



## Brazos Valley Fair & Rodeo AgRobotics Competition Rules & Regulations

The AgRobotics Competition will be held Saturday, October 14<sup>th</sup>, 2023 at the Brazos Valley Fair & Rodeo in Bryan, TX. This contest is designed to allow members to demonstrate their robotics, engineering, and problem-solving skills. It is intended for Junior, Intermediate, and Senior teams who are capable of designing, programming, testing, and trouble-shooting a robot with no adult assistance.

The AgRobotics Competition is designed as a blind challenge, meaning the contest theme, challenges, layout and items used will not be revealed until the morning of the contest. Teams will build and program a robot of their own design from scratch that can accomplish various game challenges.

### TEAM ELIGIBILITY

This contest is open to Texas students currently enrolled in an accredited public or private school or a home school environment. Any student participating in the contest must be a citizen of the United States.

### AGE DIVISIONS

<u>Division</u>	<u>Age</u>
Junior	Grades 3-5
Intermediate	Grades 6-8
Senior	Grades 9-12

### ENTRY PROCESS

- Registration:** Contest Registration will be open from August 1<sup>st</sup> – October 8<sup>th</sup>. **Team Registration fee will be \$25.** Team members and one coach per team will receive complementary admission to the main Fair weekend, October 20-22. **Additional tickets will be available to purchase at a discounted rate the day of the contest. There will be no admission charged, or ticket needed for the day of contest.**
- Competition:** Will be held October 14<sup>th</sup> at the Brazos Valley Fair & Rodeo/Brazos County Expo Complex. Check-in will be from 8:00am-8:30am in the Lobby. Building will not open until start of check-in.

### COMPETITION SCHEDULE

8:00 AM – 8:30 AM	AgRobotics team check-in and team pit area set up
8:30 AM	Orientation
9:00 AM-12:00PM	Building/Programing
12:00PM-12:30PM	Lunch
1:00PM	Competition begins
4:00PM-tentative	Awards Ceremony

### CONTEST GUIDELINES

1. **Members per team.** A team will consist of at least three (3) and no more than five (5) members.
2. **Equipment.** Each team must supply their own equipment for the competition. Each team may only bring the supplies listed below. Equipment will be checked by contest officials as teams check in for the contest. Any extra equipment or item that does not meet specifications will be returned to the team coach.

<u>Quantity</u>	<u>Supply</u>
1	Lego® Mindstorms® EV3, NXT brick or Strike
Unlimited	Backup rechargeable batteries or sets of AA batteries
3	Lego® motors
1	Ultrasonic Sensor
1	Touch Sensors
1	Sound Sensor
1	Light or Color Sensor
1	Gyro Sensor
1	Laptop computer or tablet with programming software
1	Power strip (3-prong, grounded)
1	25ft. extension cord (3-prong, grounded)
1	Plastic container of cardboard box for transporting robot to and from field area
1	Ruler or tape measure
Unlimited	Pencils, paper (for design and note-taking)
Optional	Additional Lego® pieces (disassembled)
Optional	Lego® Mindstorms® Expansion set

\*No two-prong extension or power strips allowed. Computer power cords are allowed to be two-pronged.

3. **Bluetooth Connectivity.** Bluetooth connections can be made and utilized during the programming phase. It is not allowed during the competition phase while the robot is on the playing field.
4. **Minimum Construction Skills and Proficiency.** Competitors must be capable of designing and building a functioning Lego® Mindstorms® EV3 robot that includes the use of:
  - a. Motors
  - b. Light/color sensor
  - c. Touch sensor
  - d. Ultrasonic sensor
  - e. Levers, arms, claws, etc.
  - f. Incorporating non-Lego parts into robot design and/or function
5. **Minimum Programming Skills and Proficiency.** Competitors must be capable of programming a Lego® Mindstorms® EV3 robot in order for the robot to:
  - a. Move
  - b. Turn
  - c. Maneuver attachments effectively
  - d. Use sensors appropriately and effectively

## JUDGING

1. Teams will report to the designated location for check-in inside the Lobby.
2. An orientation will be provided for all participants where officials will review the mission, rules, and scoring. Team captains will draw to determine competition order.
3. Each team will be directed to a team pit (table and chairs). Each pit will have access to electricity to power laptops and robot batteries.
4. Each team **may practice until contest time starts**. A test/practice field will be available near each team pit.
5. If time permits, teams are allowed to make alterations to their robot design and/or program between matches. Team must report immediately to the staging area and playing field when called.
6. The robot must perform the mission autonomously.
7. Only registered contestants, coach, and contest officials will be allowed in the pit areas.
8. Only two team members are allowed at the AgRobotics match table during competition. Team members may switch between matches.
9. Parents & coaches will not be allowed to be at the game tables during the match.
10. Teams that experience equipment malfunction(s) may not replace the part with supplies outside the contest area (from leaders, volunteers, county Extension agents or contest officials). Instead, team members must work together and be creative in completing preparation without malfunctioning equipment or visit with other teams.
11. Depending on the mission, contest officials may provide non-Lego® items that must be incorporated into the function of the robot and/or serve as part of a challenge.
12. Depending on the mission, additional points may be awarded for use of sensors.
13. No cell phones or other types of communication devices are allowed in the pit or contest areas. Exceptions include the approved items listed in the equipment section. During AgRobotics Competition, contestants are not allowed to communicate with spectators (including agents and parents).
14. In addition to mission score, teams will be scored on team communication, teamwork, and sportsmanship.
15. A match is 3 minutes and consists of 4 rounds. The lowest scoring round will be dropped. The top 4 teams from each division will proceed to the final round. If less than 3 teams are in a division, no final round will be conducted and the scoring will reflect the final scores of the 4 rounds.
16. Finalist teams will be ranked based on their total scores. Judges results and decisions are final.
17. Team captain must initial judges score sheet at end of each match. After the score sheet has been initialed the team score is final.
18. Tie-breaker procedures will be announced during the mission release.
19. Teams must clean up their pit areas prior to the awards ceremony.
20. An awards program will be held at the conclusion of cleanup time.
21. All teams must provide a thank you card for judging team.
22. Participants will receive one day free admission (good for the 2023 fair only) to the Brazos Valley Fair and Rodeo October 20<sup>th</sup> – October 22<sup>nd</sup>, 2023.

**FOOD**

Exhibitors may bring in their own lunch/snacks. No glass containers are permitted. Food trucks may be available onsite, but not guaranteed.

**AWARDS**

Awards will be distributed as follows:

Grand Champion Team (Per Division)	Rosette(4)
Reserve Grand Champion Team (Per Division)	Rosette(4)
Third Place Team (Per Division)	Rosette(4)