



## Montgomery County Fair Ag Robotics Challenge

### **CONTEST THEME**

The 2021 Montgomery County Fair Ag Robotics Contest Theme is: “Conservation Investigation”  
This theme will focus on tasks related to freshwater and saltwater conservation efforts.

### **CONTEST SCHEDULE**

Below is the tentative schedule for the day. We have approximately 45 teams, for the contest. Because of the large number of teams, the schedule may need to be adjusted in order for all teams to have equal access, practice time, and competition time. We do ask for your patience if the schedule is adjusted.

Registration	8:00 am
Orientation	9:00 am
Coaches Meet with Team	9:20 am
Programming & Practice	9:30 am
Competition Starts	11:00 am
Lunch	Noon
Final Round	2:00 pm
Results & Awards	2:30 pm

### **CONTEST FIELD**

The overall contest board is a 94.5” X 46.5” piece of plywood with a standard 2”X 4” (1.5”X3.5”) border.

### **CONTEST RULES OF PLAY**

***\*\*\*RULES OF PLAY MAY BE ADJUSTED BETWEEN INITIAL RELEASE AND CONTEST DATE BASED ON QUESTIONS AND CLARIFICATIONS RECEIVED PRIOR TO THE CONTEST.\*\*\****

1. Contest will consist of eight (8) tasks; all tasks will be announced the day of contest.
2. Robots must leave HOME and complete challenges autonomously.
3. Each match will be 3 minutes long.
4. Time begins when the announcer says “BEGIN” and continues until the announcer says, “TIME”. All tasks are completed when “TIME” is announced and will not be continued even if in the process of completing task.
5. At the beginning of the match, all wheels/tracks, body, and attachment(s) must FULLY FIT INSIDE the black boundary of HOME.

6. After a match begins, a robot is considered to be HOME when at least one of its wheels or tracks is touching the playing surface inside the HOME boundary. At which point, a player can touch the robot without penalty and retrieve any pieces in its possession.
7. Retrieval of the robot without penalty may occur at the following times:
  - a. at the successful conclusion of a challenge (safely returned to Home), or
  - b. when at least one (full or part) of the wheels/tracks is touching the inside surface of the HOME boundary, or,
  - c. use of 1 of the 3 "free" retrievals.
8. Retrieval of a robot due to failed challenge, mechanical/programming issue, and/or robot "hanging up" on play field is considered a touch. Outside of HOME or the successful completion of a challenge you are allowed three (3) free robot retrievals without penalty.
9. After the third (3<sup>rd</sup>) retrieval during the match, touching your robot after it leaves HOME incurs a touch penalty of - 10 points for each subsequent retrieval
10. Each task must start with the robot at HOME, unless the team has clearly written a program that allows the robot to perform more than one challenge autonomously without being touch or interfered with.
11. Possession is defined as a piece that is not touching the playing surface and under the control of the robot.
12. A player is not allowed to touch any game piece except:
  - a. When the challenge is completed, and game piece is inside the HOME boundary, or;
  - b. Robot is deemed HOME and in full possession of a game piece(s).
13. All permanent playing pieces cannot be intentionally touched or moved by a team member or robot.
  - a. Intentionally touching a game piece outside of HOME (or designated area) may result in 50 point deduction
14. If the robot is retrieved outside of HOME during mid-challenge and while in possession of a game piece, the game official will reset the game pieces to its original placement.
15. In the event of a major game piece mechanical malfunction, the judge may stop, reset, and restart the match. The table judge in coordination with contest Challenge Design Committee will make the determination on restarting the match.
16. Teams that may experience equipment loss and/or malfunction(s) may NOT replace equipment with supplies from another team, leaders, volunteers, parents, AST/CEA or contest officials. Instead, team members must work together and be creative in completing preparation without the lost/malfunctioning equipment.
17. Coaches will be permitted to meet with their team for a 10-minute time period prior to Build

Time. This time should be used to help team members develop a plan and foster positive youth development. Any “coaching” or “advisement” from coaches and/or parents from the sidelines after the 10-minute time period is not allowed and may result in disqualification of team(s).

18. No cell phones or other types of communication devices (smart watches included) are allowed in the pit or contest areas. Exceptions include the approved items listed in the Participant Rules. During the Build Time and Robot Challenge, contestants are not allowed to communicate with spectators (including coaches and parents).
19. Once a task has been completed it cannot be repeated in order to score additional points for that same task.
20. Teams will have two (2) preliminary matches in which to earn points. The sum score of the two matches will determine teams that qualify for finals. The top three (3) teams in each division will advance to the final match.
21. After the match, no one is allowed to touch the Playing Field until the Judge has recorded the condition of the field, the team has reviewed the scorecard, and it has been signed by the team Captain.
22. At the conclusion of the match, it is the responsibility of the team captain to review the score sheet with the judge, verify their score and then sign/initial at the bottom signifying agreement of the final match score. If a team member questions the team’s score, he or she must discuss this with the judge prior to signing the score sheet and leaving the table. Scores are final after this point and cannot be contested.
23. Finals will consist of two additional matches. The two scores from the final round will be added to the preliminary scores. Finalist teams will be ranked based on their total scores. Judges’ results are final.
24. Tie-breaker procedures will be announced on the day of the contest upon release of all tasks.
25. Teams must clean up their pit area prior to the awards ceremony.
26. Teams are NOT allowed to bring pre-assembled or programmed robots

### **CONTEST TIE BREAKERS**

Tie breakers for the contest will be announced the day of the competition after all Tasks have been revealed.

## **EQUIPMENT**

Each team must supply their own equipment for the challenge. Each team may only bring the supplies listed below. Equipment will be checked by contest officials before the start of the contest. Any extra equipment or items that does not meet the following specifications will be returned to the team coach.

Unlimited Quantity	Lego Mindstorm NXT or EV3 building pieces (excludes brick, motors, and sensors)
Unlimited Quantity	Backup rechargeable batteries or sets of AA batteries
1	Lego Mindstorm EV3 or NXT brick
3	Lego Mindstorm EV3 or NXT motors
1	Lego Mindstorm EV3 or NXT ultrasonic sensor
2	Lego Mindstorm EV3 or NXT touch sensor
1	Lego Mindstorm EV3 or NXT sound sensor
1	Lego Mindstorm EV3 or NXT light or color sensor
1	Lego Mindstorm EV3 or NXT gyro sensor
1 or 2	Laptop computer or tablet with programming software (Lego or non-Lego is acceptable)
1	Power strip (3-prong, grounded)*
1	25 ft. (max) extension cord (3-prong, grounded)*
1	Plastic container or cardboard box for transporting robot to and from game area.
1	Ruler or tape measure
Unlimited Quantity	Pencils and notepad with blank paper for design and note-taking purposes.