

## Practice #5

### Preparation

- Become familiar with the Team Line Up Activity
- Become familiar with Robot Design Executive Summary - notebook, brochure, flyer, etc... We have included a description of this summary with this packet.

### Beginning

#### **5 min - Go over the plan for today's practice with the team**

Explain that the team will review Core Value #1, do a fun activity, complete the team's robot construction, create a Robot Design Executive Summary, and vote on the team's name.

#### **10 min – Review Core Value #1 – We are a team**

Teamwork is a very big part of 4-H and FLL™. Most of the tears and fights are the result of poor teamwork, or a teammate wanting to do everything on their own. Discuss how your team can respect everyone's ideas and opinions, even if they aren't used, and that if they can't respect their teammates, then they will be removed from the activity.

### Team Building Activity

#### **15 min - Team Line Up**

Ask team members to line up side by side  
Next, tell them that they must rearrange their line according to their height. WITHOUT TALKING. They will need to use hand gestures or other forms of communication to rearrange themselves, but no talking.  
Next have them repeat the process, except they should rearrange themselves by:

Number of siblings  
Birth date (month and day only)

**Break?** - If your team is made up of mostly 4<sup>th</sup> or 5<sup>th</sup> graders, they might need a little break at this point, so you can run outside and play tag or something similar for a few minutes. If you have mostly older members, then you might be able to push on.

## Main Part of Practice

### **40 min Complete the Construction of the Team's Robot**

The main focus for today's practice is to finish construction of the team's robot so that they can begin programming. Review the team's designs from practice #3 and work on completing the construction of their ideas. The actual team members themselves need to do all of the building. The team can always make changes and additions throughout the remainder of the season, but it would be good to get the majority of the construction completed at this practice. The build guides in one of the team's kits can help them get started.

### **40 min. Create a Robot Design Executive Summary**

This is not required for teams, but it can be very helpful in teaching the entire design process, and it is very advantageous for a team to complete this summary for the Robot Design Judging at the Tournament. The team can create a notebook, brochure, flyer, etc... as their summary. A description of what the Robot Design Executive Summary is on the last page of this packet and on our website <http://gillespie.agrilife.org> > 4H > Robotics > Resources for FLL Coaches. The team will want to hang on to this creation for the remainder of the season.

## Wrap Up

### **10 min – Vote on Team's Name**

Use the Rules of Order for 4-H Robotics Teams When Having Discussions or Making Team Decisions and decide on the team's name for the season. Then, notify the Gillespie 4-H Robotics Director so that they can make the official changes in the national team database.



# Robot Design Executive Summary (RDES)

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To help the Robot Design Judges quickly and consistently learn about your robot and the design process used, we are requiring a short presentation. An “executive summary” is often used by engineers to briefly outline the key elements of a product or project. In other words, the purpose of the RDES is to give the Robot Design Judges an outline of your robot and all that it can do. The RDES is intended to help your team consider in advance the most important information to share with the Judges. What you chose to share will enable the Judges to effectively evaluate your team and provide more helpful feedback.

Your team is free to determine how much time you invest, but realistically it should only take a few hours to develop and practice the RDES. The RDES is NOT intended to be as extensive or time consuming as your Project.

Your team will present your RDES at the beginning of your Robot Design judging session. The entire presentation, including the trial run, should not take any longer than **four (4) minutes**. Following your Robot Design presentation the Judges will pose questions for your team to answer. You are not required to provide a written version of the RDES to leave with the Judges.

**Basic Outline:** The RDES should include the following elements: *Robot Facts*, *Design Details*, and a short *Trial Run*.

**Robot Facts:** Share with the Judges a little bit about your robot, such as the number and type of sensors, drivetrain details, number of parts, and the number of attachments. The Judges would also like to know what programming language you used, the number of programs and the amount of memory used by each program, and your most consistently completed mission.

## Design Details:

1. **Fun:** Describe the most fun or interesting part of robot design as well as the most challenging parts. If your robot has a name, who chose the name and why. If your team has a fun story about your robot please feel free to share.
2. **Strategy:** Explain your team’s strategy and reasoning for choosing and accomplishing missions. Talk a little bit about how successful your robot was in completing the missions that you chose. Judges may like to hear about your favorite mission and why it is your favorite.
3. **Design Process:** Describe how your team designed your robot and what process you used to make improvements to your design over time. Briefly share how different team members contributed to the design and how you incorporated all the ideas.
4. **Mechanical Design:** Explain to the Judges your robot’s basic structure, how you make sure your robot is durable and how you made it easy to repair or add/remove attachments. Explain to the Judges how the robot moves (drivetrain), and what attachments and mechanisms it uses to operate or complete missions.
5. **Programming:** Describe how you programmed your robot to ensure consistent results. Explain how you organized and documented your programs, as well as, mention if your programs use sensors to know (and ensure) the location of the robot on the field.
6. **Innovation:** Describe any features of your robot design that you feel are special, different or especially clever.

**Trial Run:** Demonstrate the operation of your robot for the Judges performing the mission(s) of your choice. Please do not do an entire robot round; time will be needed for Judges to ask questions of your team.