

**FIRST
LEGO
LEAGUE**

EXPLORE

TEAM MEETING GUIDE

**SUPER
POWERED**

0

MEMO



Introduction

Welcome to **FIRST**® **LEGO**® League Explore!

In **FIRST**® **LEGO**® League Explore, teams focus on the fundamentals of engineering as they explore real-world problems, learn to design and code, and create unique solutions made with **LEGO**® bricks and powered by **LEGO**® Education **SPIKE**™ Essential or **WeDo 2.0**.

FIRST **LEGO** League Explore is one of three divisions by age group of the **FIRST** **LEGO** League program. This program inspires young people to experiment and grow their confidence, critical thinking, and design skills through hands-on learning. **FIRST** **LEGO** League was created through an alliance between **FIRST**® and **LEGO**® Education.



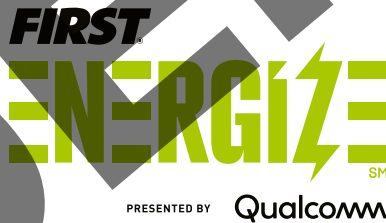
FIRST® **ENERGIZE**™ presented by **Qualcomm** and **SUPERPOWERED**™

Welcome to the **FIRST**® **ENERGIZE**™ season presented by **Qualcomm**. This year's **FIRST** **LEGO** League challenge is called **SUPERPOWERED**™. Children will learn about different types of energy sources, storage, distribution methods, and ways in which energy is consumed.

During each session, they will experience the engineering design process. There is no set order for this process, and they may go

through each part several times in a single session. This means that during a session, children will be exploring the theme and ideas,

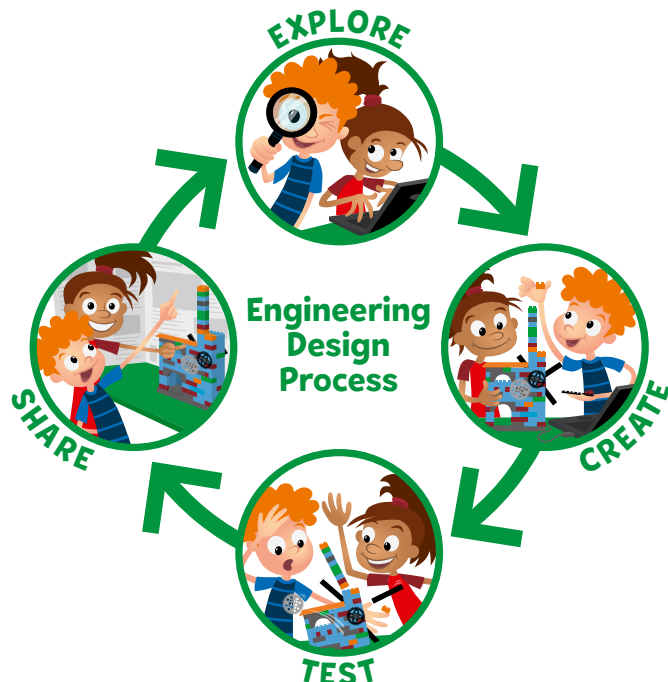
creating solutions, testing them, iterating and changing them, and then sharing what they've learned with others.



Working in Teams

Children work together in teams of up to six members using pieces from the **LEGO** Education **SPIKE**™ Essential or **WeDo 2.0** set, and an Explore set. They will collaborate and communicate to build, learn, and play together.

Children should be encouraged in every session to work with their teammates, listen to each other, take turns, and share ideas and pieces.



Playful Learning in Action

FIRST® Core Values

The FIRST® Core Values are the cornerstones of the program. They are among the fundamental elements of FIRST® LEGO® League.

By embracing the Core Values, children use discovery and exploration of the theme in each session and learn that helping one another is the foundation

of teamwork. It is important that the children have fun. The more playful the sessions are, the more motivated the children will be.



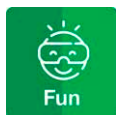
We are stronger when we work together.



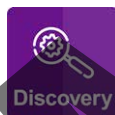
We respect each other and embrace our differences.



We apply what we learn to improve our world.



We enjoy and celebrate what we do!



We explore new skills and ideas.



We use creativity and persistence to solve problems.

Team Roles

Here are sample team roles to use during the sessions. Everyone could experience each role multiple times throughout their FIRST LEGO League Explore experience.

Using roles helps the team function more efficiently and ensures that everyone on the team is engaged. Some roles, like the builder and coder, could be filled by multiple

children during a session when the experience is designed for a pair of children.

Builder

Assembles the LEGO builds following the building instructions.

Reporter

Captures the team's journey by taking pictures or video. This media can be used for the team poster.

LEGO Element Finder

Locates the specific LEGO elements needed for each build step.

Team Captain

Shares team progress with facilitator. Ensures session tasks are completed.

Adult Facilitator

Guides the team through the sessions and their learning to achieve session outcomes.

Material Manager

Gathers materials needed for session and returns materials at end of session.

Coder

Operates the device and creates the programs in the app.



What Does the Team Need?

LEGO® Education Set

LEGO® Education SPIKE™ Essential Set



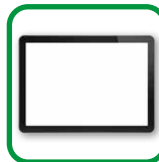
OR



LEGO® Education WeDo 2.0 Set



Electronic Device



Your team will need a compatible Bluetooth-enabled device like a laptop, tablet, or computer.



Scan the QR code to view system requirements and download software.

Team Poster Supplies

Each team will need a large poster board and various art supplies and materials in Sessions [10-11](#).



SUPERPOWERED™ Explore Set

Each team will get one SUPERPOWERED™ Explore Set. Leave the LEGO® elements in their plastic bags until the sessions in which they are needed.

Three printed books contain the building instructions for the Explore model.

	Wind Turbine	Energy Storage Model	Carousel	Motor and Hub Build Pieces	Prototyping Pieces
Bag	1	2	3	4	5
Book	1	2	3	3	-



Tips

- The prototyping pieces and baseplates are used throughout the sessions to build solutions to the design challenges.

Session Layout

Every session starts with an introduction and ends with a share activity. Details for these activities are given in the session pages that follow, along with notes and tips to help you run the session.

	Introduction (5-10 minutes)	Task 1 (15-20 minutes)	Task 2 (15-20 minutes)	Wrap Up (10-15 minutes)
Session 1 Energy Journeys	Let's Discover	Explore Energy Theme	Explore Energy Journeys	Share and Clean-Up
Session 2 Energy Sources	Go Team	Build Wind Turbine	Explore Energy Sources	Share and Clean-Up
Session 3 Energy Connections	Let's Have Fun	Build Energy Storage	Explore Storage and Distribution	Share and Clean-Up
Session 4 Energy Consumption	Let's Innovate	Build Carousel	Explore Energy Consumption	Share and Clean-Up
Session 5 Energy Capture	Be Inclusive	Do Coding Lesson 1	Capture Wind Energy	Share and Clean-Up
Session 6 Motorize Model	Have An Impact	Do Coding Lesson 2	Build Motor and Hub Base	Share and Clean-Up
Session 7 Electric Car	Discovery Build	Do Coding Lesson 3	Make Electric Car	Share and Clean-Up
Sessions 8-9 Team Model	Teamwork and Fun Builds	Design Team Model	Create and Code Team Model	Share and Clean-Up
Sessions 10-11 Team Poster	Innovation and Inclusion Builds	Design Team Poster	Create Team Poster	Share and Clean-Up
Session 12 Prepare for Event	Impact Build	Prepare for Event	Determine What to Share	Share and Clean-Up
Celebrate at a Festival!				

Session 1

Outcomes

- The team will use discovery to explore the SUPERPOWEREDSM theme and explain what is an energy journey.
- The team will identify different energy examples on the mat.

Introduction (10 minutes)

Let's Discover

- Read the definition for **discovery** to the team. (see [page 5](#))
- Talk about what **discovery** is. Have the team provide examples of this Core Value.
- Extension: Draw yourself using **discovery** on the Core Values page in the *Engineering Notebook*.

Guiding Questions

- How does energy get to where we need it?
- From where do you get energy?
- What jobs are linked to energy?

Activity 1 Tasks (15-20 minutes)

- Explore the energy theme.
 Talk about how you get and use energy.
 Think about how you use energy daily.
 Draw a picture of one way you use energy in your home every day.
 Think about what different energy jobs people have.
- Draw a person doing an energy job.

Session 1

How I use energy:

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Person doing an energy job:

Session Tips

- 1 Check out the Multimedia Resources for more resources you can use with your team.
- 2 You will find various sessions reference different energy jobs. These jobs are listed on the Career Connections pages in the *Engineering Notebook*.
- 3 Writing and drawing space is provided throughout the notebook for each child to capture their thoughts and ideas.



How does a **solar panel installer** use teamwork on the job?

What does a **wind energy engineer** do?

How does a **substation technician** help with energy distribution?



See pages 30-31 for more details on jobs!



Session 12

Outcomes

- The team will reflect on their SUPERPOWEREDSM experience.
- The team will create a plan for what to share at their final event.

Introduction (10 minutes)

Impact Build

- Have the team provide examples of how they have had an **impact** throughout the sessions.
- Have the team create a build from the prototyping pieces representing this Core Value or examples of how the team has had an **impact**.



Guiding Questions

- Can you explain the code you created for your motorized part?
- How does your team model relate to the SUPERPOWERED theme?
- Can you share about your team's journey?

Session Tips



- 1 Go over the reviewing sheet and reviewing questions with your team.
- 2 Ask the team the reviewing questions and practice the responses they would give the reviewers.
- 3 If you are not attending an official festival, you can still run your own festival or have an informal sharing event.

Extension

- Present your presentation to another team, class, or group of adults.
- Ask for feedback to make improvements before your final event.

Tasks (40 minutes)

- 1 Gather your completed team model and team poster.
- 2 Talk about what your team would like to share at your event!
- 3 Complete the next page to prepare for your event.
 - Look over the reviewing sheet with your coach.
 - Practice your presentation.
 - Communicate what you have learned with others.

Session 12

You will be taking part in a FIRST® LEGO® League Explore Festival. Invite your family and friends to your special event!

Share what you have learned and how your team had fun!



Sample Festival Setup

- 3
 - I'm going to share what we explored.
 - I will describe the team model.
 - I will explain the program and how it motorizes the team model.
 - We will show how the poster captures our team journey!
 - I can reflect on how our team used Core Values.



Prepare for Event



Share (10 minutes)

Have the team:

- Practice their team poster presentation.
- Practice their team model presentation.

Prepare for Event

Consider what you will share at the event.

- Can you describe your team model?
- How did you use your mat to create your model?
- Explain the problems you solved about your community's energy journey.

4

Let's celebrate how well we all worked together! It is much more fun when everyone on the team is included.

5

- What did you learn about the challenge?
- How did you use Core Values?

- What part of your team model is motorized?
- How did you code your motorized part?

- What did you include in your team poster?
- How does the poster show your team journey?

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SUPERPOWEREDSM 27

Guiding Questions

- How will you present your poster and model at the event?
- How do we show Core Values?
- What does your team need for the event?

Session Tips

- 4 Every question on this page doesn't need to be answered. They are just to help your team feel ready for the event.
- 5 You could have the team practice their presentation by presenting to others before their event.
- 6 Your team could register for an Explore festival or you can run your own festival.

Cleanup

- Make sure the team model and team poster are stored and ready to be transported to the event.
- Check that you have the device, charging cord, and fully charged battery for the event.