FIRST LEGO LEAGUE CHALLENGE

Innovation Project Worksheets

TEAM NAME:
TEAM NUMBER:

Updated: August 2022

Challenge Text	Name:

Instructions: Read the challenge text carefully. What are the key words? What are the requirements? See next page for tips/solution

START

Explore your energy journey. How can you reimagine a better energy future? It starts here, with your critical thinking and innovation leading the way to tomorrow's energized world with *FIRST*® ENERGIZE℠ presented by Qualcomm.

Identify a specific problem related to improving your energy journey.

An energy journey is where energy comes from and how it is distributed, stored, and used. The Project Sparks (see Sessions 1-4) explore problems related to different energy journeys. Your problem could come from a Project Spark, or it could be a different problem you want to solve.

Research your problem and solution ideas.

Explore energy sources and how energy is stored, distributed, and used in your community. Can you find ways to make part of your energy journey better? Can you improve one step to be more efficient, reliable, affordable, accessible, or sustainable? What solutions already exist? Are there any experts or users you could interview?

Design and create a solution that could improve your energy journey.

Use your research and explorations to either improve an existing solution used in your energy journey or design a new innovative solution. Can you make different energy technology choices? Make a drawing, model, or prototype of your solution.

Share your ideas, collect feedback, and iterate on your solution.

The more you iterate and develop your ideas, the more you will learn. What impact will your solution have on your community?

Communicate your solution with a live presentation at an event.

Prepare a creative and effective presentation that clearly explains your Innovation Project solution and its impact on others. Make sure your whole team is involved in sharing your progress.

Challenge Text	Name:

Instructions: Read the challenge text carefully. What are the key words? What are the requirements?

Specific problem related to the Energy Journey
Create or Improve the energy journey - where energy comes from/how it's distributed, stored, used
Requirements: Check existing solutions, share with experts/users, iterate solution, make a creative/effective presentation, know project impact, create drawing/model/prototype, whole team must present

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Creating a Plan	Name:

Instructions:

1. The next step is to come up with a plan. Start with the rubrics and think about how you will address each of the areas
2. How will you split the work? What deadlines do you want to give yourself?

BEGINNING 1	DEVELOPING 2	ACCOMPLISHED 3	EXCEEDS 4 *How has the team exceeded?*
IDENTIFY - Team had a clearly defined problem that it was well researched.			
☐ Problem not clearly defined	☐ Partially clear definition of the problem	☐ Fully clear definition of the problem	☐
☐ Minimal research	☐ Some research but quality unclear	☐ Wide variety of quality research	☐
DESIGN - Team generated innovative ideas independently before selecting and planning which one to develop.			
☐ Minimal idea generation across the team	☐ Evidence of some ideas from across the team	☐ Evidence of a lot of ideas from across the team	☐
☐ Minimal planning with some team members included	☐ Some effective planning with some team members included	☐ Highly effective planning including all team members	☐
CREATE - Team developed an original idea or built on an existing one with a prototype model/drawing to represent their solution.			
☐ Minimal development of innovative solution	☐ Partial development of innovative solution	☐ A lot of development of innovative solution	☐
☐ No model/drawing of solution	☐ Simple model/drawing which helps to share the solution	☐ Detailed model/drawing which helps to share the solution	☐
ITERATE - Team shared their ideas, collected feedback and included improvements in their solution.			
☐ Minimal sharing of their solution	☐ Some sharing of their solution	☐ A lot of sharing of their solution	☐
☐ Minimal evidence of improvements in their solution	☐ Some evidence of improvements in their solution	☐ A lot of evidence of improvements in their solution	☐
COMMUNICATE - Team shared a creative and effective presentation of their current solution and its impact on their users.			
☐ Presentation minimally engaging	☐ Presentation partially engaging	☐ Presentation very engaging	☐
☐ Solution and its potential impact on others unclear	☐ Solution and its potential impact on others partially clear	☐ Solution and its potential impact on others fully clear	☐

Creating a Plan

Name:

Instructions:

1. Create a plan
2. Below is a high-level example to give you ideas. Customize a plan for your team/project.

IDENTIFY | DESIGN | CREATE | ITERATE | COMMUNICATE

Weeks 1-5

Name(s):
Everyone

Tasks:
Everyone to Research Problems and Existing Solutions

Due Date:

Weeks 5-7

Name(s):
Everyone

Tasks:
Select team problem
Everyone to come up with solutions
Select team solution

Due Date:

Weeks 8-10

Name(s): Student 3, 4, 5

Tasks:
Develop solution
Create model/prototype
Share with a user/expert
Use feedback to improve solution

Due Date:

Weeks 11-12

Name(s): Student 1 and 2

Tasks:
Select skit/method of communication as a team
Write Script
Practice as a team

Due Date:

IDENTIFY

Mission Model Inspiration	Name:

Instructions: Use this template to assist in better understanding the mission models and how they might provide inspiration for a project topic. For each model, complete the table. The goal is to understand what the model represents, what it represents in the real world, if there are weaknesses in the design and how your team might improve the process.

Model	What does it represent	What are problems associated with it?	How could you improve this process?
Example: 	Turbine - energy generated via wind	Need to have wind. Turbines kill animals (article)	Can we create models to accurately predict where and when wind will be present? Article
			
			
			

Problem Identification	Name:

Instructions:

1. Read the challenge and project description carefully
2. What problems do you know about related to the topic?
3. What experts can you talk to? What field trips can you go on?
4. Share your ideas with the rest of your team members

Project Ideas/Problems

Field Trips (Virtual or In Person)

Experts

Research Notes	Name:

Source (Author, Title, Link)

List the facts you discovered from this source

Did you identify any problems related to our team's research topic?

Did you discover any solutions related to the team's research topic?

Interview Notes

Name:

Who are we meeting?

What is his/her expertise?

Questions you want to ask the expert?

Existing Solutions	Name:

Instructions:

1. As a team, find as many similar products/solutions and compare them to your team's solution
2. The goal is to gather enough information to be able to explain how the team's solution is innovative (different or an improvement on something that exists). You should be able to fill in the bottom-most row after you have come up with a solution.

Product	Costs	How can it be implemented	Pros	Cons	Other
Our Solution					

DESIGN/CREATE

Solution Identification	Name:

Instructions:

1. Once your team has picked a problem, think about how to solve this problem
2. You have looked at what solutions exist already. How will your solution be different?
3. How will you test out your idea?
4. Share your ideas with the rest of the team and then work together to pick a solution.

What is the problem we are solving?

Can we solve the problem in a new or better way?

How can we test the idea or demonstrate its impact? What kind of "model or prototype" can we make to show the solution?

Model/Prototype	Name:

Instructions:

1. What kind of model or prototype can you make to share or test the solution your team has designed?
2. Brainstorm below

SHARE

Sharing	Name:

Shared with (expert)

Feedback	Improvements Made

Sharing	Name:

Shared with (user)

Feedback	Improvements Made

COMMUNICATE

Presentation	Name:

Instructions:

1. As you start to think about how you will present your project to judges, begin with the Innovation Project Rubrics
2. In your 5 min presentation, you need to give the judges information requested in the rubric.
3. Think about how you demonstrate to the judges that you have reached the "accomplished" level.

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Presentation	Name:

STEP 1: Pick a Style of Presentation: What type of presentation should we give?

Shark Tank? Talk Show?

STEP 2: Write the script:

Student 1:

Student 2:

Student 3:

Impact	Name:

How can we demonstrate the impact that our solution will have?

Survey results? Tests? Expert

Judging Preparation	**Name:**

Judges will ask you questions to help them fill the rubric. Here are some practice questions. Can you think of others?

Why did you decide on this topic?

Whom did you share your solution with?

Did you consult any experts?

Did you get any feedback and improve your solution?

How did you split the work and plan your season?