

2015 *FIRST*<sup>®</sup> LEGO<sup>®</sup> League

Project Judging  
Pre-Tournament Preparation Pack

— EXPANDED QUALIFIER EDITION —





# FLL Core Values

- **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 in everything we do.**
- **We have fun.**



# 10 Things to Know As an FLL 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:

**Challenge Updates:** <http://www.firstlegoleague.org/sites/default/files/Challenge/TRASH-TREK/FLL%20TRASH%20TREK%20UPDATES.pdf>

**Judging Questions:** [flljudge@usfirst.org](mailto:flljudge@usfirst.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 an FLL 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 FLL. We hope your experience as an FLL Judge is rewarding and enjoyable!

## 10. Have fun – you and the kids

The most important thing to know about an FLL 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 FLL 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 FLL 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 that 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 FLL 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 Core 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 FLL in particular. You may also see rookie teams that are more polished and understand FLL 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!

Project judging in FLL can be compared to research presentations given at a scientific conference, except FLL project presentations are typically a whole lot more fun! Teams present a challenge-related problem they have researched and analyzed. They also present their innovative solution to that problem, and tell about how and with whom they shared their research. These steps parallel the scientific research process in the “real world”. All of this information is communicated in a creative presentation to the Judges that takes no more than 5 minutes, including setup time.

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

- To be eligible for any Project awards, teams must demonstrate that they have completed all three components of the Project: problem identification, development of an innovative solution, and sharing of the project with others.
- Make sure that teams also complete any additional challenge-specific requirements. For example, in the Power Puzzle season, teams had to perform an energy audit as a part of the Project.
- Innovation and creativity are considerations in several of the Project rubric criteria. Try not to overly penalize a team for a solution they present as original, but that you know is already being considered or implemented. Different Judges may also have very different knowledge levels of state-of-the-art science relative to the Project. If you are aware that their solution already exists, make it known to them in a respectful, gentle manner, and **MAKE SURE** you provide them that feedback.

Now let’s take a closer look at the criteria and provide some guidance about what to look for and consider:

## Research

**Problem Identification** – For teams to rate Accomplished or higher, they must be able to clearly articulate a well-defined problem statement. Sometimes teams will present a set of issues related to the challenge but not focus on a specific problem. For example, global climate change is a very broad problem that could have many causes. A more specific and well defined problem that would make a more appropriate FLL Project might be something like reducing greenhouse gas emissions from coal burning power plants.

**Sources of Information** – The key things to look for here are quality, variety and number of sources. Accomplished teams should include at least one professional they have communicated with as a source. Note that books or news articles or magazines that a team reads via the internet should be considered as three different types of sources. Exemplary teams will consider a wider variety of good quality sources as well as seek out and learn from professionals. Professionals are considered to be people who have specialized knowledge about a particular area. For example, a biomedical engineer might be considered a professional when it comes to research concerning robotic arms used to replace lost limbs. Another example could be a shipping logistics manager who is consulted when researching how food is shipped long distances while still maintaining quality.

**Problem Analysis** – Accomplished teams will analyze a problem sufficiently to form their own conclusions. For example, a team that performs its own tests of various ice melting materials to determine their effectiveness when researching the problem of motor vehicle movement in snowy and icy climates is a good example of a team performing its own analysis.

**Review Existing Solutions** – Teams should perform a good faith effort to review existing solutions and determine the originality of their solution. Teams are not expected to perform an exhaustive literature search including the very latest scientific journals to determine originality.

## Innovative Solution

**Team Solution** – Similar to the Problem Identification requirements, the team’s solution should focus directly on the problem they are trying to solve, explain how it solves that problem, and be clearly stated.

**Innovation** – The main issue of subjectivity here surrounds the question “What does ‘original’ mean when it comes to innovation?” A team may develop a truly innovative device to assist someone who is blind, or they may come up with the idea to apply Velcro to walls to serve as a sensory guide; both are innovative. Teams will sometimes believe their solution to be something they’ve developed on their own only to find out from an expert Judge that some other group has already developed that same solution. They may also find this out days before the competition and not have time to develop a new, completely original solution. Be sensitive to these situations. A team does NOT have to develop a completely new, patented by the team idea to be considered for this award or to score high in this area. Note that FLL has a separately judged, non-event based award called the Global Innovation Award for teams that choose to pursue a patent opportunity.

**Implementation** – Teams should demonstrate that they have considered how their solution might be implemented. Team solutions should be more grounded than pie in the sky, but solutions need not be implementable now. For example, a team should not be penalized for a solution that may require the invention of an additional component to be workable. While not required, a team that builds a prototype of their solution should most likely be considered Exemplary, provided they consider other aspects of how to implement their solution.

## Presentation

**Presentation Effectiveness** – Look for well-organized presentations that clearly deliver the message. Note that the presentation MUST demonstrate all three of the project aspects. While teams that cover Sharing (for example) only during the question and answer part of the judging session are still eligible for Project Awards, their presentations are not as effective as teams who include all three parts.

**Creativity** – This criterion is probably the most subjective one for Project Judges. Creativity is different for different people. Look for presentations that stand out, are more entertaining, make you want to listen to the message more and serve to enhance the delivery of the message instead of distract from it.

**Sharing** – The two main considerations here are “Did the team consider who might benefit from their solution, and share it with them?” and “Did the team go beyond their comfort zone to share their ideas?” The first consideration focuses on encouraging teams to share with a relevant and targeted audience, for example presenting a new insulin delivery system to kids with juvenile diabetes. The second consideration focuses on encouraging teams to share their information with people they don’t know so that they can become comfortable speaking about their ideas with anyone. Note that a team does not necessarily have to share its FLL competition presentation with outside groups; they may share the information and their solution in any manner they wish.

Directions: 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. *When you have completed the evaluation, please circle the team's areas of strength.*

		Beginning	Developing	Accomplished	Exemplary
<b>Research</b>	<b>Problem Identification *</b>	Clear definition of the problem being studied			
	N D	unclear; few details	partially clear; details missing	mostly clear; detailed	clear; very detailed
	<b>Sources of Information</b>	Types (e.g. books, magazines, websites, reports and other resources) and number of quality sources cited, including professionals in the field			
	N D	one type of information cited; minimal sources	two types of information cited; several sources	three types of information cited; many sources, including professionals	four(+) types of information cited; extensive sources, incl. professionals
	<b>Problem Analysis</b>	Depth to which the problem was studied and analyzed by the team			
	N D	minimal study; no team analysis	minimal study; some team analysis	sufficient study and analysis by team	extensive study and analysis by team
	<b>Review Existing Solutions</b>	Extent to which existing solutions were analyzed by the team, including an effort to verify the originality of the team's solution			
N D	minimal review; no team analysis	minimal review; some team analysis	sufficient review and analysis by team	extensive review and analysis by team	
<b>Comments:</b>					
<b>Innovative Solution</b>	<b>Team Solution *</b>	Clear explanation of the proposed solution			
	N D	difficult to understand	some parts confusing	understandable	easy to understand by all
	<b>Innovation</b>	Degree to which the team's solution makes life better by improving existing options, developing a new application of existing ideas, or solving the problem in a completely new way			
	N D	existing solution/application	solution/application contains some original element(s)	original solution/application	original solution/application with the potential to add significant value
	<b>Implementation</b>	Consideration of factors for implementation (cost, ease of manufacturing, etc.)			
N D	minimal factors considered	some factors considered	factors well considered; some question about proposed solution	factors well considered and feasible solution proposed	
<b>Comments:</b>					
<b>Presentation</b>	<b>Sharing *</b>	Degree to which the team shared their Project before the tournament with others who might benefit from the team's efforts			
	N D	shared with one individual	shared with one group	shared with one individual or group who may benefit	shared with multiple individuals or groups who may benefit
	<b>Creativity</b>	Imagination used to develop and deliver the presentation			
	N D	minimally engaging OR unimaginative	engaging OR imaginative	engaging AND imaginative	very engaging AND exceptionally imaginative
	<b>Presentation Effectiveness</b>	Message delivery and organization of the presentation			
N D	unclear OR disorganized	partially clear; minimal organization	mostly clear; mostly organized	clear AND well organized	
<b>Comments:</b>					

**Strengths:** **Research** **Innovative Solution** **Presentation**

\*Required for Award Consideration



# What to Expect as a Judge

## Day of the Event

### Before Judging Sessions

- Meeting 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 GP & FLL 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 categories 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!



# Judging Process

You will work with other judges throughout the tournament using FLL's process to evaluate teams and determine awards

Note that you may work with different judges at different times

**Judging Pairs**

**Three Judging Areas**

**All Judges**





# Judging Process

**Team Evaluation and Feedback**



**Awards Deliberations**



During **Team Evaluation and Feedback**, the focus of the judges is on evaluating each team and providing them with constructive feedback

During **Awards Deliberations**, the focus of the judges is on determining the teams worthy of awards and recognition





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

## 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.

## 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.

### 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.

## 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.

## Core Values Awards

### Inspiration

This award celebrates a team that is empowered by their FLL experience and displays extraordinary enthusiasm and spirit.

### Teamwork

This award recognizes a team that is able to 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.

## Judges Awards

During the course of 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 Core 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 FLL program would not exist without its volunteers. This award honors an extraordinary volunteer(s) whose dedication to the FLL program 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* LEGO League Core Values.

## ***Project Sample Questions***

### Research

#### Problem Identification

- How did your team decide which problem to study?
- Describe the problem your team selected in three sentences or less.
- What are the most important things to understand about the problem that you studied?

#### Sources of Information

- What resources did you use to research your problem and why did you choose these?
- Did you use any unusual methods to research your topic? If so what and why?
- Did you speak to anyone whose work relates to the Challenge area? What did you learn from them?
- What was the most helpful resource that your team used? Why?
- If you had to start your research over, which resource would you use first? Why?

#### Problem Analysis

- How did your team organize and use its research?
- After working on this project, what is the most important thing that your team learned?
- Can you tell us about a problem you discovered or something that you learned that surprised you while completing this project?

#### Review Existing Solutions

- Are you aware of anyone else who has studied the problem you chose?
- How have other people tried to solve the problem you identified?
- Did the information you found offer different ideas than what you expected to find? If so, what and how did your team use this information?

### Innovative Solution

#### Team Solution

- Describe the solution your team identified in three sentences or less.
- What are the most important things to understand about the solution that you developed?
- How did you arrive at your solution and why?
- Were there other solutions that you thought of that you decided not to use? Why?

#### Innovation

- What makes your solution different from what is being used to solve this problem now, and why do you think it is better?

#### Implementation

- If someone tried to use your solution today, would it be possible?
- What kinds of things would be important to think about if you tried to use your solution right now?
- What resources would you need to develop your solution?
- Do you think your solution would be easier or less costly than other solutions you considered or are used by others?

## Presentation

### Presentation Effectiveness

- How many/what different presentation styles did your team consider?
- Why did you choose the presentation style that you chose? How does this style help your audience understand what you are telling them?
- When you have given your presentation to others, what types of questions have they asked?
- Describe how you chose what information to include in your presentation.
- Why did you choose to organize your presentation the way you did?

### Creativity

- How did you decide on this presentation style that you used?
- What do you think was the most creative aspect of your presentation or project and why?
- How is the way your team chose to present your Project special or unique?

### Sharing

- One aspect of the project asked you to share your ideas with others. How did your team do this?
- With whom did you share your project? Why did you choose them?
- How did you share the information? Did you present it in the same manner as you presented to us, or did you choose a different approach? Why?
- What impact did your presentation have on them?
- What changes have you or others made as a result of your research and presentation?

### Look for:

- Documentation of resources used.
- Depth of the information provided.
- All students participated in the research process, or understand the process and results of the team's research.
- Entire team participating in discussion.
- How the team interacts with each other.
- Do they all talk, or only a few? If so, why?
- Does the team look to the coach often or are they focused on the presentation and Judges.
- Noteworthy observations about FLL Core Values to share with the judging team.



# FLL® TRASH TREK<sup>SM</sup> Project



In the TRASH TREK<sup>SM</sup> Project, your team will:

- Identify a problem with the way we make or handle trash
- Design an innovative solution to the problem you select
- Share your problem and solution with others

## Think About It

Have you ever thought about the disposable plastic straw in your drink at a restaurant? When you finish your meal and leave, what happens to the straw?

9-year-old Milo Cress started asking these questions when he noticed that restaurants usually gave him a disposable straw with each beverage. The straw was there even if he didn't need or want it. Milo recycled a lot of his trash at home, but he was not able to recycle disposable straws. This seemed like a problem that needed some investigation.

From Milo's research, he estimated that people in his country use over 500 million straws every day. That adds up to about 9,300 large busses full of disposable straws. Milo thought that added up to too much unnecessary trash in landfills!

To solve this problem, Milo thought maybe restaurants could stop giving straws automatically. Some people would decide not to take a straw, and fewer straws would go into the trash. Milo's Be Straw Free campaign encourages everyone – especially kids – to say “no straw, please” at restaurants.

As Milo said “I'm not the straw police. I'm not saying ‘no straws at all!’” Milo just encourages people to consider other options, like buying a reusable or biodegradable straw. “That's something kids can do something about!”

Even if you do not use disposable straws, you definitely make some sort of trash every day. You might call it garbage, rubbish, or even Municipal Solid Waste (MSW). **For the TRASH TREK Challenge, trash is any item you are done with and want to dispose of.**



**THINK ABOUT IT:**  
have you ever recycled a used straw?

Have you thrown away any of these items today?

- Food scraps (like a banana peel or a chicken bone)
- Plastic bags or wrappers
- Used items (like a pen that won't write or an old school notebook)
- Clothes that are too small or ruined

Where you live, maybe most trash items go into a recycle bin. Maybe most go into a trash bag. Maybe most are burned. Whatever type of bin you put them into, those pieces of trash go somewhere when they leave your house. Do you know where they go?

**Your Project mission this season is to make less trash or improve the way people handle the trash we make.**





## Identify a Problem

To begin your TRASH TREK project, choose a piece of trash and identify a problem with the way it is currently handled. Look for problems with the way we make, transport, store, or turn trash into something new. Then find out what is being done to solve the problem.

Not sure where to start? Try this process to choose and explore your trash problem:

As a Team – Choose a piece of trash. It might be something gross and stinky, something old and worn out, or something left over after you finish a project. It could be an item that is used in manufacturing, building, or some other business. It could be any item that is considered “trash” by the owner. (See box at right for exceptions.)

As a Team - Find out where your piece of trash goes after it leaves the owner. Think about questions like:

- Does someone collect this item from you, or do you need to take it somewhere?
- Could you follow the path your trash takes (either in person or through websites, books, and magazines)?
- What happens to the trash in the end?
- Do you notice any parts of the process that could be better – more efficient, cleaner, or better in some other way? Look for these problems as you research.

This might be a great time to interview a professional. The professional could be someone who works in the waste management industry or researches trash problems for their job. Can a professional help you learn about trash collection, recycling, composting, reusing, or processing your trash in some other way?

As a Team – Identify a problem with the way trash is handled and learn about it. You might select a problem in one of these areas (or add your own):

- Collecting trash
- Finding new uses for old items (repurposing)
- Food waste
- Electronics waste (phones, computers, etc.)
- Hazardous waste (medical, chemical, etc.)
- How trash impacts your community
- Landfills
- Making zero-waste products
- Recycling process
- Sorting

As a Team – After you select a problem, find out about the current solutions. Why aren't the current solutions working? Why does this problem still exist?



**EXCEPTIONS:**  
For the TRASH TREK<sup>SM</sup> Project, trash does NOT include:

- Sewage  
(Ex: waste water, human or animal excrement)
- Gasses  
(Ex: car exhaust)



**IDENTIFY A PROBLEM:**  
How does a city planner, a sanitation worker, a composter, an anthropologist, an engineer, or a scrap dealer work with trash?





## Design an Innovative Solution

Next, design an innovative solution to your problem – **a solution that adds value to society by improving something that already exists, using something that exists in a new way, or inventing something totally new.**

As a Team – Think about:

- What could be done better? What could be done in a new way?
- Could your solution make it more cool, fun, or easy to be responsible about trash?
- How can you reimagine disposing of trash to make it more efficient or safe?
- Could your solution prevent an item from becoming trash in the first place?

Think of your problem like a puzzle. Brainstorm! Try one idea (or more), but be prepared that your first idea may not work as you expect. Then turn the problem upside down and think about it in a completely different way. Imagine! Get silly! Even a “silly idea” might inspire the perfect solution.

Have you thought about how someone could make your solution a reality? The research you have done will help you answer questions like:

- Why would your solution succeed when others have failed?
- What would it cost?
- Do you need any special technology to make your solution?
- Can anyone use your solution, or only some people?

Remember, your idea does not need to be completely new. Inventors often improve an idea that already exists or use something that exists in a new way.



**KEEP ASKING QUESTIONS**

Lots of questions – and tweaking your ideas to create something even better.

## Share with Others

Once you design your solution, share it!

As a Team – Think about who your solution might help. How can you let them know? Can you present your research and solution to people who recycle, transport, store, reuse, or create trash? Can you share with a professional or someone who helped you learn about your problem? Can you think of any other groups of people who might be interested in your idea?

Consider including someone who could provide feedback about your solution. Getting input and improving are part of the design process for any engineer. Don't be afraid to revise your idea if you receive some helpful feedback.

When you present, use the talents of your team members. Find a creative way to explain your problem and solution. Your sharing can be simple or elaborate, serious or designed to make people laugh while they learn.

No matter what presentation style you choose, remember to have fun!





## Present Your Solution at a Tournament

Finally, prepare a presentation to share your work with the judges at a tournament. Your presentation can include posters, slideshows, models, multimedia clips, props, costumes, and more. Be creative, but also make sure you cover all the essential information.

To be eligible for Project Awards and advancement your team must:

- Identify your problem.
- Explain your team's innovative solution.
- Describe how you shared your team's findings with others.
- Meet the presentation requirements:
  - Give your presentation live; you may use media equipment (if available) only to enhance the live presentation.
  - Include all team members; each team member must participate in the Project judging session.
  - Set up and complete your presentation in 5 minutes or less with no adult help.

You can learn more about how your team's presentation will be judged by reviewing the Rubrics located at <http://www.firstlegoleague.org/event/judging>.

## Project Resources

- Check the Project Updates often: [www.firstlegoleague.org/challenge/2015trashtrek](http://www.firstlegoleague.org/challenge/2015trashtrek). Here FLL staff will clarify common Project questions. Updates supersede anything in the Challenge document and will be in effect at tournaments.
- Download additional resources from the TRASH TREK Challenge page: [www.firstlegoleague.org/challenge/2015trashtrek](http://www.firstlegoleague.org/challenge/2015trashtrek). The Topic Guide contains a glossary of trash industry words, a list of websites and books to start your research, and tips on how to approach professionals.
- Read the *FIRST*® LEGO® League Coaches' Handbook for more information about the Challenge, tournaments, and judging: [www.firstlegoleague.org/challenge/teamresources](http://www.firstlegoleague.org/challenge/teamresources).
- Download the *FIRST* app on your mobile device to access all the resources listed above in one place: [www.firstlegoleague.org/challenge/teamresources](http://www.firstlegoleague.org/challenge/teamresources).



*All of us have items we are done using and need to dispose of. How we make and handle those items — that trash — can make a difference for people, businesses, and the planet. How do you want to clean up the trash?*

