



## Senior League Coaches' Guide

### **Getting Started**

This Coaches' Guide is your bible, most of your questions can be answered in here.

Prior to your first team meeting, familiarize yourself with all documents and materials in your SMGearbots Sr League Kit. While we work with Maine Robotics and use the Maine Robotics Track Meet rules for the Sr League program, your first line of support is Southern Maine Gearbots! We are here to answer questions that you have about our Sr League program and the Track Meet rules.

Create a coaches toolkit. Items that may be needed throughout the course of the season are:

- Tape Measure
- Masking Tape

Other items may be needed over the course of the season as well, depending on which event challenges your team selects.

### **Track Meet Rules**

Each year the Robotic Track Meet Association puts out the annual rules in mid-January. There typically are only a couple small changes from year to year. Our season calendar is scheduled such that you will be working on the team robots shortly after the rules are released. If your team gets started early you may look at the previous year rules, which are available from the Coach Resources page of our website at <http://www.smgearbots.org/coach-resources/>.

### **Being a Coach**

The coach is a critical part of each team. Besides having fun with their students they should:

1. Help the team set realistic goals. Robotics building is a process and each team will see more and more success each week of the season. Celebrate these successes as the season goes.
2. Facilitate the meetings and keep things on track. This is especially important where younger children are involved.
3. Encourage the process using brainstorming. Let the team decide content.
4. Ask questions to encourage the team's problem solving and thinking.
  - a. What are you trying to do?
  - b. Is there anything you can change?
  - c. Is there another way to solve your problem?

5. Help the team monitor their progress and be a time keeper for them.
6. Stay in contact with your League Coordinator letting them know of any challenges you encounter, questions you have, and things that are going well for your team.
7. Remember that coaching is a learning process too. You will not have all the answers and will be learning along with the students.

### **Managing the Team**

Remember that all teams will be different. Things that work well for one team, may not work as well for another. Things to consider when managing your team include:

1. How many team members do I have?
2. What are their ages?
3. How many are boys? Girls?
4. Does anyone on my team have experience with Legos? With Southern Maine Gearbots?

It is important to keep the team on task and complete each activity. Asking parents for assistance can help you more easily manage this goal. Just remember, adults are there to provide guidance, not to complete tasks.

Be sure you are familiar with any rules that apply to the challenge you are completing. The Board of Directors of Southern Maine Gearbots will keep you up to date and provide you with all necessary information. It is important to read these emails and materials.

### **Brainstorming**

Brainstorming is a great way to get the whole team involved in making decisions. It can be used to create a team name and logo, team color, select the event challenge topic, and robot design.

1. Write down all ideas generated during a brainstorming session.
2. Remind students that all ideas are good ideas.
3. Crazy ideas are encouraged, you never know where they will lead.
4. Listening rules are required during brainstorming session. Only one person speaks at a time and all eyes and ears are on the speaker.
5. To encourage all students to participate, go around the group and have each member give one or two ideas. If a student doesn't have an idea the first time, just go around again.

### **Orchestrating Team Work**

In the beginning, it is important for all team members to understand what it means to work as a team. As the season progresses, it may become necessary for teams to break up into small groups to manage individual tasks. It is important for everyone to understand that there is no one right way to get something done.

1. Be sure to allow team members to try different tasks so that more than one person is knowledgeable about each thing.
2. Use a notebook to keep track each week of what tasks students completed so that you can rotate roles from week to week.

3. Take photos of white board sessions and project progress.
4. Constantly ask the team members questions and help challenge them to push their thinking and problem solving. This is especially important when they are frustrated or feeling “stuck”.
5. Review the next weeks curriculum prior to the current meeting so that students can complete research or think of ideas while at home prior to the next meeting. At the end of each session, provide them with a highlight of what’s to come next week.

### **Achieving Consensus**

Voting allows the whole group to get involved in making the decisions. It is important that all students feel they have contributed to the group, so it is important to have a consensus among the team members. Voting can be by single open vote or closed ballots. Sometimes it helps to ask for ranked choice first, second, third votes, with a second voting round for the top three. This is especially helpful as at times some team members will buddy up around a single idea and others will feel that they got left out. Here are some things that the team could vote on:

1. Track Meet Challenge (first and second choice?)
2. Team Name
3. Team Color

### **Involving Parents**

Parents are an important part of each team. Don’t be afraid to ask for parents to assist you from week to week. Have tasks in mind that they can do. If you are breaking into smaller groups, have a parent help oversee a group. Ask parents if there are supplies that are needed to bring those. Remember, parents can provide guidance, but should not complete the activities for the students.

### **Accessing Resources**

Coaches should familiarize themselves with the resources available on their laptops. Southern Maine Gearbots has provided information to help ensure the success of each team. All materials provided to coaches are the property of Southern Maine Gearbots, Inc. Coaches may not reproduce, distribute, or post on the Internet any of the documentation contained in these materials, unless otherwise indicated at <http://www.smgearbots.org/coach-resources/> and expressly for the purposes of support of Southern Maine Gearbots teams during paid seasons.

Southern Maine Gearbots has a private facebook page for coaches to ask and answer questions. We will also hold two conference calls for coaches questions, and at least one evening when we’ll encourage all teams to come together in one spot for their weekly meeting. It can really help your team see where others are, and give you ideas on your designs.

### **Solving Challenges**

Finding one night a week when all team members can meet is a challenge; we will move team members around where possible to best suit team member needs.

Once you start there are often more challenges that have nothing to do with the Legos or computers. Kids have energy and sitting still for 1-2 hours can be tough. Maybe stop once every half-hour to do jumping jacks, have a snack, or do a quick race down the hall.

I was surprised at the difficulty gears posed. The kids were pretty quick to pick up gearing up and down, but physically aligning different gear sizes can be tough. Some gears can't touch other gears if they are in the same row of bricks. In order to get gears to align they need to go up or down a row of bricks. Check the resources page (<http://www.smgearbots.org/coach-resources/>) for a great explanation of gearing.

Between the Lego kit, the Coaches' Guide, and the computer, you have about \$800 or more in equipment in front of you. The Sr kits do not have basic LEGO elements. This can be a challenge especially for the Ping Pong Shotput. For some track meet challenges you may choose to supplement your kit. We have a few sets of LEGO elements for teams that wish to attempt the Ping Pong Shotput and need extra elements. If your team decides to attempt one of these challenges please let us know so that we can get you those elements. One hint is if you add your own Lego bricks to the kit, either mark each brick of yours with a little permanent marker, and/or take a picture of each group of bricks you add so you can take them out again at the end of the year. Also, at the end of the season, before you turn in your kit you will do a kit inventory at one of the coordinated sorting and inventory sessions. Everything that is supposed to be in the kit goes back in. Everything extra should be yours.

This year we are allowing teams to participate in as many events as they want to enter, but SMGearbots will only send them to the Maine State Regional Track Meet for an event if they take First Place in the event at our SMGearbots District Meet at the end of the season. If your team comes in second or third, there is a good chance they will still get a chance to go to Regionals if the First Place team in their event can't make regionals, or if they won First in multiple events and pick another event. Also, if your team wants, they are welcome to pay their own way to go to regionals. Who knows where a couple extra weeks might get them, and last year we had teams place second in our District meet that could have placed in regionals. The team that won the 2017 South Portland Regionals even built three additional robots following the District Meet and won the South Portland Regional overall trophy.

Another challenge with entering multiple events is we are only providing your team with one controller, and 4 motors (and the sensors). You are welcome to supplement. Last year my team did 2 events in the district meet, and just made our controller module easy to remove (and labeled the cables, so our robot didn't take off backwards).

Getting a bot that works can be difficult. Have a backup plan! You can build a Fastest Robot in one night (if it goes straight and fast is another question). Even if your bots are not 100% working, please come to the District meet, others may be able to help, and the event is fun for all.

**The most important rule to remember is to have fun!**