

**FIRST[®]
LEGO[®]
LEAGUE JR.**

PROGRAM ADMINISTRATOR GUIDE



AQUA
ADVENTURESM

**FIRST[®]
LEGO[®]
LEAGUE JR.**

**PROGRAM
ADMINISTRATOR
GUIDE**





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The mission of *FIRST* is to inspire young people to be science and technology leaders by engaging them in exciting Mentor-based robotics programs that build STEM skills, inspire innovation, and foster well-rounded life capabilities including self-confidence, communication, and leadership. Learn more about *FIRST* Programs: firstinspires.org.

LEGO® Education offers playful learning experiences and teaching solutions based on the LEGO system of bricks, curriculum-relevant material, and physical and digital resources to preschool, elementary, middle school and after school. In partnership with educators for more than 35 years, we support teaching in an inspiring, engaging and effective way. Our educational solutions enable every student to succeed by encouraging them to become active, collaborative learners, build skills for future challenges, and establish a positive mindset toward learning. Learn more at LEGOeducation.com. Follow us on Twitter [@LEGO_Education](https://twitter.com/LEGO_Education).



FIRST LEGO League Jr. gratefully acknowledges its collaboration with Sea Research Foundation, Inc., a 501(c)(3) nonprofit organization. The mission of Sea Research Foundation is to inspire people to care for and protect our ocean planet through conservation, education, and research. Sea Research Foundation operates Mystic Aquarium — one of America's premier nonprofit marine science research and education institutions, and an accredited member of the Association of Zoos & Aquariums and the Alliance of Marine Mammal Parks and Aquariums.



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Introduction to **FIRST®** and **FIRST® LEGO®** League Jr.

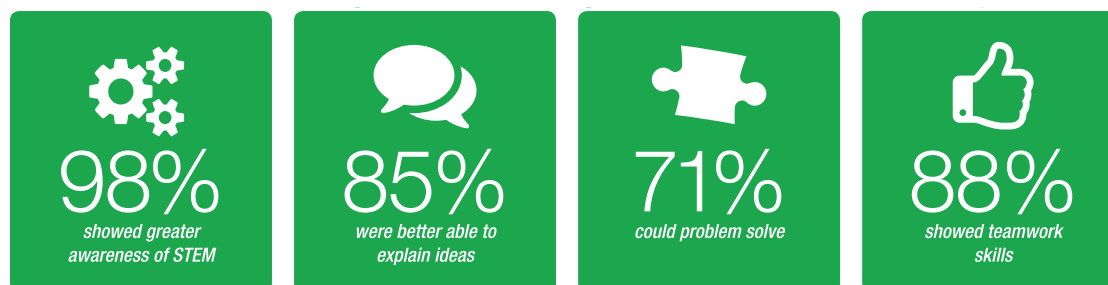
What is **FIRST®**?

FIRST® (For Inspiration and Recognition of Science and Technology) was founded in 1989 to inspire young people's interest and participation in science and technology. Based in Manchester, NH, the 501(c)(3) not-for-profit public charity designs accessible, innovative programs that motivate young people to pursue education and career opportunities in science, technology, engineering, and math (STEM), while building self-confidence, knowledge, and life skills. **FIRST** learning never stops building upon itself, starting at age 6 and continuing through middle and high-school levels up to age 18. Young people can join the international, K–12, after-school, STEM programs at any level.



What is **FIRST® LEGO®** League Jr.?

FIRST® LEGO® League Jr. is a non-competitive, hands-on STEM program geared toward children ages 6 to 10. Each year, **FIRST LEGO** League Jr. presents a new and exciting Challenge to ignite the creativity of these children. Each team of up to six children begins the exploration of this real-world theme with an exclusive LEGO® Education Inspire Model. Using this model as a starting point, they design a new model of their own with LEGO® elements. As they work, they learn basic engineering and programming skills with LEGO Education WeDo and apply those concepts to make their model move. Teams also document their work in an *Engineering Notebook* and share their journey through a team *Show Me* poster. Throughout their experience, teams operate under the **FIRST LEGO** League Jr. Core Values, celebrating discovery, teamwork, and *Gracious Professionalism®*. See below for some of the proven, verifiable impacts for **FIRST LEGO** League Jr. participants:



Source: **FIRST® LEGO®** League Jr. Evaluation Study (2014), The Research Group, Lawrence Hall of Science, University of California, Berkeley

What is the Challenge for this season?

This season's **FIRST LEGO** League Jr. Challenge is called **AQUA ADVENTURESM**. Teams will begin by learning about water and its importance. Then they will choose one way that they use water at home or in their community. They will learn as much as they can about the water's journey for that use and will design a solution to improve a part of the journey. All teams will show what they learn through a Team Model and *Show Me* poster. See p. 8 for a description of the **AQUA ADVENTURE** Challenge that you can share with **FIRST LEGO** League Jr. Coaches and team members.



FIRST® LEGO® League Jr. Season Pass

What is a Season Pass?

Why stop at one FIRST® LEGO® League Jr. team when the impact is so outstanding? Reach a greater number of children in a manageable way with the Season Pass, which is available in small (up to 12 teams simultaneously) and large (up to 24 teams simultaneously) options. This offering provides the basic tools* you need to administer a successful FIRST LEGO League Jr. program experience — from the first team meeting to participation in an Expo — for multiple implementation cycles during the season. (See p. 6 for suggestions on how to set a schedule for your program.)



* A **Challenge Season Kit** is included with Season Pass registration. Each Challenge Season Kit includes Inspire Sets (Challenge-specific LEGO® Education sets containing over 700 LEGO elements that teams can use to build their Team Models), *Engineering Notebooks*, *Team Meeting Guides*, and a *Program Administrator Guide*. Additional materials — including a LEGO Education WeDo 2.0 set and a compatible hardware device — must be purchased separately for each team. See pp. 11–13 for more information on required and optional materials.



What is my role as the Program Administrator?

As a FIRST LEGO League Jr. Program Administrator, your role is to help make the season run as smoothly as possible for all FIRST LEGO League Jr. teams that participate through your organization's Season Pass. The *Program Administrator Guide* is designed to help you do this. In addition to general information about FIRST LEGO League Jr. and this season's Challenge topic, the guide includes information on how to best support Coaches and team members throughout their involvement with the program. The guide also includes information on how to host your own FIRST LEGO League Jr. Expo at the end of the program. Because your Season Pass comes with the rights to run the program multiple times during the season, you can host more than one Expo if you desire. See pp. 17–28 for detailed information on how to plan and run an Expo.



Getting Started

Now that I have a Season Pass, what should I do to get started?

Running a great *FIRST*® LEGO® League Jr. program requires teamwork, so begin by identifying staff at your organization who might be able to support you in your role as Program Administrator. For example, is there anyone who could help you gather and purchase materials, recruit Coaches and team members, organize team meeting spaces, plan the Expo(s), etc.?

Next, work with any assisting staff members to create a customized implementation plan and budget. The implementation plan should include information about how many times you will run the program during the season, where and when teams will meet, and where and when you will host your Expo(s). The budget should account for staff time, materials for teams, and Expo materials.

How should I set a schedule for the program?

The *FIRST* LEGO League Jr. AQUA ADVENTURESM program for Season Pass holders involves multiple teams meeting regularly over 6 to 12 weeks to complete their research, Team Models, and *Show Me* posters; at the end of the program, all teams participate in an Expo. In general, each of the 12 sessions outlined in the *AQUA ADVENTURE Team Meeting Guide* can be completed in one team meeting lasting about an hour; however, at least two hours are needed to build and program the Team Model (Sessions 8–9) and to create the *Show Me* poster (Sessions 10–11). See p. 10 for summaries of all 12 sessions, and see the *Team Meeting Guide* for session-specific notes.

Select the best day(s) and time(s) to run the program based on the schedules of your organization and potential Coaches and team members. *FIRST* LEGO League Jr. recommends that team meetings be held one or two hours per week for 6 to 12 weeks. It is easier to recruit participants if the meetings do not conflict with other activities at your organization, typical school and work schedules, and/or any religious activities common to your target group. Most importantly, be sure to share a calendar of team meetings with Coaches, team members, and their families during recruitment, or as soon as possible afterwards, to ensure high attendance. Also, inform participants of the date of their Expo as soon as it is planned.

If you are planning to run the program more than one time during the *FIRST* LEGO League Jr. season, share the complete season schedule with Coaches and team members during the recruitment phase to help them select the program slot(s) that will work best for them.

How should I recruit Coaches?

The best Coaches are dedicated, patient, caring, positive role models who are willing to devote their time. They are good listeners who enjoy having fun and spending time with children ages 6 to 10.

Often programs have the greatest success with recruitment when they utilize multiple outreach strategies simultaneously — for instance, word of mouth, flyers, social media, mass emails, presentations, and personal referrals.

In your outreach materials, you should communicate the benefits, structure, support system, and time commitment of the *FIRST* LEGO League Jr. program, including any tentative meeting schedules. Explain that Coaches do not need a science background in order to successfully lead a *FIRST* LEGO League Jr. team; parents of team members, teachers, after-school staff, and college students can all serve as Coaches. Emphasize the strong support system that Coaches will have, including yourself, detailed team meeting materials, online support from *FIRST* LEGO League Jr.,

etc. Additionally, tell recruits that, as part of their participation, they can teach team members about their careers and career pathways, share life experiences, encourage team members to become excited about STEM education, and help recruit other new Coaches. Realistically portray the responsibility and challenge of being a Coach, while highlighting the rewards.

How should I select team members for the program?

When recruiting team members, communicate that *FIRST* LEGO League Jr. is designed for children ages 6 to 10 and that no special skills are needed in order to participate. The most important thing to emphasize when reaching out to potential participants is the time commitment. Families must be willing to invest at least one hour per week throughout the program. This is why it is best to have a calendar of meetings available at the time of recruitment. For the program to run optimally, Coaches and team members should attend every team meeting so that they develop team cohesiveness and build momentum in the program. Therefore, it is critical to stress to potential Coaches and team members both the frequency and duration of the program at your site.

How should I train participants?

Prior to beginning the *FIRST* LEGO League Jr. program, communicate with participants so they are excited and ready for the experience. Provide them with information about the program goals, as well as finalized meeting locations, dates, and times.

Arrange an in-person training for all Coaches before the first team meeting. Providing Coaches with training can help them feel more confident about implementing the program. During the training, cover background content about *FIRST*®, *FIRST* LEGO League Jr., and the AQUA ADVENTURE season. Provide Coaches with printed copies of the *AQUA ADVENTURE Team Meeting Guide* and *AQUA ADVENTURE Engineering Notebook* so they can better prepare themselves to conduct the sessions with their team members. Allow time during the training to give an overview of each session, and encourage Coaches to ask questions. If at all possible, also include time for Coaches to complete one or more of the activities involving LEGO® Education WeDo 2.0 to help them get comfortable with the hardware and software.

Want a *FIRST* Certified Trainer to teach your Coaches the basics of *FIRST* LEGO League Jr.? Contact Vinnie Rodino, *FIRST* Director of School Engagement, at VRodino@FIRSTInspires.org, to learn more about available Professional Development offerings.

Consider hosting an open-house event for participating children and their families before the start of the program to share a preview of the season's Challenge and allow them to meet the Coaches. Reiterate the commitment they are making, as well as the unique rewards. Also, let families know about the Expo that will take place at the end of the program, and remind them that they are invited (and highly encouraged!) to attend. Whether or not you are able to host an open-house event, be sure to provide families with an "Introduction to *FIRST* LEGO League Jr." letter. A template for such a letter is available on the "AQUA ADVENTURE Challenge and Resources" page of the *FIRST* LEGO League Jr. Resource Library; see p. 9 for directions on how to access this page.



AQUA ADVENTURESM Challenge



In the *FIRST*[®] LEGO[®] League Jr. AQUA ADVENTURESM Challenge, you will:

- **Explore** how you use water at home or in your community, the water's journey, and how to improve a part of this journey.
- **Create and test** a Team Model to show your ideas.
- **Share** what you learn through your Team Model and a *Show Me* poster.

Hi, I'm Hydro the water drop! Find out how water like me gets to you. Can you help make my journey better?

**Join me on
an AQUA
ADVENTURE!**



Explore!

You and your community use water for many things every day. Where does your water come from? How does it get to you? Is the water cleaned or treated before you can use it? Why is it important to use water wisely? **Pick one way that you use water at home or in your community. Learn as much as you can about the water's journey. Then design a solution to improve a part of this journey.**

Create and Test!

Design, build, program, test, and improve a Team Model to show your chosen water use, the water's journey, and your idea for how to improve a part of the journey. Include the AQUA ADVENTURE Inspire Model (a LEGO[®] water pump) in your design. Also be sure to use LEGO[®] Education WeDo 2.0 or WeDo to build and program at least one motorized part of your Team Model.

Share!

Make a *Show Me* poster, and use it and your Team Model to share what you have learned with others. Participate in an Expo, invite your family and friends to a special team meeting, or share your *Engineering Notebook* to show what you know about water.

No matter what you do, have fun!



AQUA ADVENTURESM Resources

What printed resources are available for the AQUA ADVENTURESM season?

In addition to this *AQUA ADVENTURESM Program Administrator Guide*, which is designed for Program Administrators managing multiple teams, there are also printed resources available for Coaches and team members. The *AQUA ADVENTURE Team Meeting Guide* guides Coaches through the entire AQUA ADVENTURE season with detailed team meeting suggestions for 12 sessions. The sessions in the *Team Meeting Guide* correspond directly to the sessions in the *AQUA ADVENTURE Engineering Notebook*, which should be provided to all *FIRST*® LEGO® League Jr. team members.

Team members will follow the prompts in the *Engineering Notebook* to write and draw about their ideas and discoveries as they progress through the 12 sessions of the AQUA ADVENTURE season.



What online resources are available?

The *FIRST* LEGO League Jr. Resource Library has many resources to help you be as successful as possible. To access these resources, visit the *FIRST*® website at firstinspires.org, and select “*FIRST* LEGO League Jr.” Then select “Resource Library” from the “Quick Links” menu. The “AQUA ADVENTURE Challenge and Resources” page within the Resource Library includes links to the AQUA ADVENTURE Challenge, Multimedia Connections, LEGO® Education resources, FAQs, and more.

Follow *FIRST* on Pinterest at pinterest.com/firstinspires for more ideas, tips, and resources. Visit the *FIRST* LEGO League Jr. YouTube Channel at youtube.com/user/JrFLLGlobal for “Getting Started Tutorials” and other helpful videos.

What if I need more help?

If you or your Coaches still have questions after reviewing the resources mentioned above, feel free to email firstlegoleaguejr@firstinspires.org for support. You can also contact *FIRST* Team Support at 1-800-871-8326, Monday–Friday, 8:30am–5:00pm EST/EDT, or visit firstinspires.org/about/contact-us to submit an inquiry online. When you contact Team Support, please be prepared with your organization name and team number as well as the name and email address of someone listed on your *FIRST* account.

If you have questions related to LEGO Education WeDo 2.0 — including how to order, contact LEGO Education United States at 1-866-349-5346, Monday–Friday, 8:00am–10:00pm EST/EDT, or visit LEGO.com/service to submit an inquiry online. For additional WeDo 2.0 support, including “Getting Started” guides, FAQs, troubleshooting tips, and more, visit legoeducation.com/wedo2quickstart.



AQUA ADVENTURESM Session Summaries

Session 1: Name That Team!

Team members will learn about the *FIRST*® LEGO® League Jr. AQUA ADVENTURESM Challenge and Core Values, explore what it means to be on a team, and choose a team name.

Session 2: The PlayPump Story

Team members will learn about the successes and challenges of using pumps powered by merry-go-rounds to access water in South Africa. Then they will build and use the AQUA ADVENTURE Inspire Model (a LEGO® water pump) and other LEGO models to show what they have learned.

Session 3: Choose Your Water Use

Team members will select one way that they use water at home or in their community to explore for the AQUA ADVENTURE Challenge. They will also do some introductory building and programming activities using LEGO® Education WeDo 2.0 or WeDo.

Session 4: Follow Your Water's Journey

Team members will explore how water gets from sources to people. They will begin to research how water gets to their own home and/or community for the use they selected in Session 3. They will also do some introductory building and programming activities that utilize LEGO Education WeDo 2.0 or WeDo sensors.

Session 5: Be an Engineer

Team members will learn about the engineering design process and explore how it can be used to find solutions to problems.

Session 6: Improve Your Water's Journey

Team members will design a solution to improve a part of their water's journey.

Session 7: Plan Your Team Model

Team members will plan their Team Model for the AQUA ADVENTURE Challenge.

Sessions 8 and 9: Build Your Team Model

Team members will build and program their Team Model for the AQUA ADVENTURE Challenge.

Sessions 10 and 11: Make Your *Show Me* Poster

Team members will create a *Show Me* poster about their experience with the AQUA ADVENTURE Challenge.

Session 12: Prepare to Share

Team members will prepare a presentation about their experience with the AQUA ADVENTURE Challenge.



AQUA ADVENTURESM Materials

What materials do I need for each team?

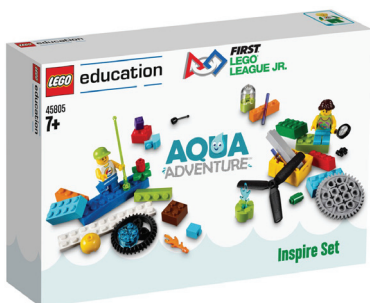
At the start of the AQUA ADVENTURESM season, gather or purchase the necessary materials for all teams for the entire season. See p. 13 for a cumulative materials list for all 12 sessions outlined in the *AQUA ADVENTURE Team Meeting Guide*. The materials are listed in the quantities needed for a single team, so adjust accordingly based on how many teams will be involved with your organization. Below are notes about some of the specialized materials:

AQUA ADVENTURESM Team Meeting Guides and Engineering Notebooks

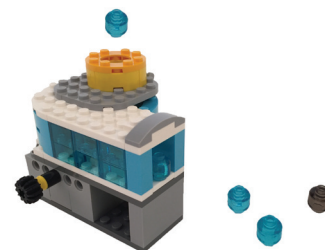
You will receive a certain number of *AQUA ADVENTURE Team Meeting Guides* and *Engineering Notebooks* based on the size of your Season Pass. You will need one *Team Meeting Guide* and one *Engineering Notebook* per Coach, and one *Engineering Notebook* per team member. Note that although the *Engineering Notebooks* are consumable, the *Team Meeting Guides* should be reused if you plan to run the program more than once during the season.



AQUA ADVENTURE Inspire Set and Inspire Model



You will receive a certain number of AQUA ADVENTURE Inspire Sets based on the size of your Season Pass. Each Inspire Set box contains more than 700 LEGO® elements, including those needed to build the AQUA ADVENTURE Inspire Model (a LEGO water pump) as part of Session 2; all teams must later include the Inspire Model as part of their Team Model. The link to the Build Instructions for the Inspire Model can be found on the back of the



Inspire Set box as well as on the “AQUA ADVENTURE Challenge and Resources” page of the *FIRST® LEGO® League Jr. Resource Library*; see p. 9 for directions on how to access this page. The LEGO elements needed to build the Inspire Model are packaged together within the Inspire Set in two bags labeled “1.” These bags should be set aside until they are needed in Session 2.

Note that several of the sessions include mini-build activities, in which team members are asked to use LEGO elements to build small models that express their thoughts and ideas. Teams should use their Inspire Sets for these mini-builds. Coaches should provide each team member with an assortment of LEGO elements from the Inspire Set, as well as one of the six square base plates from the set to use as the base for their mini-build model. Encourage Coaches to watch the “LEGO Mini-Build” video, which is accessible from the “AQUA ADVENTURE Challenge and Resources” page, for more information on how to guide their teams through the mini-build process.

LEGO® Education WeDo

All teams must program and motorize at least one part of their AQUAADVENTURE Team Model using LEGO® Education WeDo. To facilitate this, you must provide each of your teams with a **LEGO Education WeDo 2.0 Core Set 45300** and a **compatible hardware device** (for example, a tablet, laptop, or desktop computer); prior to the first team meeting, you must also download the WeDo 2.0 software or app onto each device. Note that teams meeting at the same time may not share hardware devices. To view system requirements and download the WeDo 2.0 software or app, visit education.lego.com/downloads. For additional WeDo 2.0 support, including “Getting Started” guides, FAQs, troubleshooting tips, and more, visit legoeducation.com/wedo2quickstart.



What materials are available for purchase with my Season Pass?

Please see the *FIRST* LEGO League Jr. product offerings available via the “AQUAADVENTURE Challenge and Resources” page of the *FIRST* LEGO League Jr. Resource Library; see p. 9 for directions on how to access this page.

How should I organize and store the materials for each team?

After you have gathered or purchased all of the materials that teams will need, use plastic storage tubs or other containers to create a kit for each team to use during team meetings. Color code or number the kits to help you match each kit to a specific team for use throughout the program. Consider storing the *Team Meeting Guides*, *Engineering Notebooks*, and WeDo sets inside the kit for each team. This will ensure that the materials do not get lost between team meetings. Also be sure to check the battery levels of your hardware devices after every team meeting, and charge them as necessary between sessions.

Once you have all the kits assembled, you will need a place to store them. Note that, beginning in Session 8, each team will also need an appropriately sized platform or container (such as a large plastic container, a cardboard box, a wooden board, etc.) to protect and transport the Team Model. Additionally, you will need a place to store all teams’ models. Note that the rules require that each Team Model’s footprint be no bigger than 30 in. x 15 in. (76 cm x 38 cm); there is no height limit. However, decide if you need to impose any additional size restrictions based on your capacity to store all teams’ models and transport them to team meetings and events. Let all the teams at your site know about any such additional restrictions before they begin planning their models. Finally, beginning with Session 10, each team will need a poster board to create a *Show Me* poster. You will also need to identify a place to store the posters until your Expo.



AQUA ADVENTURESM Cumulative Materials List

For the Program Administrator

- AQUA ADVENTURESM Program Administrator Guide
- AQUA ADVENTURE Team Meeting Guide
- AQUA ADVENTURE Engineering Notebook

For each Coach

- AQUA ADVENTURE Team Meeting Guide
- AQUA ADVENTURE Engineering Notebook

For each team member

- AQUA ADVENTURE Engineering Notebook

For each team

- AQUA ADVENTURE Inspire Set (includes the AQUA ADVENTURE Inspire Model)
- colored pencils, crayons, or markers
- balled-up piece of paper, beanbag, or other small, soft object
- AQUA ADVENTURE Inspire Model building instructions*
- LEGO® Education WeDo 2.0 Set, software or app, and compatible hardware device
- container for storing the Team Model
- 22-in. x 28-in. (flat) or 36-in. x 48-in. (tri-fold) poster board
- copy paper
- construction paper
- scissors
- glue sticks or tape
- photographs of team members working on the AQUA ADVENTURE Challenge
- *optional*: additional assorted LEGO® elements
- *optional*: additional WeDo 2.0 motor and WeDo 2.0 Smarthub
- *optional*: printouts from WeDo 2.0 documentation tool
- *optional*: index cards and pencils

* You can find a link to the AQUA ADVENTURE Inspire Model building instructions on the back of the Inspire Set box as well as on the “AQUA ADVENTURE Challenge and Resources” page of the *FIRST*® LEGO® League Jr. Resource Library; see p. 9 for details on how to access this page. The LEGO elements needed to build the Inspire Model are packaged together within the Inspire Set in two bags labeled “1.” These bags should be set aside until they are needed in Session 2.



General Implementation Tips for Sessions

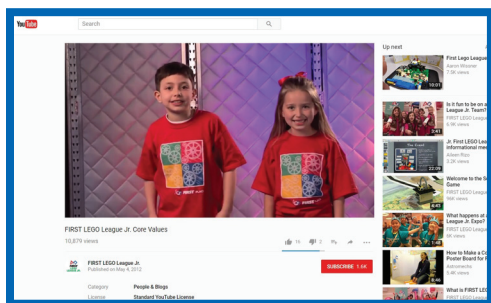
How should I set up the room(s) where teams meet?

All 12 sessions of the AQUA ADVENTURESM Challenge are best done in a large room with tables and chairs. Ideally, each team of two to six children and two Coaches should be able to sit around their own table. Team members should have enough personal space to work at their table without bumping into others.

Some of the **Warm Up** activities can be done while everyone is seated, and some require space for getting up and/or moving around. Review the **Warm Up** and **Do** instructions for each session ahead of time to determine which space(s) might be most suitable for that day's activities.

What kind of technology is needed during sessions?

Each session has one or more suggested “Multimedia Connections.” These are curated websites, videos, and other online tools related to the content of the session. Consider sharing some or all of the resources with teams during team meetings, and have Coaches encourage team members to explore them individually during sessions (or between sessions, with permission and supervision from a parent or guardian). You can find descriptions of and links to these resources on the “AQUA ADVENTURE Challenge and Resources” page of the *FIRST*[®] LEGO[®] League Jr. Resource Library. See p. 9 for directions on how to access this page.



In order to best showcase the “Multimedia Connections” available for each session, try to ensure that you have at least one internet-connected device in the room where teams are meeting for each session. This could take the form of an internet-connected computer along with a projector and screen, an interactive whiteboard, or whatever hardware devices teams are using with their WeDo sets. If your site has a computer lab, consider also allowing teams to access the lab in order to explore the “Multimedia Connections” and conduct research on the AQUA ADVENTURE Challenge topics. Also note that if your organization has an internet filter, be sure to coordinate with your technology contact before beginning the program about any special steps required to access the “Multimedia Connections” weblinks.

What should I do before each session?

Before the start of a session, review all sections of the *AQUA ADVENTURE Team Meeting Guide* for that session to understand what teams will be doing that day. Pay special attention to the **Set Up** section to determine whether you need to prepare anything ahead of time. Gather all necessary materials, and place them on the table for each team before the session begins. If you are planning to share any “Multimedia Connections” with the whole group or small groups during the session, test your technology setup and the URLs for any weblinks in advance.

Note that before the start of the initial session you will need to spend some additional time setting up each team's WeDo 2.0 set and downloading the software or app onto the compatible hardware devices. For a wide variety of online WeDo 2.0 support materials, visit legoeducation.com/wedo2quickstart.

What should I do during each session?

At the start of each session, help team members and Coaches settle into their groups and identify the materials they will need. Let them know whether you will be sharing any "Multimedia Connections" with the whole group or small groups that day. Be available to encourage teams, answer questions, assist with materials, and support Coaches with group management, if necessary.

Make time during each session to take some pictures of what Coaches and team members are doing. When teams make their *Show Me* posters in Sessions 10–11, they will need to include photos, and it is easiest to take and print them as you go rather than waiting until the end of the program. You will need at least one individual photo of each team member and Coach, a team photo of each team, a photo of each team's Team Model, and several photos of teams working throughout the program.

Help teams manage their time by letting them know when they should be moving from the **Warm Up** section to the **Read** section to the **Do** section. Also, let them know when they have 10 minutes left so they can complete their task and save the last 5 minutes for discussion and clean up.

During the last 5 minutes, have teams discuss what they accomplished and what they will be doing during the next session. Instruct teams on how to put away their materials, and demonstrate if necessary. Have team members look on the floor for any LEGO® elements. Emphasize that performing a thorough cleanup will help keep their kits neat and will make it easier for them to find things during future sessions. Having participants perform these tasks will also make it easier for you to clean the room after the session is over.

What should I do after each session?

Gather all supplies and store them somewhere onsite until the next week's session. If teams are working on their Team Models, store the models where they will not be disturbed, as some may be fragile.

Make it a habit to check in with Coaches and team members to see how they are doing and if they have any questions, comments, or concerns about the program. If Coaches' schedules allow, invite them to stay for a few minutes after team members leave to share any insights about their teams and whether they need additional support.

How should I engage parents during sessions?

Parents of children participating in the *FIRST* LEGO League Jr. program can play a wide variety of roles. They can serve as Coaches, assistant Coaches, or can sign up to be substitute Coaches in the event that one or more regular Coaches are not able to attend a session. They can also serve as subject matter experts or can help arrange guest speakers for teams.

Also consider involving parents with planning and executing your Expo. All family members should be encouraged to attend, but some might also be willing to help set up, serve as

“Reviewers,” lead activities for team members and their siblings, and/or help with cleanup. See p. 18 for more information on Expo-related volunteer opportunities.

Involving parents in team meetings and your Expo is a great way for them to see the benefits of the *FIRST* LEGO League Jr. program for their children first-hand. Having more helping hands is also a benefit for all involved.

No matter how you plan to engage parents, you are encouraged to send them a letter at the start of the season to give them an overview of the program and to invite them to your Expo. An “Introduction to *FIRST* LEGO League Jr.” parent letter template can be found on the “AQUA ADVENTURE Challenge and Resources” page of the *FIRST* LEGO League Jr. Resource Library; see p. 9 for directions on how to access this page.

Do I need to plan any additional activities to do during team meetings?

No additional activities are required. However, at one or more points during the season, you are encouraged to arrange for your teams to listen to a guest speaker, interview an expert, go on a field trip, and/or use the computer to go on a virtual field trip to learn more about the Challenge topic. For the AQUA ADVENTURE season, consider engaging an expert from your local conservation district office, water treatment facility, parks department, science museum, aquarium, college or university civil or environmental engineering department, etc.



Planning a **FIRST® LEGO®** League Jr. Expo

What is a **FIRST® LEGO®** League Jr. Expo?

The culminating event for the **FIRST® LEGO®** League Jr. program is a **FIRST LEGO League Jr. Expo**. An Expo provides team members with an opportunity to showcase what they have learned with their families, friends, and community in a fun, non-competitive event. Expos generally last two to four hours, depending on how many teams are participating. At an Expo, team members share their personal experience with the Challenge



topic and what they learned by working as members of a team. All teams showcase their Team Model, *Show Me* poster, and research with other teams, volunteer Reviewers, and anyone else attending the Expo. Reviewers meet with each team individually to ask questions and learn more about their projects. At the end of the Expo, teams participate in a Closing Ceremony with awards and a High-Five line. Every team member receives a participation certificate.

As an AQUA ADVENTURESM Season Pass holder, your organization has the right to host an Expo each time you run the program during the AQUA ADVENTURE season. The next several pages are intended to help you learn how to plan and host a successful Expo.

What steps do I need to take to plan a **FIRST LEGO** League Jr. Expo?

Note: All online resources mentioned in this section are available on the “AQUA ADVENTURE Challenge and Resources” page of the **FIRST LEGO League Jr. Resource Library**; see p. 9 for directions on how to access this page. Resources include a Reviewers Meeting PowerPoint (a presentation you can use to train your Reviewers), an AQUA ADVENTURE Challenge participation certificate template, and an “Introduction to **FIRST LEGO League Jr.**” parent letter template.

Select a Date and Venue

- Check with Coaches regarding their availability and the availability of team members. Then select a date and time, and begin the organization process.
- When considering venues, try to select one that is large enough to provide space for at least 10 people per team in the area where teams will be displaying their Team Models and *Show Me* posters. The space must accommodate team members, Coaches, parents, other family members, volunteers, and any community members. Be sure there is additional room for other activities, including the Closing Ceremony.
- Consider whether the venue will allow for a separate space for Reviewers to meet with individual teams. Due to the volume of people attending an Expo, it can become loud and difficult for teams to present their information unless they can do so in a removed, quiet area.
- Be sure to consider any technical needs, such as outlets and power cords, as well as a sound system and speakers for music, if you so choose. Some teams may need to charge the tablet or laptop they are using with their LEGO Education® WeDo set, so be sure the outlets are easily accessible. Also consider having extra batteries on hand for teams’ WeDo 2.0 Smarthubs.
- Taking into account the available space at the venue you select, determine whether the Expo will be a public event or an invitation-only event.

Plan the Agenda

- Establish a schedule for the day. Keep in mind that every Expo must have time for teams to meet with Reviewers, as well as a Closing Ceremony with a High-Five line.
- See an Example Expo Schedule on p. 23.

Promote the Expo

- Begin promoting the Expo early to allow participants, their families, and any community members to make arrangements to attend.
- Post the Expo information to your organization's website and social media channels.
- You may also want to get permission to post the Expo information on the website(s) of team members' school(s) for interested families.
- Send out Expo invitations to team members and their families. Note that you can fill in a section with details about your Expo on the "Introduction to *FIRST* LEGO League Jr." parent letter template (available via the "AQUA ADVENTURE Challenge and Resources" page of the *FIRST* LEGO League Jr. Resource Library).
- Be sure to let everyone involved in the Expo know what time they should plan to arrive. Keep in mind that teams will need to set up their displays (*Show Me* posters and Team Models) beforehand, and Reviewers may want time to look over their questions.

Recruit Volunteers to Help on the Day of the Expo

- Volunteers can offer considerable support during an Expo. Try asking community members, participants' parents and other family members, college students, employees of local businesses, etc. to serve as volunteers.
- The table below shows some of the roles that volunteers can fill during an Expo:

Volunteer Roles	
Reviewer	You will need two Reviewers for every five to seven teams. Reviewers visit teams in the main Expo display area and/or meet with teams in a separate area. They ask team members about their research, their Team Model, and their <i>Show Me</i> poster. Reviewers provide positive feedback and write down notes to help with awards later. If you are providing team awards, Reviewers help assign them. All Reviewers should participate in the High-Five line at the Closing Ceremony.
Emcee	The emcee is the announcer for the day. This role can be filled by one of the Reviewers or organizers of the Expo.
Activities Supervisor	Volunteers in this role help to supervise the activities available for team members, siblings, and other children at the Expo.

- Try to engage family members, and ask if any are able to participate in one of the above roles and/or help with venue setup, check-in/greeting, refreshments, cleanup, etc.



Plan Activities for Teams to Participate in When Not Meeting With Reviewers

- Plan some activities for team members, their siblings, and other children at the Expo to enrich their experience and to avoid participants losing interest before and/or after they meet with Reviewers.
- Possible activities could include arts and crafts, LEGO® free building, face painting, drawing about the Challenge theme, puzzles, etc.
- See the Suggested Team Activities on pp. 25–26 for more information and ideas.
- Be sure to consider the supplies you will need for the activities and who will supervise them.



Gather or Purchase Other Supplies

- Decide if you will provide complimentary refreshments and/or sell refreshments during the Expo, and purchase items accordingly. Let participants know in advance what kinds of food and drinks will be available, if any.
- Print a participation certificate (available via the “AQUA ADVENTURE Challenge and Resources” page of the *FIRST* LEGO League Jr. Resource Library) for every team member. Consider printing some additional blank certificates to have on hand just in case you need more on the day of the Expo.
- If you would like to give out special team awards as well, you must choose specific awards from the *FIRST* LEGO League Jr. Standard Awards List (see pp. 27–28), and all teams must receive an award. Reviewers can help assign these awards to teams. If you decide to give out team awards, determine what prize you will use for each award (a certificate, a LEGO model, etc.), and gather or purchase any required materials.
- It can be helpful to have one or more “media” carts available to help teams transport their *Show Me* posters and Team Models to and from the area where they will meet with Reviewers. If you do not have any carts, consider borrowing or purchasing one or more before the Expo.
- Purchase any other supplies you will need for the day of the Expo.

Hold a Brief Meeting for Reviewers

- It is important to inform Reviewers of their tasks via a brief, in-person meeting. This meeting should be held before the Expo begins — either leading up to the Expo or on the same day as the Expo.
- Show the Reviewers Meeting PowerPoint (available via the “AQUA ADVENTURE Challenge and Resources” page of the *FIRST* LEGO League Jr. Resource Library) at the meeting.
- Let Reviewers know that they will spend at least 5 minutes meeting with each team and will have a few minutes to take notes and transition between teams.
- Review the fundamentals of a *FIRST* LEGO League Jr. Expo, and ensure that Reviewers understand all facets of the Expo, including:
 - The fact that the Expo is a non-competitive event
 - The Challenge theme and tasks

- The rules of the Team Model
- The rules of the *Show Me* poster
- The Closing Ceremony and High-Five line
- Let Reviewers know that all participants will receive, at a minimum, a participation certificate.
- Instruct Reviewers to be considerate and kind when reviewing teams' Team Models and *Show Me* posters. Their role is not to judge teams, but rather to show interest in each team's ideas and experiences. Spend some time reviewing the Sample Reviewer Questions on p. 24 with the group.

What should I do on the day of the **FIRST LEGO League Jr. Expo?**

Set Up the Venue

- Prepare tables where teams can set up their *Show Me* posters and Team Models. Allow enough room so that team members and families can gather around the displays while the participants talk to Reviewers and other passersby.
- Prepare a separate space for Reviewers to meet with individual teams, if available.
- Test any sound systems or other technology that you will be using during the Expo.
- Make sure you have enough outlets and extension cords available for teams that might need them.
- Set up enough seating for Coaches, team members, and families to use during all parts of the Expo.
- Prepare tables or other spaces for any planned activities, and set up supplies.
- Set up any refreshment stands or tables.



Prepare and Support the Reviewers

- Provide Reviewers with the Sample Reviewer Questions (see p. 24).
- Make sure that Reviewers meet with every team. Depending on the schedule and number of teams, plan for Reviewers to spend at least 5 minutes meeting with each team and 2–3 minutes taking notes and transitioning to the next team.
- Remind Reviewers to stay for the Closing Ceremony so they can participate in the High-Five line.
- Encourage Reviewers to keep their tone upbeat and fun throughout the Expo!

Welcome Participants

Start your event with an exciting introduction and a few housekeeping items for the day:

- Welcome teams and families.
- Go over the schedule for the Expo.

- Describe the activities available for team members and other children, and explain where to find them.
- Provide details about any refreshments that are available.
- Point out where to find the bathrooms.
- Congratulate all participants, and get the crowd excited!

Run the Expo

- Make sure that all teams meet with Reviewers.
- Be available to assist with any additional activities.
- Organize the participation certificates and any other awards prior to the start of the Closing Ceremony.
- Remind teams when and where the Closing Ceremony will be held.



Hold the Closing Ceremony

- A Closing Ceremony with awards is a required part of every Expo and is a time of celebration and reflection on a job well done.
- The emcee should wrap up the day and review why everyone is there.
- Recognize each team. Make sure that every team member receives a participation certificate.
- If you choose to give out team awards from the *FIRST* LEGO League Jr. Standard Awards List (see pp. 27–28), make sure that every team receives an award.
- Call up the teams one at a time for their certificates and any other awards. All participants should go through a High-Five line in which they get high fives from the Reviewers as they parade up for their awards. If you need additional people in the line, ask volunteers and staff to join.
- Thank everyone for their time and participation.

Clean Up the Venue

- Make sure teams clean up after themselves.
- If teams will not be meeting again after the Expo, encourage them to disassemble their Team Models at the end of the Expo and return the LEGO elements to the appropriate LEGO sets and kits. This might be emotionally challenging for some team members, so try to make it fun by playing music, making it into a game, etc. Remind teams that disassembling their models makes it possible for others to participate in the program in the future!





FIRST® LEGO® League Jr. Expo Checklist

Select a Date and Venue

- ☐ Choose a date and time for the Expo.
- ☐ Select a venue. Be sure that the venue will have enough space for the event, and account for any technical needs.
- ☐ Decide if the Expo will be a public event or an invitation-only event.

Plan the Agenda

- ☐ Include time for all teams to meet with Reviewers.
- ☐ Include a Closing Ceremony with a High-Five line.

Promote the Expo

- ☐ Communicate information about the date, time, and venue to all involved in the Expo.
- ☐ Post Expo information to your organization's website and/or other social media channels.

Recruit Volunteers

- ☐ Decide how many volunteers you will need for the Expo and their roles — including Reviewers, an emcee, and activities supervisors.
- ☐ Try asking community members, parents, college students, employees of local businesses, etc. to serve as volunteers.
- ☐ Let volunteers know when they will need to arrive and how long they will need to stay.

Plan Activities

- ☐ Determine what activities you will offer while team members are not meeting with Reviewers.
- ☐ Plan what materials you will need for the activities and who will supervise them.

Gather or Purchase Supplies

- ☐ Decide if you will provide refreshments, and if so, purchase any needed supplies.
- ☐ Print participation certificates.
- ☐ Determine if you will distribute team awards, and if so, what you will use for each award (a certificate, a LEGO® model, etc.). Be sure that all team awards are taken from the FIRST® LEGO® League Jr. Standard Awards List.

- ☐ Consider borrowing or purchasing one or more “media” carts for teams to use to transport their Team Models and *Show Me* posters.
- ☐ Purchase any additional supplies needed for the Expo.

Hold a Meeting for Reviewers

- ☐ Some time before the Expo starts, hold a brief meeting for Reviewers to let them know what to expect during the Expo.
- ☐ Show the Reviewers Meeting PowerPoint.
- ☐ Review the Expo schedule, the FIRST LEGO League Jr. Challenge, and the procedures for the Closing Ceremony and High-Five line.
- ☐ Share the Sample Reviewer Questions.

Set Up the Venue

- ☐ Set up a table for each team to display its Team Model and *Show Me* poster.
- ☐ If possible, create a separate area for Reviewers to meet with individual teams.
- ☐ Set up the areas where any additional activities will be held.
- ☐ If you plan to use a sound system, play music, and/or use other technology, test all equipment.
- ☐ Make sure you have enough outlets and extension cords available for teams.
- ☐ Set up enough seating for Coaches, team members, and families to use during all parts of the Expo.

During and After the Expo

- ☐ Communicate to teams where their space is.
- ☐ Provide Reviewers with the Sample Reviewer Questions, and remind them of what to do.
- ☐ Ensure that you have enough participation certificates — one for every team member.
- ☐ Make sure that Reviewers meet with every team. If you are giving out team awards, have Reviewers help assign the awards.
- ☐ Execute a Closing Ceremony with a High-Five line.
- ☐ Thank everyone for their participation.
- ☐ Clean up the venue.



Example Expo Schedule

Time	Expo Happenings	Description
9:30 – 10:00	Teams arrive and set up	<ul style="list-style-type: none">Teams set up their Team Models and <i>Show Me</i> posters.Encourage team members to test their program and the motorized part(s) of their Team Model to make sure they work before the start of the Expo.
10:00 – 10:10	Welcome and announcements	<ul style="list-style-type: none">Welcome participants, community members, friends, and families.Let everyone know where to find activities, snacks, bathrooms, etc.
10:10 – 11:00	Team displays, meetings with Reviewers, and additional activities	<ul style="list-style-type: none">Teams share their displays and experiences with other team members, community members, friends, and families.Reviewers meet with teams and ask questions about the Team Models, <i>Show Me</i> posters, research, teamwork, etc. (Reviewers should spend at least 5 minutes meeting with each team.)Team members may participate in other activities when they are not meeting with Reviewers.
11:00 – 11:30	<i>Optional:</i> Team Model disassembly	<ul style="list-style-type: none">Teams disassemble their Team Models and put away the LEGO® elements.Try to make it fun by playing music, making it a game, etc. Remind teams that they want to make it possible for others to participate in the program in the future!Encourage family members to help.
11:30 – 12:00	Closing Ceremony (with High-Five line)	<ul style="list-style-type: none">Stop the Expo and bring everyone together.Wrap up the day and review why everyone is there (what teams have done throughout the season, why it was important, why there is an Expo, etc.).Thank all volunteers for their help.Invite Reviewers and other volunteers to form the High-Five line.Recognize each team, and hand out participation certificates and any other awards. Call up one team at a time for team members to receive their awards and go through the High-Five line.<i>Optional:</i> Play music when team members go up to receive their awards.Thank everyone for coming!
12:00 – 12:30	Clean up	<ul style="list-style-type: none">Clean up the venue.Encourage teams and family members to help.



Sample Reviewer Questions

The following is a list of suggested questions for Reviewers to ask teams. You can add and subtract from this list as you see fit. Please be sure that Reviewers ask age-appropriate questions and direct at least one question to each team member. Some children may be quieter than others, and it is important to hear from everyone. Please copy this page and distribute it to Reviewers.

Team Model and Program

- How did you decide what your Team Model would show?
- How did you make your Team Model?
- How does your Team Model reflect what you learned?
- How did you include the AQUA ADVENTURESM Inspire Model in your Team Model?
- What did you do to make sure your Team Model stays together?
- What part of your Team Model is motorized?
- How does the motorized part of your Team Model work?
- How did you program the motorized part to make it move?
- What is your favorite part of your Team Model?
- What is your favorite part of your program?
- Is there anything else you would like to share about your Team Model or program?

Research and Show Me Poster

- What water use did your team choose to learn more about?
- Why did you choose this water use?
- How does water get to you for this use?
- How did you find information about your water's journey?
- What problem(s) did you find with your water's journey?
- Which problem did you choose to explore?
- What is your team's solution to the problem you chose to explore?
- How did you come up with this solution?
- How could this solution improve your water's journey?
- What is the most interesting thing you learned about water?
- Did anything that you learned surprise you? If so, what?
- Why is it important to use water wisely?
- How did you decide what to show on your poster?
- What is your favorite part of your poster?
- Is there anything else you would like to share about your research or poster?

Teamwork

- How did you choose your team name?
- What was your job on the team?
- Did you like working on a team?
- How did your Coach(es) help you?
- What was the most fun part of FIRST[®] LEGO[®] League Jr. (team meetings, learning, researching, building, programming, showing the project, etc.)?



Suggested Team Activities

While teams are not meeting with Reviewers, there should be other activities for them to participate in to add to their experience. See below for some suggestions.

- **LEGO® Model Building Challenge** — Add a team-based build activity in which teams are challenged to build an original LEGO® model during the Expo. Be sure to include enough extra LEGO elements for each team in the Expo budget if you plan a build activity.
 - Choose a theme that will allow teams to pick something to build in approximately half an hour. Consider linking it to the season Challenge theme. For example, for the AQUA ADVENTURESM season, you could challenge teams to build a model of a splash pad feature or a water park attraction.
 - Another idea for a model-building challenge could be to ask teams to model something in their town or community. Teams might choose the post office, their school, or a local landmark. For even more fun, create a large map, and have teams place their models in the correct area of the map. Enlarged maps can be painted or drawn on butcher block paper or drawn with sidewalk chalk on a paved play area.
 - Teams can present their models during the Closing Ceremony when they come up to receive their awards. The completed models can make a nice visual backdrop for teams to enjoy as well as a great photo opportunity.
- **Scavenger Hunt** — Give team members a specific list of questions to answer and/or items to find when they are not meeting with Reviewers. For example, you could:
 - Ask them to find someone from another team who shares their name. (Name tags are a good thing!)
 - Challenge them to find a particular table, such as a Lost and Found table.
 - Ask them to find the Team Model with the most blue bricks.
 - Challenge them to find a *Show Me* poster that includes a particular color combination.

Lists should be prepared and copied before the Expo. Limit the number of items to 10 or fewer, as this activity can become tedious if there are too many items to find. Also, remind the children to walk, stay with their team, and be quiet and respectful as their hunt takes them past areas where teams might be meeting with Reviewers.

- **Storytelling** — Children love a good tale! Collect a group of stories that relate to the season's Challenge theme, and line up volunteers who are willing to read them.
- **Arts and Crafts** — Collect Challenge-related coloring pages and make them available to teams. Provide a handful of pipe cleaners and a few beads to each team member, and ask teams to create a theme-related model. Give each team member a blank sheet of drawing

paper. Ask each one to draw part of the Expo and/or create a team collage. If space allows, you can set up a central area for these activities or distribute materials directly to teams in their display areas.

- **Active Play Areas** — Children ages 6 to 10 are bundles of energy. If your space is conducive to providing a place for safe, active play, give your budding scientists and engineers a place to burn off some of that energy. Simple in-place activities can help as well. Ask your emcee or DJ to announce stretch breaks every so often. Have everyone at the Expo stop what they are doing and reach for the sky, dance in place, roll their eyeballs, crinkle their toes, wiggle as much as they can without moving their feet, etc.
- **Free Build** — Children just love to play with LEGO elements! Fill a kiddie pool with LEGO elements, and let everyone build away. You can give them a focus and have them all use the same size base plate, or just let them build whatever they like.



FIRST® LEGO® League Jr. Standard Awards List

Model/Program Awards

- **Solid-as-a-Rock Model Design Award** — Built to last! This team's understanding and application of construction knowledge allowed them to produce a very sturdy model.
- **Construction Innovation Award** — For demonstrating creative thinking. This team created excellent designs and built quality components without any instructions or outside assistance.
- **Master Programmer Award** — Programming extraordinaire. This team used LEGO® Education WeDo programming to bring their model to life in an innovative way.
- **Efficient Builders Award** — Minimalist design. This team used a creative design process by carefully using only necessary pieces to complete their model.
- **Amazing Movement Award** — This team used LEGO Education WeDo to incorporate amazing movement in their model design.
- **Lil' Einstein Award** — This team showed their true brainy ways. They exhibited in-depth knowledge of their model and the Challenge theme topic.
- **Complexity and Decoration Award** — For beautiful model construction, with great decorative touches.



Poster/Research Awards

- **Explosive Ideas Award** — For flash, sizzle, and pizzazz based in solid research and innovative ideas. This team used their explosive ideas to design an eye-catching *Show Me* poster and a dynamic Team Model.
- **Picasso Award** — For artistic prowess. This team made good use of artistic elements in their overall Team Model design and *Show Me* poster.
- **Synergy Award** — Extraordinarily effective! This team's model and poster worked well together to represent what they studied.
- **Journey Award** — This team was able to create an awesome *Show Me* poster that showed their FIRST® LEGO® League Jr. journey from start to finish.
- **Artistic Eye Award** — This team used their artistic abilities to create an eye-catching *Show Me* poster that's not only informative but also a work of art.



- **Show and Tell Award** — This team not only used their *Show Me* poster to show what they did during the season but also used it as a prop in their presentation to Reviewers.
- **On Display Award** — This team's thoughtful poster is a great backdrop to their Team Model. It gives an extra thorough description of what they did this season and what their model is showing.

Core Values Awards

- **Gracious Professionalism® Award** — For exemplifying *Gracious Professionalism* — a *FIRST®* Core Value. This team was thoughtful, kind, and showed respect toward others.
- **Effort and Learning Award** — For a strong effort and a willingness to learn and try new things. This team prepared for success.
- **Rising Stars Award** — Knowledge above and beyond. This team showed an interest in learning more about the fields encompassed by the season's Challenge topic and presented with enthusiasm and pride.
- **Spirit Award** — This team showed the ability to get other people excited about *FIRST* because of their enthusiasm, spirit, and excitement about what they accomplished.
- **Inquiring Minds Award** — For interest in science and the enjoyment of the building process. Always looking to solve problems, this team kept morale up while creating smart solutions.
- **Outstanding Teamwork Award** — For working hard on teamwork and making sure success as a team came first. This team knows that Together Everyone Achieves More.
- **Against All Odds Award** — For overcoming incredible odds of an unforeseen nature. This team was able to improvise, adapt, and recover out of sheer determination.
- **Cooperation Rocks Award** — This team was able to cooperate and compromise as a team to come up with an amazing *Show Me* poster and Team Model.
- **Showmanship Award** — This team not only answered Reviewers' questions but also had an awesome pre-prepared skit or presentation for spectators and Reviewers.





Notes

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