

FIRST® LEGO® League

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GLOBAL INNOVATION AWARD (GIA)

BY TEAM 3659 NeXT GEN

ABOUT US

- Middle school team from Garrett County, Maryland
- 13 years in FIRST LEGO League (including competing in International Tournaments)
- First place 2013 Global Innovation Award for the Gramma Jamma
- Top 20 GIA Semi-Finalist in 2017 for innovative solution, BeeHaven
- First Place Innovative Solution at Mountain State Invitational in 2017



NOMINATION & APPLICATION PROCESS

- Most regions nominate their top-ranked team in the Innovative Solution Award from their State/Championship event.
- Once nominated, you have to fill out an application (due at the end of March)
- Based on the application, the top 20 teams are invited to the Global Innovation Award Event in Washington, D.C. in June.
- For more information about GIA nomination, visit
<https://www.firstinspires.org/robotics/fll/global-innovation>

Application Requirements

Problem
Identification

Solution
Development

Innovation

Implementation

Publicly Posted

Team Description

Innovative Solution

PROBLEM IDENTIFICATION SECTION

- **Overview:** Describe the problem and why you are trying to solve it
(200 words max)

Clearly describe the problem they are trying to solve, the reason why the team is trying to solve that problem, and why it relates to the team. This does not include any information about the solution.

- **Detailed Description:** Describe the solution, how it works, how it solves the problem (300 words max)

The team needs to explain what their solution is, but it must be understandable by the judges. It's not too technical because there are a max of 300 words. Make every word count. This is one of the most difficult descriptions. Look at what the team has to include and include those parts but save the other parts that don't have to be in this description for somewhere else in the application.



Problem
Identification

INNOVATION SECTION

The team has 500 words to explain how their solution solved the problem in a new way and/or improved on existing solutions in a meaningful way.

- Include existing solutions and why they don't work, why the team's solution works, what makes their solution work, what makes their solution innovative, and who benefits from their solution.
- This is where listing at least three innovative features of their solution helps. By innovative features, we mean what makes the team's solution **their** solution? How is it different from any of the other existing solutions?
- Once the team has their innovative features listed, use those as the frame of the description. Then, the team can break it up into multiple paragraphs. We also recommend using the scientific method. Include the hypothesis which uses if and then statements.



Innovation

SOLUTION DEVELOPMENT SECTION

- The team has 500 words maximum to describe how they developed their solution, the steps they followed to narrow, evaluate, and verify their solution; and how they improved their solution after receiving feedback from experts/professionals. This is where we really recommend using the scientific method as the frame for the description. Include the following:
 1. The problem
 2. How the team researched the problem and existing solutions
 3. The hypothesis
 4. How the team built and modified their prototypes
 5. How the team tested their prototype(s) and hypothesis by experimenting
 6. What the team plans on doing next to improve their solution



Solution
Development

Image Credit: <https://garrettcountyschools.org/public-information/news/2017/05/local-youth-recognized-for-innovation-as-first-lego-league-global-innovation-award-presented-by-xprize-semi-finalist>

IMPLEMENTATION SECTION

The team has 500 words maximum to describe how their solution will be implemented, what factors they considered (cost, materials, manufacturing, market research), how they determined feasibility, their marketing plan, whether or not they will get a provisional patent, and would they consider getting a full patent for their solution.

- We recommend, once the team determines the cost of their solution, asking experts/professionals who could use the solution what they think of the cost, whether it's too expensive or if it is worth the cost or if they would buy it.
- Discuss as a team who the target market (customers) would be and research.
- Research and/or speak with experts/professionals in manufacturing, marketing, and patents.
- Research the difference between provisional patents and patents.
- Learn about how to apply for provisional patents and patents.

Implementation

PUBLIC WEBSITE SECTIONS

- As part of the application, teams create descriptions that will not be evaluated by the judges. The descriptions of the 20 semi-finalists are published on the FIRST LEGO League Global Innovation Award website



Team Description: Brief description of your team, no personal information (500 words max)

Write a description of the team, where they're from, what they've done as a team this season, what they enjoy about FLL, really anything about the team they want to share with others.

Public Innovative Solution: Description of the problem and how your innovative solution solves it (300 words max)

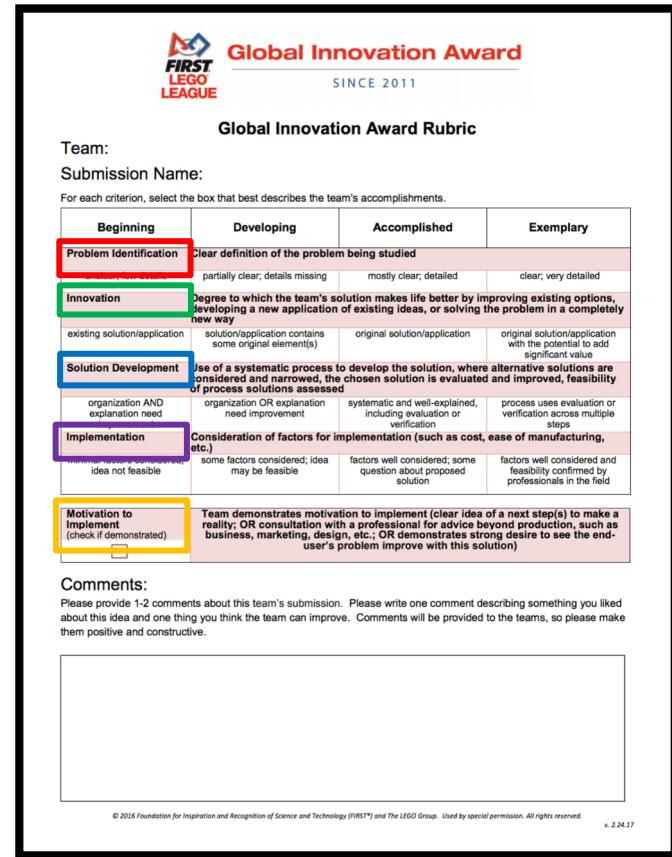
Briefly describe the problem, why they chose it, what their solution is, and how it solves the problem.

Team Description

Innovative Solution

UNDERSTANDING THE GIA RUBRIC

- **Problem Identification:** The team has to clearly explain the problem they chose to solve. However, it must be detailed enough to understand why it is a problem.
- **Innovation:** The team needs to explain why their solution is original, innovative, and will have a large impact on others.
- **Solution Development:** The team needs to know the entire process of how the solution was developed, how they took into consideration experts/professionals' feedback and used it to improve their solution, how they've tested the solution, why the solution is better than existing solutions, and if the solution is more expensive than existing solutions why it is worth the extra expense.



The Global Innovation Award Rubric is a scoring tool for team submissions. It includes a header with the FIRST LEGO LEAGUE logo and 'Global Innovation Award SINCE 2011'. The rubric is organized into five categories: Problem Identification, Innovation, Solution Development, Implementation, and Motivation to Implement. Each category has four levels: Beginning, Developing, Accomplished, and Exemplary. A 'Team:' field and 'Submission Name:' field are at the top. A note says 'For each criterion, select the box that best describes the team's accomplishments.' A 'Comments:' section at the bottom encourages users to provide positive and constructive feedback.

	Beginning	Developing	Accomplished	Exemplary
Problem Identification	Clear definition of the problem being studied	partially clear; details missing	mostly clear; detailed	clear; very detailed
Innovation	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	existing solution/application	solution/application contains some original element(s)	original solution/application with the potential to add significant value
Solution Development	Use of a systematic process to develop the solution, where alternative solutions are considered and narrowed; the chosen solution is evaluated and improved, feasibility of process solutions assessed	organization AND explanation need	organization OR explanation	systematic and well-explained, including evaluation or verification
Implementation	Consideration of factors for implementation (such as cost, ease of manufacturing, etc.)	idea not feasible	some factors considered; idea may be feasible	factors well considered and feasibility confirmed by professionals in the field
Motivation to Implement (check if demonstrated)	Team demonstrates motivation to implement (clear idea of a next step(s) to make a reality; OR consultation with professionals in the field; OR demonstration of production, such as business, marketing, design, etc.; OR demonstrates strong desire to see the end-user's problem improve with this solution)			

Comments:
Please provide 1-2 comments about this team's submission. Please write one comment describing something you liked about this idea and one thing you think the team can improve. Comments will be provided to the teams, so please make them positive and constructive.

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UNDERSTANDING THE GIA RUBRIC

- Implementation:** The team has to know the cost of the solution, how they would manufacture the solution, the cost of manufacturing the solution, and what their marketing plan is. This is also where patents come into play. Do they have a provisional patent for their solution? Will they consider a full patent?

Motivation to Implement:

The team must be committed to following through with their marketing plan and the continuation of their project for possibly years. Research about marketing, provisional patents, and patents. Discuss how far the team is willing to go with their project.



Global Innovation Award
SINCE 2011

Global Innovation Award Rubric

Team:
Submission Name:
For each criterion, select the box that best describes the team's accomplishments.

Beginning	Developing	Accomplished	Exemplary
Problem Identification <input checked="" type="checkbox"/>	Clear definition of the problem being studied <input type="checkbox"/>	partially clear; details missing <input type="checkbox"/>	mostly clear; detailed <input type="checkbox"/>
Innovation <input checked="" type="checkbox"/>	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 <input type="checkbox"/>	existing solution/application <input type="checkbox"/>	solution/application contains some original element(s) <input type="checkbox"/>
Solution Development <input type="checkbox"/>	Use of a systematic process to develop the solution, where alternative solutions are considered and narrowed; the chosen solution is evaluated and improved, feasibility of process solutions assessed <input type="checkbox"/>	organization OR explanation need <input type="checkbox"/>	original solution/application with the potential to add significant value <input type="checkbox"/>
Implementation <input checked="" type="checkbox"/>	Consideration of factors for implementation (such as cost, ease of manufacturing, etc.) <input type="checkbox"/>	idea not feasible <input type="checkbox"/>	some factors considered; idea may be feasible <input type="checkbox"/>
Motivation to implement <input checked="" type="checkbox"/>	Team demonstrates motivation to implement (clear idea of a next step(s) to make a reality; OR consultation with professionals in field; OR demonstration of strong desire to see the end-user's problem improve with this solution) <input type="checkbox"/>		

Comments:
Please provide 1-2 comments about this team's submission. Please write one comment describing something you liked about this idea and one thing you think the team can improve. Comments will be provided to the teams, so please make them positive and constructive.

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WHAT HAPPENS AS A SEMI-FINALIST?

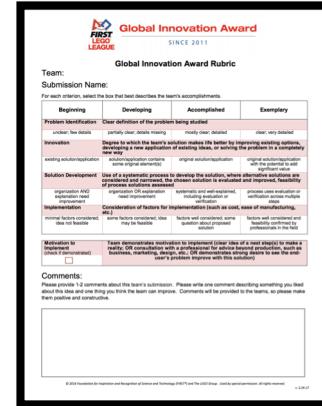
- Invited to attend the Global Innovation Award Event in Washington, D.C.
- The team will need to create a 5 minute presentation for the judges. Judging will last 15 minutes. Judges have 10 minutes to ask questions.
- You also have to fill out an Engineering Change Notice form.



It is recommended that semi-finalist, that the team get a provisional patent on their solution since information about the team's solution will be listed on the Global Innovation Award website.

GIA JUDGING PRESENTATION

- We highly recommend that the team creates a new presentation for the Global Innovation Award
- We recommend writing a script based on the GIA rubric. Make your presentation creative and unique, and make sure the entire team participates.
- If the team has a prototype, they need to bring it! Bring a smaller model if needed.
- If you are a semi-finalist, FIRST also suggests getting a *provisional patent*.



The Global Innovation Award Rubric is a scoring tool for the Global Innovation Award. It includes sections for Problem Identification, Innovation, Solution Development, Implementation, Motivation, and Comments. The rubric uses a 4-point scale from Beginning to Exemplary.

	Beginning	Developing	Accomplished	Exemplary
Problem Identification	Clear definition of the problem being studied	partially clear; details missing	mostly clear; details present	clear; very detailed
Innovation	existing idea/technology	existing idea/technology, with some modification or improvement, or a new application of existing ideas, or solving the problem in a completely different way	existing idea/technology, with significant modification or improvement, or a new application of existing ideas, or solving the problem in a completely different way	original idea/technology, with significant modification or improvement, or a new application of existing ideas, or solving the problem in a completely different way
Solution Development	Use of a systematic process to develop the solution, where alternative solutions are considered and evaluated, and the best solution is selected	use of a systematic process to develop the solution, where alternative solutions are considered and evaluated, and the best solution is selected	use of a systematic process to develop the solution, where alternative solutions are considered and evaluated, and the best solution is selected	original and innovative use of a systematic process to develop the solution, where alternative solutions are considered and evaluated, and the best solution is selected
Implementation	aggressive AND realistic implementation	aggressive OR realistic implementation	aggressive AND realistic implementation	aggressive AND realistic implementation
Motivation	Consideration of factors for implementation such as cost, ease of manufacturing, etc.	some factors considered; idea	some factors considered; idea	factors well considered; some factors well considered; idea
Comments	Please provide 1-2 sentences about the team's submission. Please write one comment describing something you liked about the team and one thing you think the team can improve. Comments will be provided to the metric, as points made are more positive and constructive.			



Image credit: USPTO



TIPS FOR JUDGING PART I

- We recommend having a “captain” who helps direct questions and makes sure everyone answers a question.
- The captain needs to know what everyone feels comfortable talking about. The captain answers questions too.
- Just because there is a captain for a judging session, does not mean that the team has an overall team captain.
- If the judges don’t have questions, you can present additional information to them.



TIPS FOR JUDGING PART 2

- Additional judges may come to the pit area and ask questions about the team's project.
- Everyone from the team should be there during the pit area judging and everyone needs to answer a question.
- It's a good idea to have a display board that summarizes the team's project. It can serve as a useful prompt for the team.
- Show the judges the prototype/model.
- Don't let the judges walk away without knowing everything about the team's project.



ENGINEERING CHANGE NOTICE FORM

- The team lists all the changes they've made to their solution. They can include the changes since they were nominated from their championship event or they can include all the changes since they first developed their solution.
- Include several drawings of the team's solution. Describe the changes and how they improved the solution.
- The Engineering Change Notice form is basically about the team's solution development. Think back to every change that was made which is why it is helpful to track the changes that were made while the team was developing their solution. Explain why they made those changes.



CREDITS

- This lesson was written by Team 3659 NeXT GEN, with some edits by the Seshan Brothers
- You can contact Team 3659 NeXT GEN through their Facebook page: Garrett County FIRST LEGO League Team 3659.
- More lessons available at www.ev3lessons.com and www.flltutorials.com



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