your Project during your robot game matches. (You may *want* to share this information with others – and that’s fine – but it’s not required.) Please see the robot game missions, rules and updates for more information about Mission 11.

#### IP01 – YOUR COMMUNITY

The Innovation Project problem statement instructs teams to:

- Identify a problem with a building or public space in your community.
- Design a solution.
- Share your solution with others and then refine it.

For this year’s project, your team is free to define “your community” in the way that works best for you. This means your team could look at a problem in your local town or city, your country, or even in another part of the world.

### Robot Game Updates

#### RG04 – MISSION 11 STRUCTURE SIZE

Some measure of your Mission 11 Structure needs to be at least as long as a four-stud LEGO element.

#### RG03 – ELEVATOR SETUP

The correct setup position for the Elevator is with the Blue Car UP, as shown here:





## **RG02 – DRONE SHAPE AND SETUP** (Clarified - Improved Building Instructions are available)

Per original Update RG02, the correct way to build the Drone is shown below, and now the Building Instructions have been revised to show this.

The correct way to place the Drone on the Mat is on its square mark, with the Loop parallel over its line marks (the open Loop faces the Launch Area).



## **RG01 – MAT PLACEMENT AND SETUP** (Revised to correct the width of Home)

When placing your Field on an Official Table, slide the Mat gently until it meets up against the South and East Border Walls. When Table size and Mat placement are correct, Home will measure about 45" by 13-1/2" (1143mm by 342mm).

To hold the Mat in place, you may use a thin strip of black tape on the West edge as needed. Where the tape sticks to the Mat, it may cover the Mat's black border only.

# What's new for CITY SHAPER<sup>SM</sup>?

Make sure you're up to date for the  
2019-2020 CITY SHAPER<sup>SM</sup> *FIRST*<sup>®</sup> LEGO<sup>®</sup> League season:

- ❑ **Champion's Award and Advancement:** The formula to determine *FIRST*<sup>®</sup> LEGO<sup>®</sup> League Champion's Award and the criteria used to determine which teams advance from qualifying tournaments has been updated.
- ❑ **Rubric Updates:**
  - The **design layout** of all [FIRST LEGO League Rubrics](#) has been updated for the 2019 CITY SHAPER season.
  - Wording in the **Core Values and Robot Design Rubrics** have been updated.
- ❑ **Team Meeting Guide and Engineering Notebook:** The *FIRST* LEGO League Challenge now includes a Team Meeting Guide for coaches and one (1) engineering notebook per team member. Teams may bring these to the judging session as a talking point, but they are NOT a requirement for teams.
- ❑ **Innovation Project:** The project portion of the Challenge is now named "Innovation Project."
- ❑ **Robot Game Updates:** Read the [rules](#) for all updates, including:
  - New Mat size due to increased Home dimensions. When Table size and Mat placement are correct, Home will measure about 45" by 15-1/2" (1143mm by 393mm).
  - Robot/Equipment Inspection Area
  - Open Software: *FIRST* LEGO League teams can use any software that allows the Robot to move autonomously – meaning it moves on its own.

