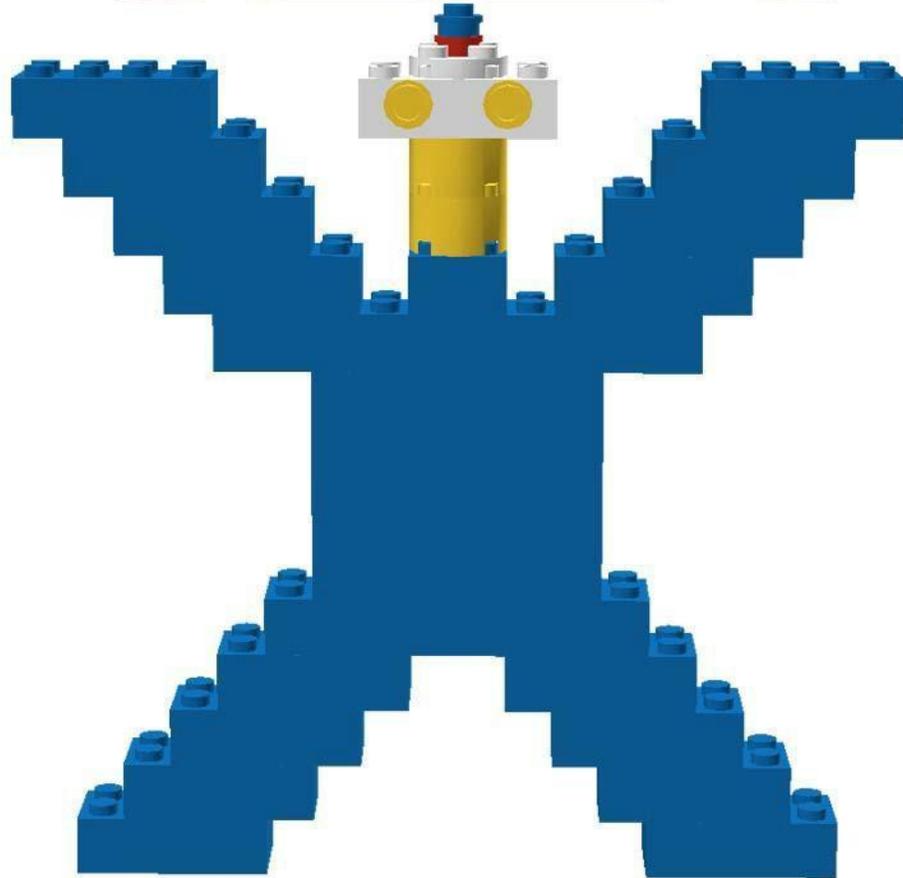


GEAR



ROBOTICS

Guadalupe County

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GEAR Robotics Challenge
General Rules Guadalupe County

Tournament Protocol

When reading the rules please use every day common sense to interpret them rather than a “lawyer” interpretation. If you have a doubt about the interpretation of a rule, please contact your tournament organizer.

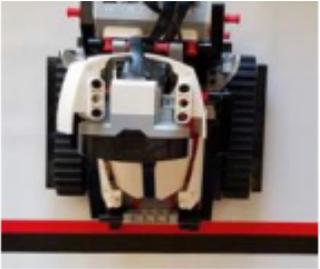
Definitions

Attachments	Any component (or system) that is intended to be a temporary appendage or extension of the robot
Competition Configuration	The maximum allowable dimension (16” long, 16” wide, and 16” tall) a robot may attain at the tournament.
Off the field	Any area that is outside the boundaries of the playing field.
Player Zone	The 16”x16” area on the corner of the field where teams are allowed to touch the robot and game elements without penalty.
Playing Field	The official game table used by the tournament, consisting of four playing areas for the contestants.
Possession	An item that is in control by the robot and that is not touching the playing field surface. An item is considered in possession if the robot is fully supporting (item not touching the playing field surface) the item, and changes in speed or direction cause the item to remain in the same position relative to the robot.
Preloading	The act of loading game elements onto the robot prior to the start of the match.
Robot Zone	The area of the playing field outside the player zone. This area will also be the location for most game elements.

General Rules

GR1	Only one robot per team will be allowed in the tournament. Backup robots will NOT be allowed. Teams found in violation will not be allowed to compete in the tournament and will forfeit any point accumulations until they satisfy this rule requirement.
GR2	Matches are two minutes in length. The match will begin with a 3, 2, 1 countdown, “Go” command. The match will end with a 3 second countdown, and “Stop” command.
GR3	No rematches will be awarded unless it is deemed that there is a failure of GEAR provided field materials.
GR4	No time-outs will be allowed for any reason, unless related to rule GR3.
GR5	All scoring disputes must be settled before the team leaves the field. See rule SC3 for more information.
GR6	Robots must remain in the player zone until the match starts. All other components (attachments, etc.) must be within the player zone. Once the match starts the robot can be moved to any location within the player zone. Robots must meet the competition configuration at all times. Players may preload the robot with game elements that originate from the player zone prior to the start of the match. Preloaded game elements may not extend into the robot zone.

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GR7	<p>All robot starts must be from the space within the player zone. No part of the robot (including attachments) or game elements may extend into the robot zone. Teams violating this rule will be disqualified from the match and not receive a score for that match.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Illegal Start</p> </div> <div style="text-align: center;">  <p>Legal Start</p> </div> </div>
GR8	<p>Robots will be allowed to cross robot zone boundaries; however, the robot belonging to that zone will have right of way. The referees will monitor robots outside their robot zones. If the referee determines that a robot is on a collision course or will block the opposing robot, the referee will remove the out-of-zone robot and place it back in the respective player zone.</p>
GR9	<p>Contact with the robot or game elements is limited to the player zone. Teams may only touch the robot or a game element without penalty once the game element / robot is COMPLETELY inside the player zone.</p>
GR10	<p>Players may contact the robot in the robot zone; however, the robot MUST immediately be returned to the player zone. Items in possession by the robot may be kept on with the robot as it returns to the player zone. All other items will remain in the robot zone wherever the robot left them at the time of pickup. Contact will result in a penalty as described in rule P3.</p>
GR11	<p>Stealing or interfering with other player's game pieces is not allowed and will result in disqualification from the match. Unintentional interference may be possible (robot veering off course, etc.). Referees will have sole discretion on whether the interference was unintentional or not and should reset any game element back to its state prior to the interference. This only applies to game elements belonging to the opposing team.</p>
GR12	<p>Teams may bring a container to hold attachments and game elements off the field. Teams may temporarily store game elements that originate in the player zone or were accumulated during the course of the match in the container. Teams must return the game elements back to the field at the conclusion of the match in order to receive points for those game elements. See rules GR15 and P1 for additional information.</p>
GR13	<p>Teams must return all game elements to the field prior to leaving the game table. Violation will result in an immediate delay of game penalty. See rule P1 for additional information.</p>
GR14	<p>Attachments not being used by the robot, must remain in the player zone, or may be stored off the field in a container (see GR12). Attachments are subject to rule GR9, and any attachment (or other robot component) deemed to be in the robot zone must be retrieved by the robot before it can be used.</p>
GR15	<p>Robots may interact with game elements on the field by dragging, grabbing, lifting, pushing, pulling, onboard or other methods as long as legal parts are used in such action. Interactions</p>

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	with game elements should not cause damage to the game element during the process.
GR16	Teams may use alignment guides during the match. Alignment guides may not extend into the robot zone at any time. Violation will result in loss of use of the alignment guide during the match and a 10 second penalty.
GR17	Game elements may be bundled to ease in delivery, unless otherwise dictated by the game rules. The items used to bundle must be made from kit legal parts (see rule RC6). Any adhesive material used may not have direct contact with the game element or leave any kind of adhesive residue. Teams found to be in violation of this rule will be disqualified from the match and will not receive a score.
GR18	Teams may not load game elements onto a moving robot. Violation will be subject to rule P4.

The Robot

Definitions

Robot	An autonomous device designed and built by team members to perform specific tasks as dictated by the game challenge. It is electrically powered by the onboard LEGO SPIKE, EV3, or NXT controller. It uses various electrical and mechanical systems from LEGO or additional materials listed in rule RC6 to accomplish its tasks.
Additional Materials	A list of additional items that are not part of the LEGO SPIKE, EV3, or NXT kits, but are legal to use in the construction of the robot.

Robot Construction Rules

RC1	Only team members are allowed to design, build, and program the robot. Adults may assist with troubleshooting design problems.
RC2	Robots must fit in a box 16" long, 16" wide, and 16" high prior to the start of each match. Robots may NOT expand beyond those dimensions. Robots must be able to handle some field variances, such as tolerances in board length/width/height and slight waviness in field mat.
RC3	The "minimum robot" that may be used in the tournament must contain the following parts: <ul style="list-style-type: none"> ● SPIKE, EV3, or NXT controller brick. ● Up to four motors ● Up to four sensors ● Associated cabling for motors and sensors ● Batteries (including rechargeable) ● Any structural component currently available in the RCX, NXT, or EV3 Lego kits
RC4	The following sensors may be used: accelerometer, compass, gyroscopic, light/color, rotation sensor, sound sensor, touch sensor, and ultrasonic sensor.
RC5	Pneumatic systems will not be allowed.

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RC6	<p>Teams may use the following materials in the fabrication of the robot:</p> <p>NOTE: There will be no restriction on the quantities or sources of non-electric LEGO components, however all LEGO components must be in original factory condition. Use of non-LEGO components will be prohibited (I.E. Megablocks components), except for the additional items listed below.</p> <p>Quantities listed are per-tournament (not per match). Items limiting length or quantity mean that you can only use that amount to carry you through the entire tournament. LEGO SPIKE, EV3, or NXT components (does not matter if it is a retail kits, educational kits, or expansion sets)</p> <ul style="list-style-type: none"> ● 1 – foam, paper, or plastic cup up to 32 oz. in size ● 10 – Popsicle Sticks 1/2” x 4 1/2” ● 20 – Paper clips, any size. ● 10 –Rubber bands, up to 6 inches in size ● 1 - 8.5” x 11” file folder ● 1 – Empty tissue box, or corrugated cardboard up to 1/4” in thickness ● 2 – Wooden pencils – not to exceed 8” in length and 1/4” in thickness (Example: standard #2 pencil) ● 1 – Paper towel, or toilet paper tube ● String (not to exceed a length of 2 feet) ● 2 feet of masking tape. Tape may not exceed 2 inches in width ● Fasteners such as glue, staples, twist ties, binder clips or brass fasteners ● 5 – Drinking straws ● 1 – 3/16” foam board not to exceed 12” x 12” in size ● 12 – Craft pipe cleaners (12” in length)
RC7	<p>The robot may be decorated using materials not listed; however, these materials must be nonfunctional, meaning that they can be removed without affecting the performance of the robot. Rule RC2 will apply to nonfunctional decorations.</p>
RC8	<p>No remote control (wired or wireless) devices of any kind. Tethering devices will be considered as remote- control devices and are therefore not allowed.</p>
RC9	<p>Devices whose sole intention is to impede/disable another robot will not be allowed. Teams employing such tactics will be <u>disqualified</u> from the tournament.</p>

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Robot Inspection

RS1	All robots will be inspected during the tournament. Robot inspections will take place on the day of the tournament.
RS2	Robots may be re-inspected at any time during the tournament to ensure compliance.
RS3	The following criteria will be used to determine compliance: <ul style="list-style-type: none">● Robot with (or without) attachments conforms to a 16” long, 16” wide, and 16” high footprint.● Robot meets the “minimum robot” requirements● Robot is constructed using only allowed materials● Non-functional materials do not enhance robot capabilities

The Awards

Performance Awards

First Place	This award is presented to the team that places first at the end of the tournament.
Second Place	This award is presented to the team that places second at the end of the tournament.
Third Place	This award is presented to the team that places third at the end of the tournament.

Other Awards

Most Elegant Spaceship Award	This award is presented to a team whose spaceship makes the judges say, “WOW! That is a neat spaceship.”
Pinnacle Award	This award is presented to a team with the highest single round score during the seeding competition.

Tournament Rules

Match Scoring Rules

SC1	The referees make all decisions regarding scoring and have final authority during the competition. Referees will not review recordings of the match.
SC2	Final scoring will not be tabulated until after the end of the match unless otherwise noted in the game rules. Minimum score that a team may receive is a zero.
SC3	A member of the team will need to initial the score sheet indicating that they agree the score is correct. Once this process happens there will be no further review of the score.
SC4	All scoring must be done by the robot under its own power and control unless otherwise noted in the game rules.
SC5	All game elements will be scored on their final resting place at the conclusion of the match.

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SC6	Game elements being touched or supported by the robot at the end of the match will not be scored unless otherwise noted in the game rules, or the robot is in the player zone. Items in possession by the robot will not be scored unless the robot is in the player zone (per GR9) when the match clock expires.
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Penalties

P1	<p>Delay of game penalty will incur a 5-point deduction. Violations include:</p> <ul style="list-style-type: none"> ● Taking longer than a minute to setup on the field. ● Taking longer than one minute to remove the robot from the field (unless the referee is still scoring the field) ● Removing game elements from the playing field area. ● Team absent in the queuing area when called for the next match. Referees may use discretion on this rule if the team has been delayed by a judge's interview, or some other action. It will be up to the head referee to determine if a penalty should be assessed in cases not specifically listed on this rule.
P2	Touching a game piece in the robot zone by a human player will incur a 10-point deduction. The game pieces will be removed from the game area for the remainder of the match and the piece will not be scored.
P3	Picking up the robot in the robot zone during the match will incur a 5-point deduction.
P4	Loading a game element while the robot is in motion will incur a 10-point penalty.

Team Participation

LP1	A team contains 2 to 4 members; participants may only be part of a single team. Coaches may change team participants during the tournament.
LP2	Three divisions are offered in the tournament: Juniors (3 rd – 5 th grade), Intermediates (oldest team member is in 6 th – 8 th grade), and Seniors (oldest team member is in 9 th – 12 th grade).

Seeding Rounds – Scoring

LS1	Each team will participate in 4 matches during the Seeding Rounds. Only team members may approach the game table during their matches; coaches and parents must remain in the spectator area.
LS2	Teams will be assigned a field side for each match.
LS3	Teams start with zero points at the start of the seeding rounds and accumulate points based on the results of their matches.
LS4	The final score will be determined by dropping the lowest score and adding the remaining three scores.
LS5	In the event that there is a tie at the conclusion of the seeding rounds, the following criteria

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	<p>(in order) will be used to access the rank order:</p> <ul style="list-style-type: none"> ● The team with the higher single round score ● The team with the highest score of all 4 scores ● The team with the lower total number of penalties in scored matches
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Finals – Qualifications

PQ1	For divisions with five or more competing teams, the four teams with the highest cumulative score from the seeding rounds will qualify for the finals.
PQ2	No new members can be added to qualified teams.

Finals – Scoring

PS1	Each team will participate in 4 matches during finals.
PS2	Teams will be assigned a field side for each match.
PS3	Teams start with zero points at the start of finals and accumulate points based on the results of their matches.
PS4	The final score will be determined as the sum of the scores from the four matches played.
PS5	<p>In the event that there is a tie at the conclusion of the seeding rounds, the following criteria (in order) will be used to access the rank order:</p> <ul style="list-style-type: none"> ● The team with the higher single round score. ● The team with the higher qualifying score from league play. ● The team with the lower total number of penalties.