FIRST LEGO LEAGUE CHALLENGE

Innovation Project Worksheets

TEAM NAME:
TEAM NUMBER:

Updated: August 2021

Challenge Text	Name:

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

How can you improve the transportation of products? Identify a specific problem within this theme that you want to solve. Then, create or improve a piece of equipment, a technology, or a method of transportation to solve your specific problem.

→ Identify a specific problem related to making the transportation journey of products better.

The Project Sparks (covered in Sessions 1-4) explore some problems related to the challenge. Your Innovation Project could come from a Project Spark, but it doesn't have to. It will help to focus on a particular product and how it is transported.

Think about how access, safety, efficiency, or connections relate to product journeys and see if you can improve any of them for a particular product that you are investigating.

→ Research your problem and your solution ideas.

What solutions already exist? Are there any experts who could help you? Think about the products that are transported in and out of your community. Research some of the journeys the products take to their final destinations.

→ Design and create a new piece of technology, equipment, or method of transportation that could improve the journey of the products.

This will be your Innovation Project solution. Make a model or prototype to show how your solution improves the way the products are transported.

→ 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?

→ Create a creative and effective presentation that communicates your solution at an event.

Prepare a 5-minute presentation that clearly explains your Innovation Project solution and its impact on others. Make sure your whole team is involved.

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How can you improve the transportation of products? Identify a specific problem within this theme that you want to solve. Then, create or improve a piece of equipment, a technology, or a method of transportation to solve your specific problem.

Specific problem related to _____

Create/Improve _____

Requirements: _____

_____

_____

_____

_____

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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?

IDENTIFY | DESIGN | CREATE | ITERATE | COMMUNICATE

BEGINNING 1	DEVELOPING 2	ACCOMPLISHED 3	EXCEEDS 4 *How has the team exceeded?*	
IDENTIFY – Team had a clearly defined problem that was well researched.				
☐ Problem not clearly defined	☐ Partially clear definition of the problem	☐ Clear definition of the problem	☐	
☐ Minimal research	☐ Partial research from more than one source	☐ Clear, detailed research from a variety of sources	☐	
DESIGN – Team generated innovative ideas independently before selecting and planning which one to develop.				
☐ Minimal evidence of an inclusive selection process	☐ Partial evidence of an inclusive selection process	☐ Clear evidence of an inclusive selection process	☐	
☐ Minimal evidence of an effective plan	☐ Partial evidence of an effective plan	☐ Clear evidence of an effective plan	☐	
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	☐ Clear development of innovative solution	☐	
☐ Unclear model/drawing of solution	☐ Simple model/drawing that helps to share the solution	☐ Detailed model/drawing that helps to share the solution	☐	
ITERATE – Team shared their ideas, collected feedback, and included improvements in their solution.				
☐ Minimal sharing of their solution	☐ Shared their solution with user OR professional	☐ Shared their solution with user AND professional	☐	
☐ Minimal evidence of improvements in their solution	☐ Partial evidence of improvements in their solution	☐ Clear 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 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 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: Large Delivery 	Delivery of large materials such as turbines https://www.nsenergybusiness.com/features/wind-turbine-transport-us/	Hard to travel on roads, trucks not big enough to hold cargo. There are not enough trained drivers and trucking companies with experience.	Can larger items be transported in sections and assemble at the site? Can specialized trucks be created? How can we increase incentives for training?

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?
Remember: solution must be a "piece of technology, equipment or method of transportation"

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?