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2018 – SUGO ROBOTICS

PURPOSE:

The purpose of the Robotics competition is:

1) Design and create a robot, within the constraints listed below, which competes and wins the Robot competition described in the rules below.
2) The Engineer's Award will go to the team that designs, documents, and builds the best robot according to the scoring rubric

GENERAL INFORMATION:

1. A team may consist of up to 4 individual(s) working together to accomplish a common purpose.
2. Teams will be assigned a sequential number at event check-in, which will be used to call teams to the competition area. Teams not present when their number is called, will not earn points related to robotics performance. (Team names are encouraged.)
3. The Angelina County Science & Tech Fair, George H. Henderson, Jr. Exposition Center (Expo Center), and the Lufkin/Angelina County Chamber of Commerce are not responsible for any loss or damage to materials/projects.
4. The Robot must be present to check-in.

MATERIALS PROVIDED BY SCIENCE & TECH FAIR STAFF AT EVENT:

1. Table to work on robot in the staging area.
2. Arena for competition.
3. Square Box
4. Timer to be operated by a Science & Tech Fair Judge.
5. Electrical power.
6. Scales to weigh robot

SCORING GUIDELINES (See Attached Scoring Rubrics):

Robot Design

1. Robot Design:
    a. Ability to explain robot design to judges during check-in and competition.
    b. Teams are encouraged to develop a theme for their robot and will be scored on the basis of originality, exterior decorations, and overall appearance.

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ROBOTICS COMPETITION:

1. Safety
    a. Participant and spectator safety is the primary concern. Any robot that appears unsafe or uncontrollable at check-in will be disqualified by Science & Tech Fair Staff prior to the competition. No competition will be attempted from an unsafe device.
    b. Spectators will be kept a safe distance away from the competition arena (as determined by Science & Tech Fair Staff).
2. At the conclusion of competition, robots must be removed from the Expo Center. Teams are responsible for moving project from competition area to late pick-up area.

COMPETITION RULES

C1 Game Description

C1.1 The overall SuGO contest is structured using a double elimination tournament format, where each robot must lose two matches to be eliminated from the tournament. A SuGO match involves two contestants whose robots operate in the sumo ring according to the game rules presented here. The match continues until four SuGO points are scored by one of the contestants over several games.

C2 Playing Field Specifications

C2.1 The playing field is a raised circle (ring) with the dimensions as shown below.

- Diameter: 36 Inches (91.44cm)
- Border line: 1.25 Inches (3.175cm)
- Starting line width: 0.5 Inches (1.27cm)
- Starting line length: 4 Inches (10.16cm)
- Playing field raised: 1.5 Inches (3.81cm)

The top surface is flat and smooth. The surface will be gloss-white in color.
The starting lines are two parallel red lines centered on the field.
The outer edge of the field, the border line, is a black circular ring.

Fields may be constructed using painted sheet materials, purchased online as a sticker, or as a completed field with supports.

C3 SuGO Robot Specifications

C3.1 The robot must be able to fit inside a 7" x 7" x 7" (17.78cm X 17.78cm X 17.78cm) square box in starting position.

C3.2 The Robot must be made ENTIRELY out of LEGO Bricks, with the only exceptions being the "Sumo Eyes" and cables.

C3.3 A maximum of 1 NXT or 1 EV3 for control, 2 motors for movement and 1 motor for an optional sparring tool can be used. (A maximum of 3 motors which meets the above specifications will be allowed. No other motors will be allowed on the robot regardless of connectivity.) (Sparring Tool's primary use must be to encumber the opponent's robot without damaging the robot. See C7.1 for further violations.)

C3.4 All actions must be totally pre-programmed. The use of any form of remote control is prohibited.

C3.5 The robot will not include any parts that might damage or deface the playing field.

C3.6 The robot will not include any part that fixes the robot to the playing field surface. The robot must always move.

C3.7 The robot must weigh no more than 1lb, 10oz. (737.0876 grams) when in its starting configuration.

C4 Game Principles

C4.1 A standard match consists of three games of up to two (2) minutes each. The first contestant to win four SuGO points is the winner of the match. If no player has 4 SuGO points at the end of three games, the player with the most points wins. If both players have the same number of points after three games the referee can call a winner, or choose to run one additional game.

C5 Game Procedure

C5.1 Beginning of the Game

- Before the game, the contestants greet each other outside the playing field following the chief referee's instructions, and then enter the playing field. The contestants can place their robot anywhere behind their starting line. No part of the robot can be in front of the starting line before the match begins.
- At the referee's signal, the contestant presses a single button on the NXT or EV3 (usually the orange button) and the game begins. (There is no delay required after contestant presses button.)
- Prior to the start of a match, the entire robot must fit inside a square box as defined for the weight class. At any time after the start of the match, the robot can expand outside these dimensions autonomously.

C5.2 End of the Game

- The game ends when the referee calls the winner. Both contestants should thank each other for a fair and competitive match after removing their robots.

C5.3 A Game will be stopped and a rematch will be started under the following conditions:

- The robots are locked together in such a way that no more action appears to be possible, i.e. there is no movement or they have rotated in circles for 30 seconds or more.
- Both robots touch the exterior of the playing field at the same time.
- Any other conditions under which the referee judges that no winner can be decided.
- In case of a rematch, maintenance of competing robots is prohibited, and the robots must be immediately placed in the designated starting position.
- If neither of the competing robots win, or lose, after a rematch, the referee may reposition both robots to a specified location and restart. If that does not yield a winner, the match may continue at any location decided by the referee, until the time limit is reached.

C6 Scoring SuGO Points

C6.1 Two SuGO points are awarded for a Victory. The following conditions define a Victory:

- When a robot ejects its opponent from the playing field with a fair action. The robot is considered ejected the moment ANY part of the robot leaves the playing field. A robot hanging over the edge of the playing field still in motion, regains motion, or only touching any part of the cylindrical side of the playing field is not considered ejected, and the robot is still in play.
- When the opponent's robot goes out of the playing field on its own for any reason.
- When the opponent's robot stops moving on the playing field for more than 10 seconds.
- If the opponent's operator interferes with either robot, or the field, during the match.

C6.2 Only one SuGO point is awarded for an Advantage per match. The following conditions define an Advantage:

- An opponent's operator fails to start their robot at the referee's command (false start),
- The opponent's preparation for the start of the next match takes more than 30 seconds.
- Parts of the opponent's robot, are separated and dropped from the robot.
- Any other actions occur that are be deemed unfair by the judge.

C6.3 ALL TEAMS WILL BE REQUIRED TO SIGN-OFF ON FINAL SCORES.

C7 Violations

C7.1 A contestant who takes any of the following actions will be disqualified from the game:

- A contestant does not attend the appointed playing field when called at the beginning of the game.
- A contestant ruins the game, such as by intentionally breaking, damaging, or defacing the playing field.
- A contestant's robot does not meet the robot specifications.
- A contestant displays unsportsmanlike behavior.
- A contestant intentionally injures the opponent's operator.

C8 Rule Changes

C8.1 Rules may change based on feedback from schools/participants. The Science & Tech Fair Staff will attempt to keep the latest version on the event website www.angelinascienceandtech.com.

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ILLUSTRATIONS:

Competition Arena

HELPFUL RESOURCES:

- SuGO Competition Rules and Downloads
  http://www.sugobot.com/

2017 – SUGO ROBOTICS

Team Number (Provided at Check-In)**:** **Team Name:**

Team Member Name	School	Grade
(1)		
(2)		
(3)		
(4)		

SCORING:

SAFETY (Circle One)	PASS

PRESENTATION AND ROBOT DESIGN	✓
Verbal presentation to the judges	
Creativity of Design & Overall Appearance	

FEEDBACK:

DID GOOD ON:	
COULD IMPROVE:	

2017 – SUGO ROBOTICS

TEAM NUMBER (Provided at Check-In): Competition Scoring
TEAM NAME:

SuGO	Match 1	Match 2	Match 3					
Match Points (Max. 2 pts ea.)								
Advantage (Max. 1 pt ea.)								
Total Points								
Win (W) / Loss (L)								