

5 THE GAME

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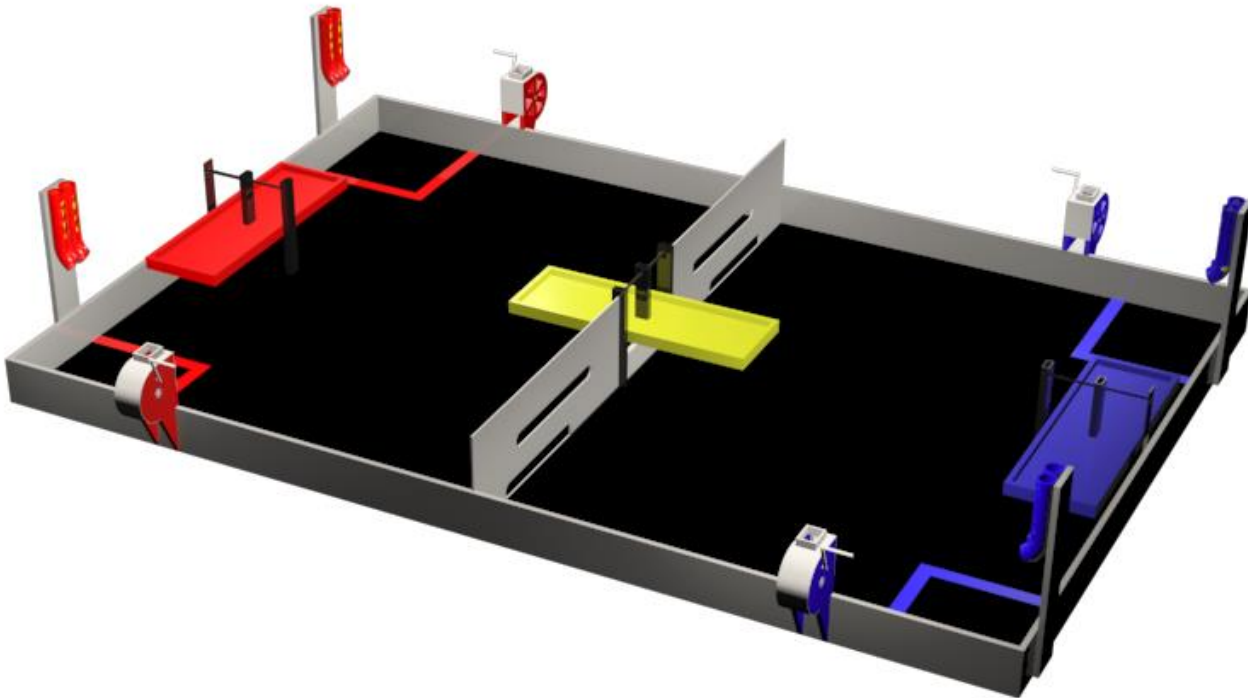
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5 THE GAME

Game 1

5.1 GAME OVERVIEW

On the Edge is a game played in the arena illustrated below. A red alliance and a blue alliance, composed of two teams each, compete in each match. The object of the game is to attain a higher score than your opponent throughout the course of a Match. The point values for each method of scoring are explained below.



Note: The illustrations in this section of the manual are for a general visual understanding of the On the Edge Quarry only. Please refer to the official drawings for more accurate dimensions and construction details.

5.1 GAME OVERVIEW

5.1.1 Match Format

Each match begins with the Autonomous Period, in which the Robots are controlled by pre-programmed instructions. The Autonomous Period is followed by the Teleoperated Period, during which the drivers assume control of the robot. There will be a short pause between the Autonomous Period and the start of the Teleoperated Period as the teams' controls are activated, rubble is released onto the field over each starting zone, and Field Attendants reset any robots that tipped over during the Autonomous phase.

Game
2

5.2 DEFINITIONS

Alliance: A set of two teams that work together during a match to play On the Edge against an opposing alliance. Alliances are identified during the match by their assigned color, either red or blue.

Match: A single round of play in which alliances attempt to outscore their opponent.

Penalty: A 15 point increase in the opposing alliance's score of the offending robot assigned when each deserving violation of the game rules has been identified by a referee.

Referee: A trained Team Driven staff member led by the head referee, responsible for assisting teams, monitoring gameplay, and enforcing the rules.

Robot: Anything that has passed robot inspection that a team places on the arena prior to the start of a match.

Team: Two representatives from a registered Junior Robotics League team that interact with their robot and their alliance partners to play On the Edge. The positions on the team include:

Driver: A representative from a registered Junior Robotics League team responsible for operating and controlling the robot.

Human Player: A representative from a registered Junior Robotics League Team responsible for entering Gems onto the field using a Waterwheel.

Autonomous Period: The period in which only pre-programmed instructions control the robot.

Starting Zone: The Zones marked at each end of the Quarry where robots must start.

Teleoperated Period: The period in which Drivers control the Robot.

5.3 RULES

5.3.1 Safety

<S01> If at any time a robot's operation or design is deemed unsafe; it will receive a Penalty and be disabled for the remainder of the match. If the safety violation is due to the robot design, the head referee has the option to not allow the robot back onto the Quarry until the design has been corrected. An example of unsafe operation would be uncontrolled motion that cannot be stopped by the drivers.

<S02> Drivers and Human Players may not directly contact any robot at any time during the match. Illegal contact will result in a Penalty. Recurring contact may

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result in disqualification.

<S03> Drivers and Human Players may not directly contact any Gems at any time during the match after it has entered the Quarry. Illegal contact will result in a Penalty.

5.3.2 Game Periods

<G01> Autonomous Period – The Autonomous Period is the 20-second period at the start of the match. During this period, the robot may react only to preprogrammed instructions. During Auto, robots will receive points for moving out of their Starting Zone, placing a Gem on their Alliance Scale, or placing a Gem on the Coop Scale. Each team will receive 1 autonomous Gem to possess at the beginning of the match.

<G02> Teleoperated Period – The Teleoperated Period is the 2-minute period of game play immediately following the Autonomous Period. At the beginning of the Teleoperated Period, the remote controls are activated and drivers may commence driving their robots. The drivers continue to operate their robots for the remainder of the Match. The Match and Teleoperated Period will end when the arena timer displays zero seconds. During the Teleoperated period, robots will receive points for balancing Gems on either their Alliance Scale or the Coop Scale. During Teleoperated Period a robot is only allowed to have in its possession a maximum of 5 Gems, otherwise a penalty will be assessed.

<G03> Rubble - In addition to Gems, Alliances will receive points at the end of the Match for each piece of Rubble on the opposing Alliance's side of the Quarry, and will receive an additional bonus if their Alliance has less Rubble on their side of the field. There is no maximum amount of rubble a robot can possess.

5.3.3 Scoring

<G04> All points scored are awarded to the Alliance associated with the scoring Robot.

<G05> Autonomous Period – During the Autonomous Period, a robot will earn 3 points for ending autonomous entirely out of their starting box, 5 points for placing a gem on their Alliance Scale and 10 points for placing a Gem on the Coop Scale.

<G06> Teleoperated Period – During the Teleoperated Period, an Alliance will earn points for each Gem fully supported on their Alliance's Scale or the Coop Scale. The value of every Gem will increase if the scale they are on is balanced at the end of the Match. A scale is only balanced if it is within 5 degrees of level. Robots only receive points for Gems supported on their side or the Coop scale.

Scale	Normal Score	Alliance Scale Balanced	Coop Scale Balanced
Each Gem	4	8	12

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<G07> Rubble Scoring - An Alliance will receive 2 points for every piece of Rubble on the opposing Alliance's side of the Quarry and an additional 20 points if the opposing Alliance has more Rubble at the end of the match. Rubble will only be score after the completion of the match.

5.3.4 Game Play

5.3.4.1 Starting Conditions

<G08> Robot Starting Positions – Prior to the Match, each robot must be placed entirely in Starting Zone on their Alliance's side of the Quarry .

<G09> Robot Alignment Devices – Alignment devices (templates, tape measures, etc.) that are not part of the Robot may not be used to assist with positioning the Robot. Teams that use external alignment devices to position their Robot will receive a penalty.

<G10> Robot Starting Size – At the beginning of a Match, each Robot must not exceed the maximum size allowed in *Section 6 – The Robot*. The head referee may inspect the Robot size prior to the start of any Match. Robots in violation may be prohibited from participating in the Match.

<G11> Game Piece Locations – Each Human Player will have thirty Gems in their bin prior to the Match.

<G12> Quarry Equipment – Other than the game pieces and competing Robots, no other items shall be placed on the Quarry prior to, or during, the Match.

5.3.4.2 Match Play

<G13> Robots may not intentionally contact or impede the actions of robots on the other side of the Cliff. The offending robot will receive a penalty for every 5 seconds they are in contact with the opposing robot on the other side of the Cliff.

<G14> During the Teleoperated Period, Robots can move Rubble at any time but points for Rubble will only be given at the end of the match.

<G15> At any time during a match, a robot may not intentionally have more than 5 Gems in their possession. Doing so will result in a penalty for every Gem more than the allowed 5. (There is no limit on the number of Rubble a robot may possess.)

Explanatory Note: In this context, to be in "possession" means Gems must be in the robot or be intentionally pushed by the robot.

<G16> Causing Penalties – A Robot's action shall not cause an opposing Robot to break a rule and thus incur penalties. Any rule violations

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committed by the affected Robot shall be excused, and no penalties will be assigned for violations committed by the affected Robot.

<G17> Alliance Penalties – Unless otherwise noted, all penalties assigned by referees are applied to the entire Alliance score.

<G18> If at any time during the Match a Gem leaves the Quarry, the gem will be placed in the Human Player Bin closest to the location where it left the Quarry.

<G19> If at any time during the Match, a piece of Rubble leaves the field, then it will be placed on the same side of the Quarry that it left from.

5.3.5 Robot Operations

5.3.5.1 Robot Movements

<G20> Robot out of Bounds – Any Robot that entirely leaves the Quarry boundary will be disabled for the remainder of the period (either Autonomous or Teleoperated). The Quarry boundary is defined as the outside plane of the outer walls of the Quarry. No Penalty will be assigned provided no other rule is violated.

5.3.5.2 Robot Interactions

<G21> Arena Interaction – Robots may not grab, grasp, or attach to any Quarry structure. If a Robot violates this rule, the offending Team will be given one warning. If the referee determines that the Team is disregarding the warning, they will be issued a Penalty and their Robot will be disabled for the remainder of the Match. Robots that become entangled in the Quarry elements will not be freed until after the match has finished, unless the Robot Entanglement represents a safety hazard.

<G22> Arena Damage – Any Robot that has damaged any part of the Quarry may be disabled if the head referee determines that further damage is likely to occur. The Team may be required to take corrective action (such as eliminating sharp edges, removing the damaging mechanism, and/or re-inspection) before the Robot will be allowed to compete in subsequent Matches.

<G23> Disabled Robots and Penalties – If a Robot becomes incapacitated (e.g. the robot overturns and cannot be righted, the battery falls out, etc.), it may be completely disabled. Robots that are disabled in this manner cannot incur further penalties. Disabled Robots may be pushed out of the path of travel without Penalty.

<G24> Autonomous Interaction – If a referee believes a Team's autonomous code was written to purposefully interfere with the opposing Alliance's robots, the offending Team's code must be altered to avoid interference with the opposing Alliance. Any alteration must be shown to

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a knowledgeable Team Driven staff member before it is permitted to play in another Match.

<G25> Robot Entanglement – Entangled Robots will be disabled if attempts to disengage cause damage to another Team's Robot or create a dangerous situation. If it is determined that a Robot intentionally entangles an opposing Robot, the offending Robot will be disqualified. If, due to loose cables, hoses, cords, etc., a robot unintentionally but routinely entangles another Robot as a result of normal game interaction, the Robot may be disqualified. The Team will be required to repair the entangling elements before the Robot will be permitted to participate in subsequent Matches.

<G26> Arena Reset – Robots must be designed to allow the release and removal of any game pieces from the Robot after a Match. If a Robot violates this rule, the offending Team will be warned and requested to modify the Robot. If the modification is not made, the Robot may not be permitted to compete in future Matches.

5.3.6 Team Member Actions

<G27> Team Members in Arena – Each Alliance shall have no more than the four designated members (two from each of the two participating Teams) around the Quarry during a Match. Any Alliance with additional team members around the playing field may be assigned a Penalty, and the additional personnel must leave the area before the Match can proceed.

<G28> Team Positions During Autonomous Round – During the Autonomous Period, the drivers must stand inside of the driver station and Human Players must sit or kneel on the ground in the human player zones. Each violation (stepping outside the designated area) will result in a Penalty. Exceptions will be made in cases involving personal or operator console safety, and where accessibility needs dictate.

<G29> Team Positions During Teleoperated Round – During the Teleoperated Period, the Drivers and Human Players must stay within their respective player zones. Each incident of stepping out of the designated area will result in a Penalty. Exceptions will be made in cases involving personal or operator console safety.

<G30> Game Piece Interaction – No team member except the Human Player may contact Gems or Rubble at any time during the Match. Violations will result in a Penalty.

<G31> Game Piece Interaction – The Human Player may only enter Gems onto the Quarry with the Waterwheel. If a Gem enters the Quarry by any other means, the offending Alliance will be penalized.

<G32> Drivers Operating Robots – During a Match, the operator console shall be

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operated solely by the Driver. Any operation of the operator console other than the designated team member will result in the Robot being disabled and the offending team being disqualified from the Match.

<G33> Outside Communication – No outside electronic communication is permitted with the Driver or Human Player of any team during a Match. This includes but is not limited to, cell phones, 2-way radios, and Bluetooth or other wireless devices.

Explanatory Note: The intent of this rule is to ensure no team gains an unfair advantage by communicating with parents, mentors, coaches, or other students outside the arena area. Communication of any sort that is deemed unfair by the head referee, Game Design Committee, or Tournament Director will not be allowed.

<G34> Respect and Professional Demeanor – Junior Robotics League competitions promote respect and professional demeanor. In the event that any team members around the playing field are uncivil towards competition personnel or other teams, the Team may be disqualified from the Match. This rule applies to Teams at all times while around the playing field(including before, during, and after the match). Teams will not receive match penalties for actions off-Quarry; however, event personnel will hold them accountable for their off-Quarry actions. Any major problems will be resolved by the Tournament Director, and the Tournament Director holds the authority to award any Penalty up to and including ejection of the offending Team or individual from the tournament and expulsion from the premises. This rule also applies to team mentors and coaches, parents, and fans.

5.3.7 Referee Interactions

<G35> Referee Discussions – Any discussions regarding calls, rules, scores, or penalties related to a specific Match must be between the drivers and the head referee. Coaches and parents may not initiate discussions regarding previously played Matches with the head referee.

<G36> When making a ruling, the head referee may receive input from other sources, particularly Game Design Committee members, and technical staff that may be present at the event. However, **the Head Referee's decision is final.**

<G37> Any conditions of play not specifically covered in these rules will be left to the discretion of the head referee, Game Design Committee, and/or Tournament Director.