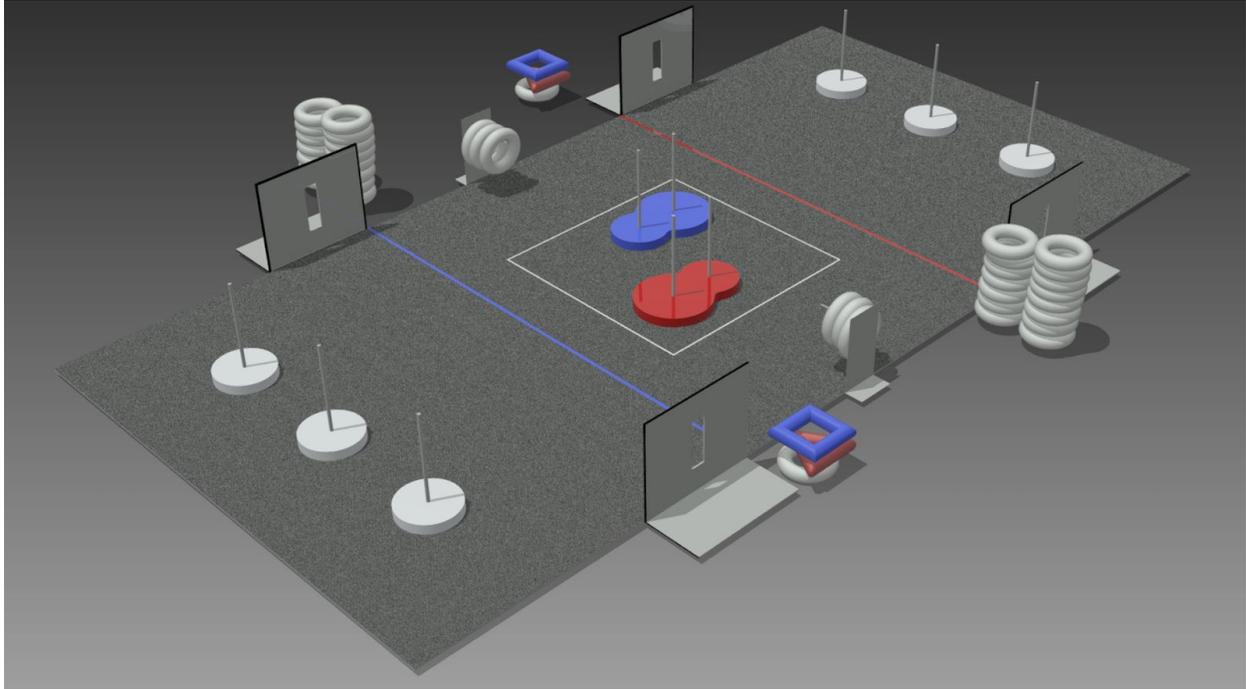




Logo by Dominic Canora

Official Space Race Game Manual



Game Summary

Space Race is a 3v3 game played on a 27 x 54 foot carpet playing field. Alliances of three robots each compete to score the most points.

During the autonomous mode each team begins in the neutral zone and is allowed 1 preloaded fuel cell. Robots will place fuel cells around the staging poles in their zone to earn points. Each fuel cell scored in autonomous mode is worth double the points of what would be awarded during the teleoperated period.

After the 15 second autonomous mode, drivers take control for the teleoperated period. Robots may gain possession of fuel cells from the human player station or preloaded pegs, and then score them on staging platform poles for 3 points each. After scoring 3 fuel cells on a staging pole, a special rocket piece is unlocked and may be entered into the field. In addition, the points of new tubes scored on pegs goes up. Be careful, though, as robots may descore any tube above the 3rd at any point during the teleoperated period.

Once you have completed your rocket and placed it on the gantry, you may release your minibot. If your minibot reaches the top first, then you get a larger scoring bonus than the opposing alliance, so make sure to rush to the tower!

Match timing

Each match is 2 minutes and 30 seconds long. The first 15 seconds of the match consists of the autonomous mode, in which robots operate with no human input. The next two minutes and 15 seconds are the teleoperated period, in which the robots are fully controlled by the human drivers.

Rules and scoring

Pre Match

G.1

Each **ROBOT** must start the match along the tape defining the **NEUTRAL ZONE**
Match will not start until condition is met

G.2

Each **ROBOT** must be entirely contained within its **FRAME PERIMETER** in its **STARTING CONFIGURATION**

Match will not start until condition is met

G.3

Each **TEAM** is allowed to begin with exactly 1 **FUEL CELL** contained by or contacting their **ROBOT** at the beginning of the match

Match will not start until condition is met

Autonomous Mode

G.4

Any **FUEL CELL** placed on a **STAGING POLE** will count as scored for double the usual fuel cell points.

G.5

FUEL CELLS scored in autonomous will count towards the total **FUEL CELL** count on a **STAGING POLE**.

G.6

ROBOTS may not cross into the **LAUNCH PAD** during autonomous
*(If violated: **FOUL.**)*

G.7

ROBOTS may not contact **OPPOSING ALLIANCE ROBOTS** during **AUTONOMOUS**

*(If violated: **TECHNICAL FOUL**)*

G.8

HUMAN PLAYERS may not inbound **FUEL CELLS** during **AUTONOMOUS**
*(If violated: **TECHNICAL FOUL**)*

G.9

A **ROBOT** may only **POSSESS** one **FUEL CELL** at a time in **AUTONOMOUS**
(If violated: **Foul**. If repeated violations: **Technical Foul**)

Teleoperated Mode

G.10

A **ROBOT** may only **POSSESS** two **FUEL CELLS** at a time

The following criteria define possession :

- A. “carrying” (moving while supporting **FUEL CELLS** in or on the robot or holding the **FUEL CELL** in or on the robot),
- B. “herding” (repeated pushing or bumping),
- C. “launching” (impelling **FUEL CELLS** to a desired location or direction via a mechanism in motion relative to the robot), or
- D. “trapping” (overt isolation or holding one or more **FUEL CELLS** against a field element or robot in an attempt to shield them).

G.11

Once 3 **FUEL CELLS** are scored on a **STAGING POLE** of a specific shape (Triangle, Circle, Square), that tube for the **ROCKET** will be given to the human player responsible for entering the special **ROCKET** tubes into the field.

G.12

Robots may **DESCORE FUEL CELLS** scored on **OPPOSING ALLIANCE STAGING PLATFORMS** above the third **FUEL CELL**. For example, if a **STAGING PLATFORM** has 4 **FUEL CELLS** scored on it, an opposing robot may remove the top one. Removing in any more will result in a **TECHNICAL FOUL**.

G.13

HUMAN PLAYERS may hold up to 2 tubes at a time

(If violated: **FOUL**, if repeat violations: **TECHNICAL FOUL**, If repeat egregious violations: Human Player switches roles with robot for following match)

G.14

HUMAN PLAYERS may not cross the plane into the field through the **FUEL CELL** slot, or otherwise

(If violated: **FOUL**, if repeat violations: **TECHNICAL FOUL**)

G.15

FUEL CELLS must be entered into play at the **HUMAN PLAYER STATIONS**.

There are 18 normal **FUEL CELLS** in the **FUEL CELL** inbound station.

*(If violated: **FOUL**. If repeated violations: **TECHNICAL FOUL**)*

G.16

FUEL CELLS that leave the field of play may not be re-entered into the field of play until returned to the appropriate **HUMAN PLAYER**

G.17

ROBOTS may not contact opposing alliance **ROBOTS** that are touching their **GANTRY**

*(If violated: **FOUL**. If repeat violations: **TECHNICAL FOUL**)*

G.18

ROBOTS may not **PIN** other robots for more than 5 seconds at a time

*(If violated: **FOUL**. If repeat violations: **TECHNICAL FOUL**)*

End Game

G.21

ROCKET pieces may be entered into the field once the respective piece's **SCORING PLATFORM** is filled up to three **FUEL CELLS**

*(If violated: **FOUL**. If repeated violations: **TECHNICAL FOUL**)*

G.22

The **ROCKET** must be placed on the **CENTER STAGING PLATFORM** in the following order, from the bottom up: Square, Circle, Triangle

G.23

Once an alliance has completed their **ROCKET** and placed it on the **CENTER SCORING PLATFORM** they may then send their **MINIBOT** up the **LAUNCH POLE**. The first **MINIBOT** to reach the top of the tower wins the race, but it is still worth points for the second alliance to reach the top

Additional General Rules

G.24

FUEL CELLS may not be deflated intentionally at any time

G.25

Robots may not at any time grab, grasp, grapple, or break any part of the playing field, including all **STAGING POLES/PLATFORMS** and walls

G.26

MINIBOTS may not be propelled by any mechanism on the **ROBOT**, they must be fully self powered

G.27

ROBOTS may not remove game pieces from the field intentionally
(If violated: **FOUL**. If repeated violations: **TECHNICAL FOUL**)

SCORING:

Autonomous Mode:

S.1

All **FUEL CELLS** scored in **AUTONOMOUS** are worth double the usual points

S.2

Each **ROBOT** that moves forward into the **SCORING ZONE** receives 2 points

Teleoperated Mode:

S.3

The first three **FUEL CELLS** on each **STAGING PLATFORM** are worth 3 points each

S.4

The next 3 **FUEL CELLS** on each **SCORING PLATFORM** are worth 4, 5, and 6 points respectively

S.5

Completing the **ROCKET** and placing it on the **CENTER STAGING PLATFORM** is worth 15 points

S.6

Once the **ROCKET** is fully constructed on the **CENTER STAGING PLATFORM**, additional **FUEL CELLS** may be scored on top of it for 4, 5, and 6 points respectively

S.7

FOULS are worth 3 points to the other alliance, **TECHNICAL FOULS** are worth 20 points to the other alliance

Staging Platforms Scoring Table

Height in Tubes	Teleop points (Autonomous x2)
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1	3
2	3
3	3
4	4
5	5
6	6

End Game

S.8

The first **ALLIANCE** to get their **MINIBOT** up receives 30 points, the second team to get their **MINIBOT** up receives 15 points

Launch Pad Scoring Table

Rocket Pieces	Points	Minibot Race	Points
Triangle	5	1st	30
Circle	5	2nd	15
Square	5		
Additional Tubes	3 each		

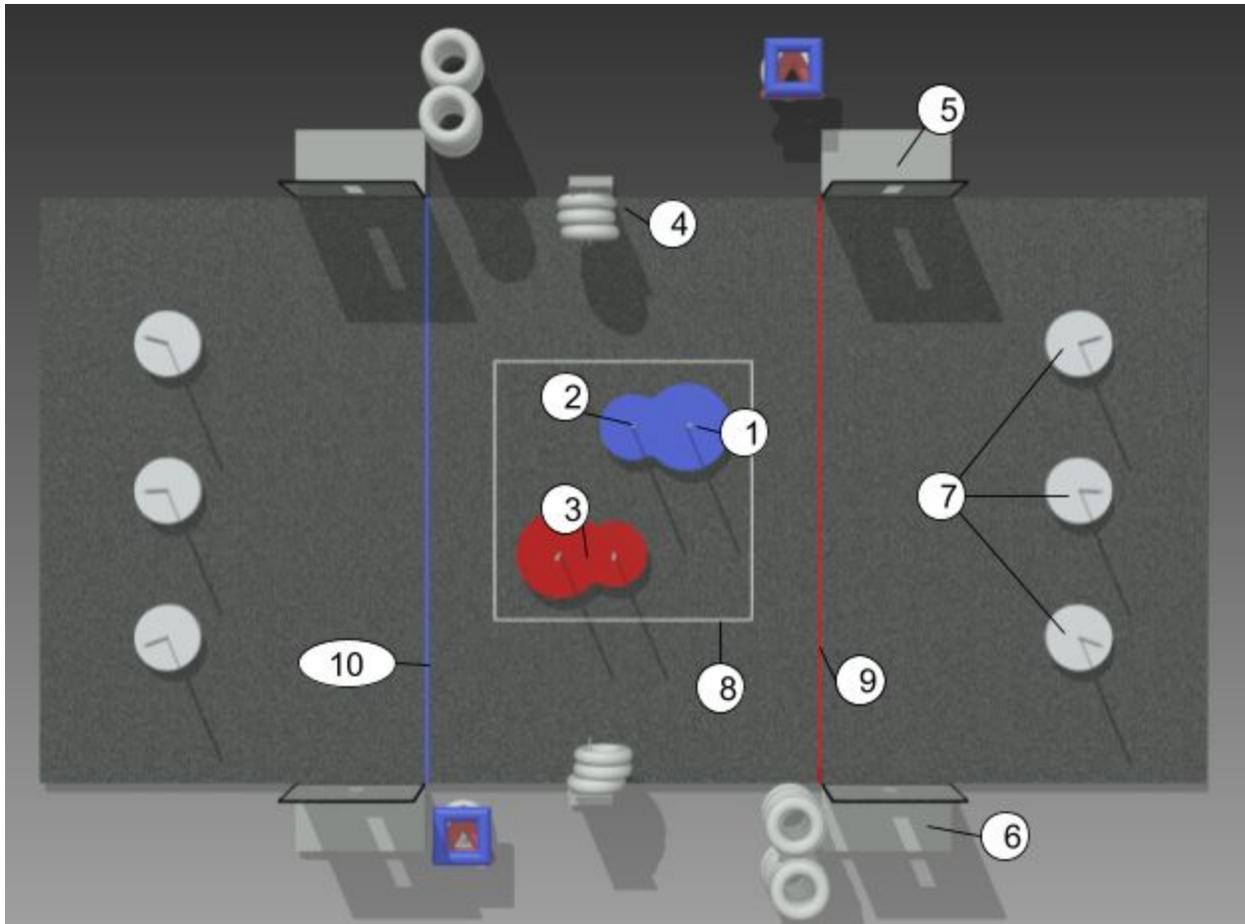
Ranking Order

1. Ranking score from Win(2pts)-Tie(1)-Loss(0)
2. Minibot points
3. Rocket points
4. Autonomous points
5. Fuel cell points
6. Foul points
7. Random FMS sorting

Glossary:

- ALLIANCE** - The three teams competing together on the red or blue alliance
- AUTONOMOUS** - The first fifteen seconds of the match in which robots operate without input from drivers
- TELEOP** - The 2 minutes and 15 seconds following autonomous in which drivers operate their **TEAM'S** robot
- CENTER STAGING POLE** - Located on the center platforms, used to place **ROCKET** pieces
- FUEL CELL(S)** - The white inner tubes designated for **STAGING POLES** fed through the **HUMAN PLAYER** station or received from the pegs on the side of the field
- FOUL** - A minor rule infraction as determined by the referees. The opposing alliance will receive 3 points when a team commits a foul
- STAGING POLE(S)** - The 3 poles located in each **ALLIANCE'S SCORING ZONE** on which **FUEL CELLS** are scored
- MINIBOT** - A small additional robot, powered separately from the main **ROBOT** with a maximum of 5 pounds
- TEAM** - A group of pre-college students and mentors registered with TIMS and competing with a **ROBOT**
- ROBOT** - The robot submitted to compete by each team that has passed inspection in its current state. Weight limit of 120 pounds not including the battery, bumpers, and minibot.
- NEUTRAL ZONE** - The area between the red and blue tape and not including the **LAUNCHPAD**
- STARTING CONFIGURATION** - All appendages inside the **ROBOT'S FRAME PERIMETER** and completely at rest. **ROBOT** must be capable of being turned on in this state
- FRAME PERIMETER** - The outermost edge of a team's **ROBOT**. Does not include bolt or rivet heads
- ROCKET** - The square, circle, and triangle to be placed on the **CENTER STAGING POLE** received for loading the respective **STAGING POLES** with 3 **FUEL CELLS**
- POSSESS** - See G.10
- DESCORE** - Remove fuel cells above the 3rd cell.
- TECHNICAL FOUL**- A severe or repeat infraction of the rules as determined by referees. The opposing alliance will receive 20 points when a team commits a technical foul
- HUMAN PLAYER** - A pre-college student. Each **TEAM** should have one Human Player, who should report to matches even when the team's **ROBOT** is not able to report. Enters **FUEL CELLS** and **ROCKET** pieces into the field
- GANTRY**- The center platforms housing the **CENTER STAGING POLE** and **MINIBOT POLE**
- LAUNCH PAD** - The area in the center of the field outlined by white tape
- SCORING ZONE** - The area inside each alliance's taped color line containing the **STAGING POLES**

ADDITIONAL GAME IMAGES



1. Center Staging Pole
2. Minibot Pole
3. Gantry
4. Side tube pegs. Each peg has 3 tubes preloaded at the beginning of the match
5. Blue Human player Rocket station
6. Blue human player fuel cell station
7. Staging Poles
8. Launchpad
9. Red scoring zone/Neutral zone barrier
10. Blue scoring zone/Neutral zone barrier