

# INTRODUCTION



# Let's Get Started

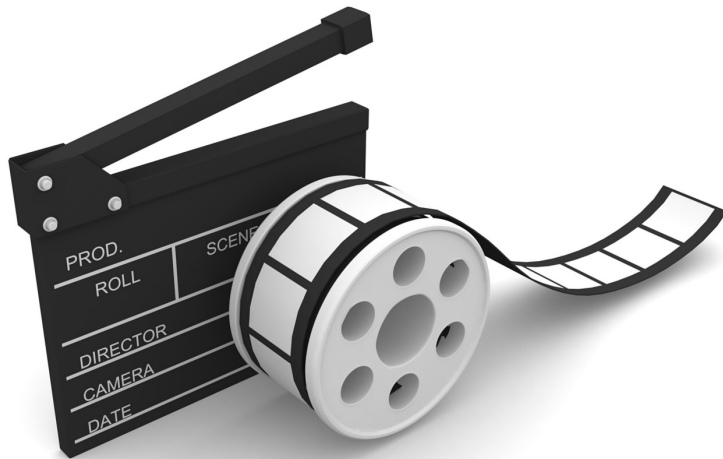


PRESENTED BY Qualcomm

# What is *FIRST*<sup>®</sup> LEGO<sup>®</sup> League?



CHALLENGE



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YouTube Channel](#)  
to watch the  
What is *FIRST* LEGO  
League video

# FIRST® Core Values



We found we were stronger when we worked together.



We embraced our differences and ensured we all felt welcomed.



We applied what we learned to improve our world.



We enjoyed and celebrated what we did!



We explored new skills and ideas.



We used creativity and persistence to solve problems.

# FIRST<sup>®</sup> LEGO<sup>®</sup> League Challenge Overview

## CORE VALUES

Demonstrate *FIRST*<sup>®</sup> Core Values in everything you do. Your team will be evaluated during the Robot Game and the judging session.




### Your team will:

- Apply **teamwork** and **discovery** to explore the challenge.
- **Innovate** with new ideas about your robot and project.
- Show how your team and your solutions will have an **impact** and be **inclusive!**
- Celebrate by having **fun** in everything you do!

# FIRST<sup>®</sup> LEGO<sup>®</sup> League Challenge Overview

## ROBOT DESIGN

Your team will prepare a short presentation on your robot design, programs, and strategy.



**Your team will:**

- **Identify** your mission strategy.
- **Design** your robot and programs and create an effective plan.
- **Create** your robot and coding solution.
- **Iterate**, test, and improve your robot and program.
- **Communicate** your robot design process and everyone's contributions.

# FIRST<sup>®</sup> LEGO<sup>®</sup> League Challenge Overview

## ROBOT GAME

Your team will have three 2.5-minute matches to complete as many missions as possible.



### Your team will:

- Build the mission models and follow the field setup to put the models on the mat.
- Review the missions and rules.
- Design and build a robot.
- Explore building and coding skills while practicing with your robot on the mat.
- Compete at an event!

# FIRST<sup>®</sup> LEGO<sup>®</sup> League Challenge Overview

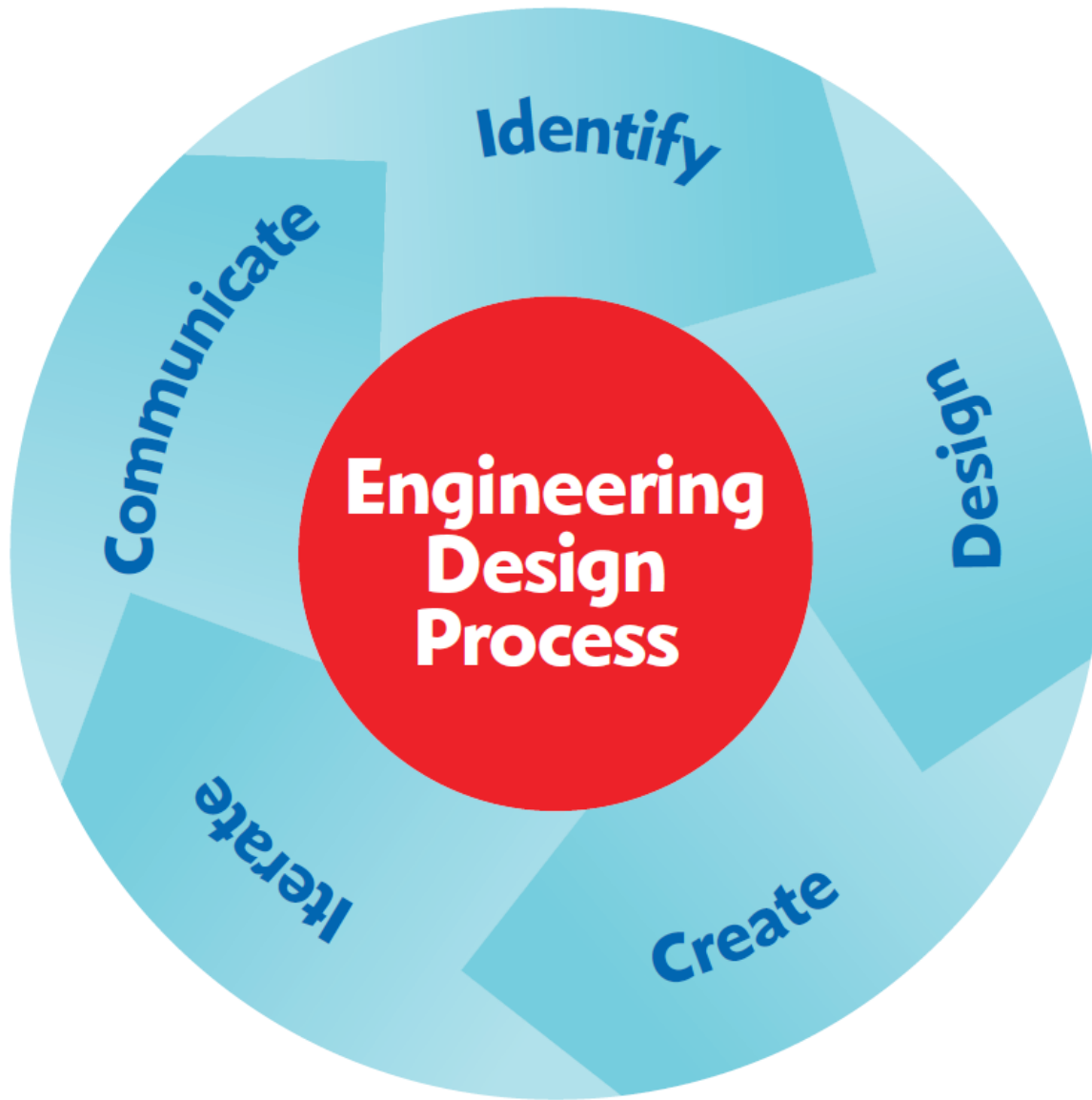
## INNOVATION PROJECT

Your team will prepare a live, engaging presentation to explain the work you have done on your Innovation Project.

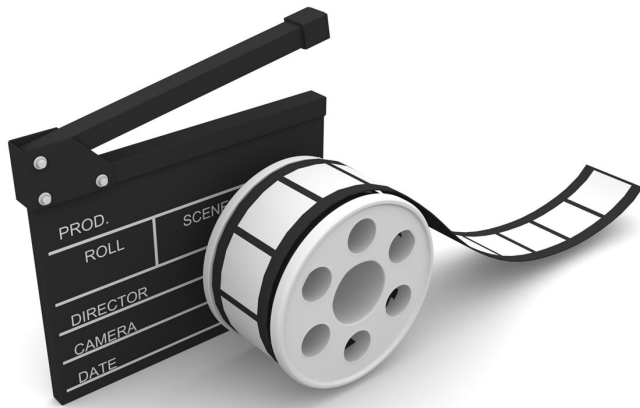


### Your team will:

- **Identify** and research a problem to solve.
- **Design** a new solution or improve an existing one based on your selected idea, brainstorming, and plan.
- **Create** a model, drawing, or prototype.
- **Iterate** on your solution by sharing it with others and collecting feedback.
- **Communicate** your solution's impact.



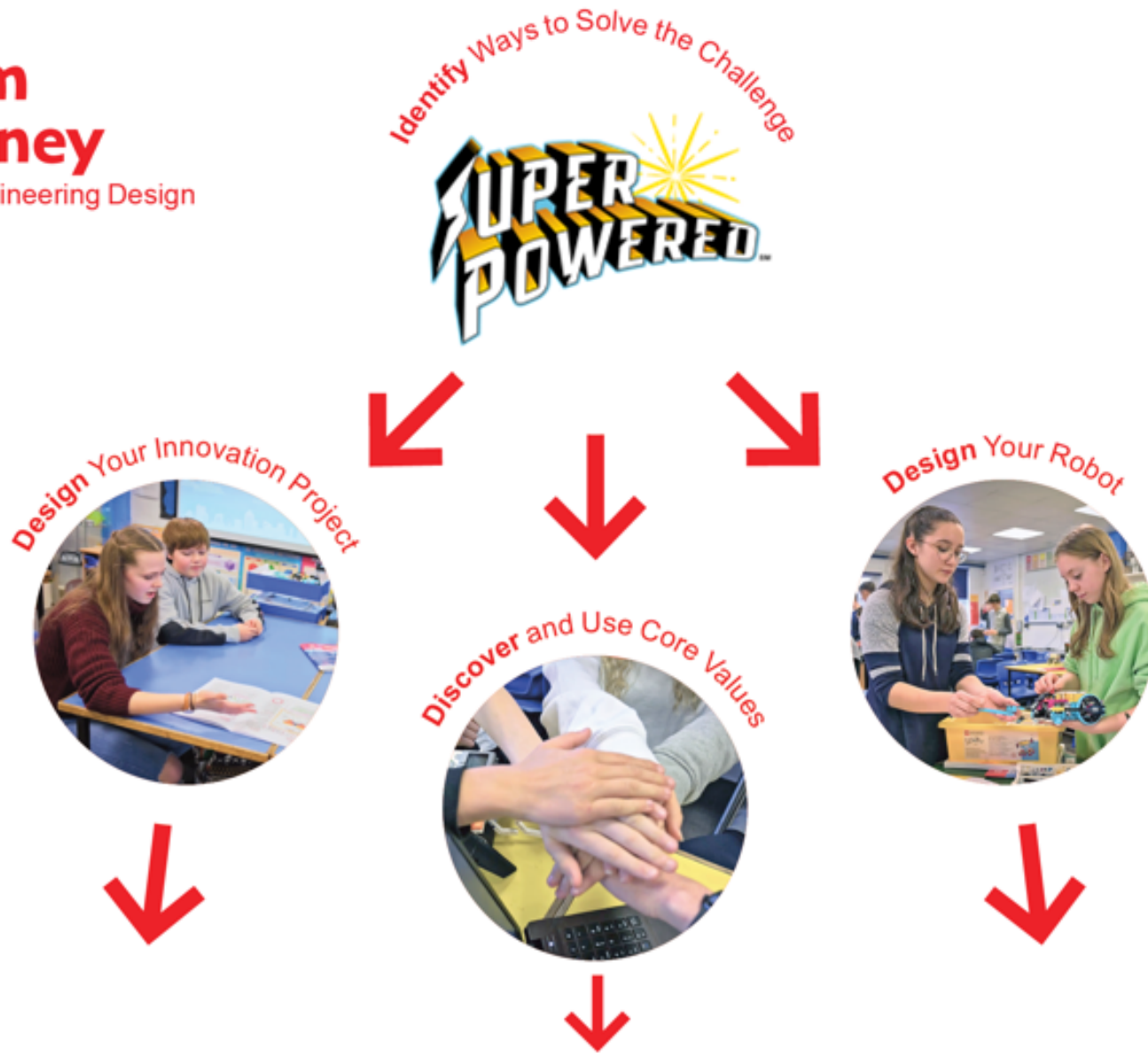




Visit the  
[FIRST® LEGO® League](#)  
[YouTube Channel](#)  
to watch the  
**SUPERPOWERED**  
season launch video

# Team Journey

Using Engineering Design Process



# Team Journey

Using Engineering Design Process

Create your Innovation Project Solution



Iterate on Your Solutions



Create Your Robot Solution



# Team Journey

Using Engineering Design Process



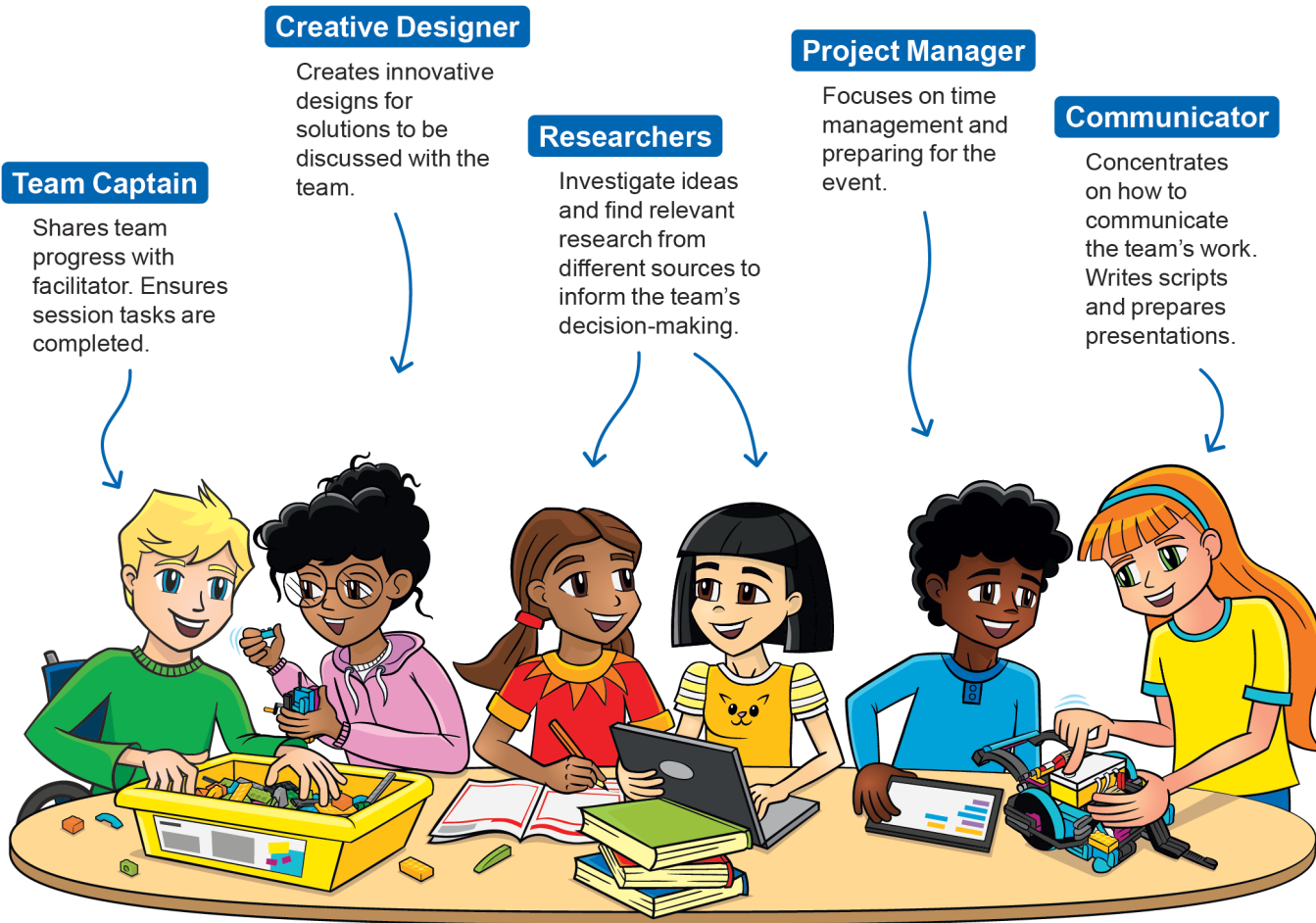
Communicate Your Solutions at Your Event

Compete in Robot Game



# Team Roles

- What roles will you use on your team?



# Team Roles



## Material Manager

Gathers materials needed for session and returns materials.

## Builders

Assemble the LEGO mission models following the building instructions and build your robot.

## Mission Strategist

Analyzes the *Robot Game Rulebook* and leads team strategy discussions on which missions to attempt.

## Coders

Operate the device and creates the programs in the app.

# What Does the Team Need?

## LEGO® Education SPIKE™ Prime Set



Core set



Expansion set

*Note: Other LEGO® Education sets such as MINDSTORMS® and Robot Inventor are also allowed.*

## Electronic Devices

Each team will need two compatible devices such as a laptop, tablet, or computer. Prior to starting Session 1, you need to download the appropriate software (LEGO® Education SPIKE™ Prime or other compatible software) on to the device.





## SUPERPOWERED<sup>SM</sup> Challenge Set

This challenge set comes in a box that contains the mission models, challenge mat, and some miscellaneous pieces. The team should build the models very carefully using the building instructions. The miscellaneous items include 3M<sup>TM</sup> Dual Lock<sup>TM</sup> Reclosable Fasteners, coach pins, and season tiles for the team members.

### Challenge Mat and Table

Set up a table with the challenge mat in your classroom or meeting space. Even if you cannot build the whole table, building just the four walls will be useful. It is also possible to use the mat on the floor.

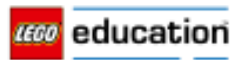




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# ENGINEERING NOTEBOOK

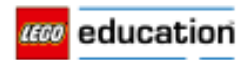
**SUPER  
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# ROBOT GAME RULEBOOK

**SUPER  
POWERED.**



# Career Connections

**Investigate  
Different  
Careers**



## Fields of Study

- Renewable energy
- Energy end use and efficiency
- Energy storage and grid modernization
- Energy policy and economics
- Energy environmental impact
- Fossil energy

# Clean Up





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