

Coaches' Guide

Thank you for becoming a strong and positive influence in a child's life. As the coach of a Junior *FIRST* LEGO League (Jr.FLL) team, you are about to witness first-hand what kind of impact your time and dedication can make on a child's life.

We would like to thank Patrick S. Sweeney for his generous content contributions to the Junior *FIRST* LEGO League Coaches' Guide.

Coaches' Promise, Core Values, and Gracious Professionalism

As the coach of a Jr.FLL team, please read the information below for further understanding of Jr.FLL core values. As a coach, you are responsible for honoring and communicating Jr.FLL core values to team members, team volunteers, and others affiliated with your team. *FIRST* expects all Jr.FLL teams to abide by Jr.FLL rules and guidelines as they exist now and as they may be set forth during the season. Team rules, guidelines, and policies and procedures are detailed in this guide. Any updates will be communicated to Jr.FLL coaches via email.

Jr.FLL is a child-centered program which gives kids a unique and stimulating experience. They are encouraged to learn the value of teamwork and to respect everyone's ideas and contributions to the team. The core values of Jr.FLL are about appreciating our differences and learning how those differences add to our lives. Jr.FLL succeeds most fully when team members bring these values back to their communities.

Coaches' Promise

- The kids come first. Jr.FLL is about the kids having fun and getting excited about science and technology. Everything my team does starts and ends with that principle.
- The kids do the work. This is their opportunity to learn and grow. The kids on my team do all of the research, problem solving, and building. Adults can help them find the answers, but cannot give them the answers or make the decisions.
- My team is comprised of six or fewer members, all team members participate on only one official registered Jr.FLL team, and all team members are no older than 9 on January 1st of the year the Jr.FLL Challenge is released.
- Jr.FLL communicates with my team via the primary email address I provided, and I am responsible for reading and relaying all aspects of Jr.FLL guidelines and rules to my team, other coaches, volunteers, and parents.
- I will encourage my team members, other coaches, volunteers, and team supporters to develop and practice a set of Jr.FLL Values that reflect *FIRST*'s goal to change culture in a positive way by inspiring others through our team's actions and words.

Jr.FLL Core Values

The following Jr.FLL Core Values are based on FLL. We ask that everyone affiliated with every team honor these values.

- We are a team.
- We do the work to find the solutions with guidance from our coaches and mentors.
- We honor the spirit of a friendly sportsmanship.
- What we discover is more important than what we win.
- We share our experiences with others.
- We display gracious professionalism in everything we do.
- We have fun.

Gracious Professionalism

Dr. Woodie Flowers, National Advisor for *FIRST*, speaks about gracious professionalism in this way: “The *FIRST* spirit encourages doing high-quality, well-informed work in a manner that leaves everyone feeling valued. Gracious professionalism seems to be a good descriptor for part of the ethos of *FIRST*. It is part of what makes *FIRST* different and wonderful. Gracious professionalism can and should mean different things to each of us. It is possible however, to outline some of its meanings:

- Gracious attitudes and behaviors are ‘win-win.’
- Gracious folks respect others and let that respect show in their actions.
- Gracious professionals make a valued contribution in a manner pleasing to others and to themselves as they possess special knowledge and are trusted by society to use that knowledge responsibly.

In the long run, gracious professionalism is part of pursuing a meaningful life. One can add to society and enjoy the satisfaction of knowing that you have acted with integrity and sensitivity. That’s good stuff!”

Building Your Team

Coaching a Jr.FLL team can be one of the most rewarding experiences of your life. Like any great reward, it involves a promise of time and energy. To succeed, the coach, team members, and parents must commit to the entire process. Above all, it’s important to remember that the kids need you to give them guidance and provide structure, encouragement, and most of all, a fun experience.

Teams require at least one adult coach, 18 years of age or older. Lots of people make good coaches, such as teachers, parents, engineers, college students, and scout leaders. It requires no special skill, just patience, dedication, and a willingness to learn alongside the team. You will need to direct the process to solve the Challenge without providing the solution yourself. Resources are available throughout this site that can help a rookie coach and team get started. Additionally, the forum provides opportunities for veteran coaches to share tips and tricks.

A Jr.FLL team consists of up to six members, ages 6 to 9, and at least one adult coach/mentor. We also encourage mentorship and support from FLL team members, family, and school or community volunteers. Kids come to the team from many different arenas, such as schools, after-school programs, home-school groups, Girl Scouts, Boy Scouts, Girls Inc., Boys & Girls Clubs, YWCA, YMCA, Big Brothers-Big Sisters, religious groups, and neighborhood groups.

If they are not coaching, parents of team members often volunteer to help. Their cooperation and support are invaluable. They can help with fundraising, logistics, team building, mentoring, or opening their homes for a team meeting. A parent could coordinate the materials and resources the team needs throughout the season. They can find and use “how-to” guides on the Jr.FLL Challenge topic or help with brainstorming and teambuilding activities. Additionally, some parents may be interested in helping to coordinate an event for their team and invite local teams to participate.

The Coach

There are as many ways to coach a Jr.FLL team as there are teams. Jr.FLL encourages fresh thinking. Let your team celebrate its own style. Do what makes sense for you. With that said, consider certain guidelines.

The team must design and build the model, not you or any other adult. If you find yourself pushing a solution, you are doing your team a disservice. Not only are kids not thinking for themselves, but you may also suppress a revolutionary idea. A coach or mentor doing the work sends the kids the message that they are not capable of doing the work without adult intervention. An important Jr.FLL achievement goal is that the kids do the work and make all critical decisions in the building and project development processes.

Does this mean you should stand idly by while your team struggles with the challenge? Absolutely not! You must be involved, but you cannot be involved in an overtly direct way. Instead of telling the team to “add a pulley using rubber bands and a wheel,” you could ask the team members to brainstorm ideas to make a part of the model move. You could encourage them to run an experiment that may lead them to explore other options.

Coaches differ in how much instruction they give their teams. Some give very little and others give much more. A successful Jr.FLL coach controls the process, not the content. You are a facilitator to help your team complete its work and improve the way it works together. One useful method is to reply to a question with another carefully considered question. The following examples force team members to use their knowledge of science and hypothesize logical outcomes:

“What would happen if . . .”

“And then . . .”

“How will that affect . . .”

Kids become problem solvers by solving problems themselves! We understand that adults can be just as passionate about Jr.FLL as kids, but adults must always remember that the kids come first.

Finally, you are responsible for the planning and scheduling of meetings, visits, and trips. You are the liaison between team members, mentors, parents, and volunteers. It is important that you inform kids and parents about what is expected of them in terms of their commitment to the team. Remember, there are valuable resources for both rookie and veteran coaches available on this site.

The Team

Discuss responsibilities with the whole team. It is important for you to be specific when talking about each individual's role and responsibilities. Team members will usually have ideas about what they want to do; building, research, making the "Show Me" poster, etc., but be aware of the child who might be pushed out of doing what he really wants to do. Also, be mindful of those who avoid certain tasks. Remind the children often of the importance of collaboration and teamwork. Rotate roles so everyone has an opportunity to try different things.

Building Your Season

It's customary for *FIRST* teams at all levels to come up with a team name. Deciding on one can be an effective team building activity for the first meeting. To come up with a team name, brainstorm many ideas before agreeing on one. The best name might be one that combines elements from several ideas, so be ready to discuss the brainstorming list once it's complete. You might decide to share the team name on the team's Show Me poster at your Jr.FLL event, make team t-shirts, or create a team cheer. Teams who attend large events may also like to make buttons with their team logo.

Team building exercises allow members to communicate feelings in a positive and healthy manner, while encouraging gracious professionalism as they work together towards a common goal. They're also fun. Team building can be difficult with a schedule that is very structured. Sometimes letting kids have fun together allows them to develop communication and respect, leading to smoother progress when work resumes.

Team Building Activities

Play the Interview Game with your team. It will help everyone get to know each other better and may lead to some good ideas for team names.

For the game, invite team members to interview their teammates to learn something about each other. Have them pair up and ask each other relevant questions. Appoint a child from each pair to introduce her partner and share what she knows about her partner with the rest of the team.

Sample questions may include:

- What is your favorite activity or hobby?

- If you could invent something to change the world, what would it be?
- Do you have a favorite pet story?
- What is your favorite time of year?
- What are three things the whole team has in common?
- Consider adding your own questions that pertain to this year's Jr.FLL Challenge.

Refer to the Jr.FLL forums for more ideas.

Keep it Simple, Silly — KISS

Introduce KISS, "Keep It Simple, Silly" to your team. In the engineering world, simple solutions are much more desirable than complex ones. The complex solution has many more places to fail, is more difficult to repair, may cost more, and its operation may be less intuitive. Consider the fate of the high tech electric potato-peeling gadget. How many are still in use? Why did they vanish even if they were faster than a normal peeler? Was it the bothersome cord, the difficulty in cleaning, the big fat handle, or perhaps the motor that kept burning out? Does this mean all high tech devices fail the KISS test? Of course not. For example, microwave popcorn is more high tech than kernels and oil in a pan, but it's much simpler. Students are sometimes drawn to complex solutions. Keep reinforcing the KISS principle, asking the team to distill their ideas down to make the solution as simple as possible.

Supportive Learning Environments

Once the Challenge is unveiled, the children will often drive the goals of the team. This is perfectly acceptable and gives you a chance to step back and watch their progress. Encourage the kids to brainstorm; it's an important part of a team's planning process. It brings out creative ideas and produces better-thought-out solutions. When you lead discussions or make suggestions, give choices to the team members. Coaches should continue to facilitate the process the team follows to reach its goal, but allow choices within that process. One way to do this is to offer options to the team where every outcome is acceptable. That way, there will be no 'wrong' answers. As coach, you then help the team reach consensus in a fair way. There are many paths to success.

A mutual foundation of trust and respect is critical for a supportive learning environment. Everyone's voice must be heard, and all ideas should be listened to with a patient and open mind. Part of your role is to listen to team members and keep lines of communication open. While you may not be able to use every idea or suggestion, hear him or her out. Clear expression of an idea and convincing others is a great learning experience. Be sure the youngsters understand the concept that "No idea is a bad idea".

Be aware of verbal and non-verbal cues and interpret the conversation to help the teamwork through communication difficulties. If you validate team members' feelings, they are more likely to discuss problems. Sometimes acknowledgement or positive feedback may be all the response a team member needs. A great way to work with a child who needs this feedback is to find one great point in his plan and point this out to the rest of the team. This will validate his idea, but also allows you to move away from ideas that are not relevant to the topic.

A frustrated child might cross his arms over his chest and refuse to face his teammates. It is your job to help this child re-join the team. Keep in mind that we all deal with stress differently. One child might feel the need to walk away to reclaim personal space and another might attack the conflict head on. Be prepared to have some activities for children who may need a break from group work. This could include some research on the computer, or puzzles, games, or pictures related to the Challenge.

Materials & Mechanics

The Jr.FLL Base Kit includes a variety of pieces that will help your team build a Jr.FLL model and will work as a foundation for the FLL program if team members decide to continue as they get older. The kit provided for Jr.FLL has many parts that have the potential for motion: a motor, a power supply, gears, pulleys, chains, wheels, axles and much more. We hope teams will be inspired to use these parts to their fullest potential whenever possible, but it is not a requirement of Jr.FLL at this time. Teams can supplement the kit with other LEGO Bricks as needed. Teams can achieve movement by using the motor or moving something by hand, such as a team member pulling a pulley or spinning a gear. Jr.FLL is a terrific opportunity to learn about simple machines.

Jr.FLL Event

A Jr.FLL event is designed to showcase and celebrate your team's accomplishments. It should include time to enhance the team's current model, meet with friendly Reviewers to share team members' experiences, complete a fun activity by taking the model to the next level, and a place for teams to receive recognition for their efforts.

Please note that there are no official Jr.FLL events. Teams are encouraged to gather together and host local events. Any adult can hold an event. Tips, suggestions, and "how-to" are offered in an event guide available to coaches. In some areas, the FLL Partner will organize events that may be run in conjunction with an FLL Tournament.

Neither *FIRST* nor Jr.FLL will oversee any of the events.

Teams that decide to host or attend a Jr.FLL event will bring their model and Show Me poster to the event. Expect the event to last approximately two to four hours. There should be Model and Show Me Poster Reviewers who check out the models and talk with the teams. The process is not meant to overwhelm the children, and you should encourage them to feel comfortable when speaking with the reviewers who realize the interview process can be stressful for some kids.

Your team will enjoy seeing what other teams have designed and built. This is a great way for kids to learn from each other. Think of ways to encourage this process of mutual learning. At the end of the event, teams will receive recognition for their efforts at the Hi Fives ceremony.

For more information on hosting and posting your Jr.FLL event please refer to the "Event Guide".

Advice for Coaches

Don't take this too seriously! We want you and the kids to enjoy the experience. Our goal is for you to help your kids have fun building and learning something about a real-world problem. Team members win just for participating. If you find yourself looking for ideas on how to run your season, check the Forum for advice from veteran coaches.

At the end of the Jr.FLL season, your team should be proud of its accomplishments. Your team members explored a subject through building and research, designed and built a model, and learned how to work together successfully. It's important to celebrate what you have done together. Many teams celebrate at Jr.FLL events, others celebrate in their own way. Do what works best for your team, but be sure to include a plan for celebration in your schedule. This could be something as simple as an ice cream party or a trip to the park as a team.

Whether or not you attend an event, be sure to make some one-on-one time for each team member. Tell each one how he contributed to the team. Remind him of the great ideas he had, the problems he solved, the way he supported teammates, and the things he learned during the season. This is your most important job as a coach, so take time and be thoughtful about what you say to each child. It is a great idea to provide each team member with a small token to remember their experience, such as a ribbon or a prize. Don't forget to check out the Jr.FLL Awards page for more ideas!

Tell the group how its accomplishments as a team were special, innovative, or unique. Tell them what they did that changed you, or changed the way that you think about them. Sometimes it's difficult to say the words, but it's important that the team understands what coaching them has meant for you. Recognizing the entire team, as well as praising each child individually in front of his teammates, will create a lasting memory of working with you and your team on Junior *FIRST* LEGO League.

Now pat yourself on the back. You have had an influence on the lives of these children and have expanded their horizons. Congratulations on a job well done.