

# **Fall 2002 Simple Machines Robotics Competition**

**Hogg Middle School**

**December 7, 2002**

**LEGOonauts, welcome to LEGO Centauri. Wow, that was a long journey from Earth. Now we must put our exploration team into action. Unfortunately, our transporters were damaged in the landing; therefore we need a team to develop a robot that will help transport 30 LEGOonauts from the LANDING ZONE to the EXPLORATION ZONE. Is anyone here ready to step up to the challenge?**

**Below is everything that we know about the challenge.**

- The team must be ready to execute the mission on December 7, 2002 at Hogg Middle School.**
- The equipment available for a team to build a robot or robots is 3 LEGO Motorized Simple Machines Kits.**
- The following diagram presents the environment which will be encountered.**

**Robot**

**Base**

**“Mountain”**

**4 ft**

**2x4 border**

**4 ft**

- The following diagram presents where the LEGOonauts will be in the LANDING ZONE.**

**LEGOonauts at Base Dual Transporter**

**Robot Base**

**16” Robot**

**12”**

**Base Lift Transporter**

**Quad Transporter**

## ***Solo Transporters***

### ***Platform***

#### ***Transporter***

##### ***Mass Transporter***

- ***The team has 2 minutes to complete the mission.***
- ***The team scores 5 points for transporting a LEGOnaut to the EXPLORATION ZONE.***
- ***The team scores 2 points for transporting a LEGOnaut to the HABITATION ZONE.***
- ***The team's score is determined at the end of the 2-minute mission.***
- ***A LEGOnaut counts if any part of the LEGOnaut is breaking the plane of the zone.***
- ***The mountain is considered part of the HABITATION ZONE.***
- ***The black line between the HABITATION ZONE and LANDING ZONE is considered part of the HABITATION ZONE.***
- ***A LEGOnaut in both the EXPLORATION ZONE and HABITATION ZONE counts 5 points.***
- ***The team's robot/robots must start inside of the ROBOT BASE and every time it is returned to the ROBOT BASE during the mission.***
- ***The robot shall not have any elastic stored energy (i.e. stretched rubber band) when the mission begins or when the robot is returned to base but elastic stored energy can be generated from activating a motor.***
- ***The ROBOT BASE is the 12" x 16" boundary extended vertically (i.e. the robot can not hang over the line at the beginning of the mission).***
- ***The team can touch their robot without penalty when the robot is partially inside the ROBOT BASE***
- ***The controller and wire are NOT considered part of the***

**robot.**

- **The black line indicating the ROBOT BASE is NOT part of the ROBOT BASE.**
- **A penalty of 5 points will be assessed if a team touches their robot that is outside of the ROBOT BASE.**
- **If a robot is touched, the robot must be returned to the ROBOT BASE to continue the mission.**
- **The controller and wire can ONLY be used to provide electrical power to robot motors (i.e. it can not be used to drag the robot, corral LEGOnauts, etc.).**
- **If a controller or wire are used illegally (judges call), the team will be required to immediately place the robot back in the ROBOT BASE to continue the mission.**
- **A team may touch any playing piece (Lift Transporter, Mass Transporter, LEGOnaut, etc.) COMPLETELY inside the ROBOT BASE without penalty.**
- **If a playing piece is illegally touched, the playing piece along with all attached pieces will be removed from play for the remainder of the mission.**
- **A playing piece is NEVER considered part of the robot.**
- **A penalty of 10 points will be assessed for each LEGOnaut that leaves LEGO Centauri (i.e. the playing field).**

**Please contact Lucien at [Lucien.Junkin@jsc.nasa.gov](mailto:Lucien.Junkin@jsc.nasa.gov) with any questions or comments.**

**Thank you for maintaining the spirit of the game!**