

The Robot Game

Robot Construction Demonstration



PROJECT BUCEPHALUS



**CITY
SHAPER™**

Game Overview

Game Overview





Important Rules

You HAVE to read the Challenge Guide to understand the game completely

However, here are the top rules that cause problems...

Important Rules

GP2: Interpretation

- If a detail isn't mentioned, then it doesn't matter.
- Robot Game text means exactly and only what it plainly says.
- If a word isn't given a game definition, use its common conversational meaning.

The Home of Loopholes!

Look for hidden freedoms in the Mission Text
Beware of "Captain Obvious"



Important Rules

Game Guide (pg. 7 - Construction)

TIP – At tournaments you should expect, and design for, rare imperfections like changes in light, or bumps under the mat.

Beware!

- Tables can be slightly different widths
- There are (legal) variances in wall height
 - Mats do not have to be taped down
- **Do not depend on wall width or anything outside the table**

Important Rules

Rule 19 (Inspection)

Show the Referee that ALL your Equipment fits in either the **Large** or **Small** Inspection Area, under the height limit.

- **Large:** No Benefit.
- **Small:** +5 (or +10!) bonus points per mission.



Important!

You can spread out your Equipment after Inspection

Important Rules

Launch Area

The Launch Area is the space 12 inches directly above the Field's southwest quarter-circle region. The area ends at the edge of the mat and does not extend over the wall.



Beware!

Anything hanging over the wall or mat edge (even cables) is outside Launch Area

Important Rules

Home

The area between the West wall and the mat edge. All Equipment is stored here, and robots must be **completely** in Home to be interrupted without penalty. There is no height limit



Beware!

Anything hanging over the wall or mat edge is outside Home Area
You can't store equipment outside Home this year



Important Rules

Game Guide (pg. 7 - Hardware)

- **Controllers:** ONE individual controller in any particular Match...
- **Motors:** Any combination, max of four in total.
- **Sensors:** Unlimited Touch/Ultrasonic/Gyro/Colour
- **Remote:** No remote control

Read each individual rule carefully!

- Turn off Bluetooth
- 4 motors only (and **only** the allowed types)
 - No IR Sensor

Problem even at Internationals!



Important Rules

Rule 18: (Before the Match Timer Starts)

After getting to the Field on time, you have at least one minute to prepare. During this special time only, you may also...

- ask the Ref to be sure a Mission Model or setup is correct,

and/or

- Calibrate/reset sensors anywhere you like.

Be aware of time!

- Get your team to practice setup in 1 min
- Do not touch the field without permission



Important Rules

Rule 25 (During the Match):

- Don't take Mission Models apart unless the Mission asks you to.

Dismantling a Mission model (even temporarily) is not allowed. Twisting or rotating Mission Models is allowed, provided they stay intact (e.g. Loop on the Bat)

Read carefully!

This is even a problem at Internationals

Important Rules

Rules 27 – 29 Interruption/Stranding

Rules for Cargo when interrupted:

Interrupted Cargo from Field

- Completely In Home: Keep it
- Not Completely In Home: Give to Ref

Interrupted Cargo from Launch

- Keep it

Stranded Cargo

(Once it has come to rest)

- Completely In Home: Keep it
- Not Completely in Home: Leave as is



Important Rules

New Match Start Sequence

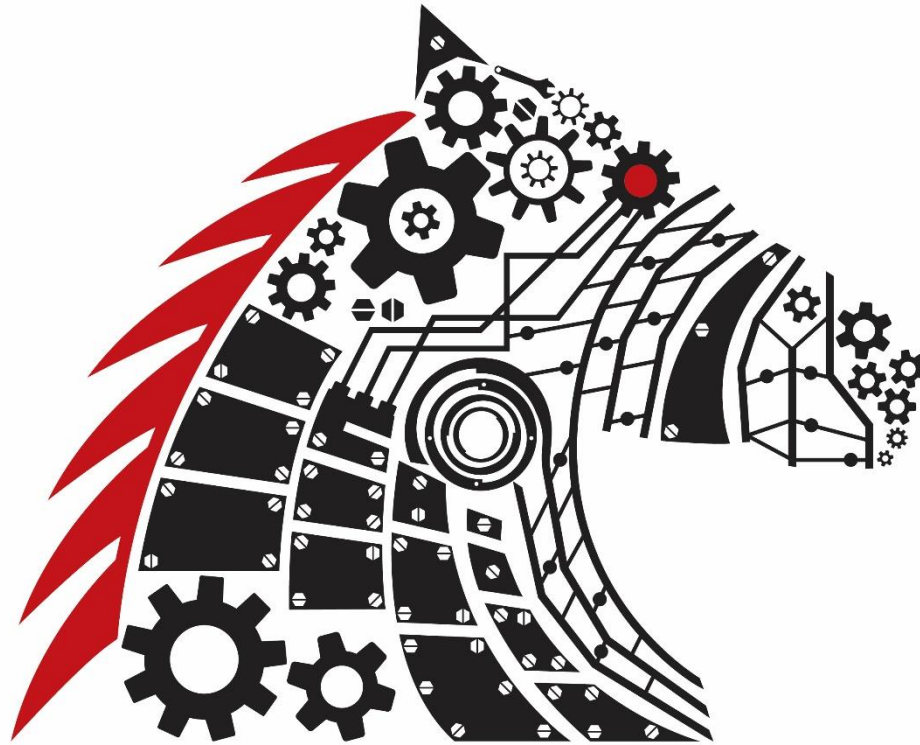
1. Arrive at Table. Calibrate/Set up (**Rule 18**)
2. Inspection: All equipment must be in Large or Small Inspection Area and under height limit (**Rule 19**)
3. After Inspection: Arrange all equipment in Home or Launch Area (**Rule 19**)
4. Pre-Launch: Robot and everything it's using must be completely in Launch Area and under height limit (**Rule 21**) and **nothing on the Field is moving or being handled**.
5. In-Match: Any touch of the robot when it is not completely inside Home is an Interruption, losing precision disc (**Rule 27**)



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Robot Missions

645 pts?

Game Overview



Robot Game Missions

Mission 1: Elevated Places

- Robot Supported by Bridge (20 pts)
- Each Flag clearly raised any distance, only by the Robot (15 pts per flag)

Restrictions:

- Only get Flag points if you get bridge points
- Only robots holding flag raised get points
- Collisions Allowed

+20: Bridge

+15: for each Flag

+5 for Small Inspection



Robot Game Missions

Mission 2: Crane

Blue Hooked Unit is:

- Clearly Lowered from Guide Hole (**20 pts**)
- Independent and supported by another Blue Unit (**15**)
- **AND** Level 1 Completely in Blue Circle (**15 pts**)

Cumulative!



+20: Lowered Unit
+15: Stacked Unit
+15: In Blue Circle
+10 for Small Inspection



Robot Game Missions

Mission 3: Inspection Drone

- Inspection Drone supported by axle on Bridge (10 pts)



+10: Drone Placement

+5 for Small Inspection



Robot Game Missions

Mission 4: Design for Wildlife

- If the Bat is Supported by branch (B) on the Tree (10 pts)



+10: Bat Supported

+5 for Small Inspection



Robot Game Missions

Mission 5: Treehouse

If a Unit is independent and supported by the Tree's

- Large Branches (**10 pts per Unit**)
- Small Branches (**15 pts per Unit**)

Cumulative!



+10: Units in Large Branches

+15: Units in Small Branches

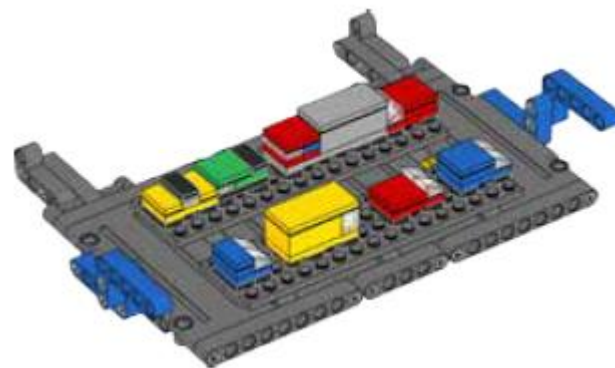
+5 for Small Inspection



Robot Game Missions

Mission 6: Traffic Jam

If the Traffic Jam is lifted, its moving part is Independent,
and it is Supported by its own hinges (**10 pts**)



+10: Traffic Jam Lifted

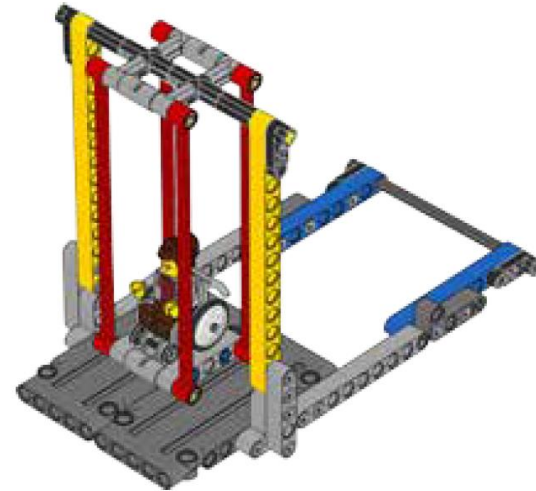
+5 for Small Inspection



Robot Game Missions

Mission 7: Swing

If the Swing is released (20 pts)



+20: **Swing Released**

+5 for **Small Inspection**

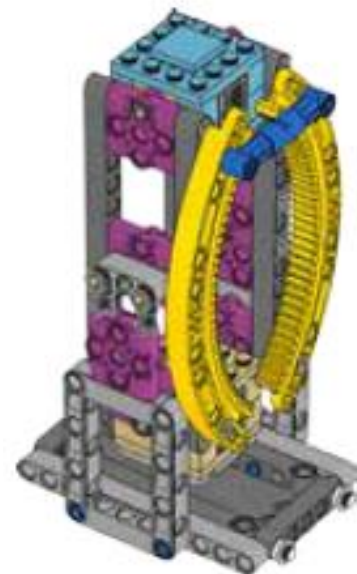


Robot Game Missions

Mission 8: Elevator

If the Elevator's moving parts are Independent, and Supported only by its hinges and:

- Blue Car Down (**15 pts**) OR
- Balanced (**20 pts**)



+15: Blue Car Down OR

+20: Balanced

+5 for Small Inspection



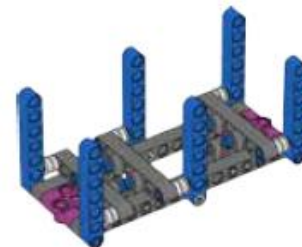
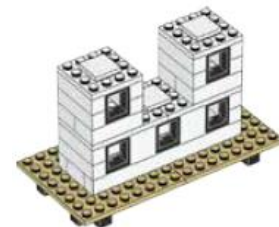
Robot Game Missions

Mission 9: Safety Factor

The Test Building is Independent and Supported only by the blue beams, and some beams have been knocked out (**10 pts per beam knocked out**)

Restrictions:

- To count, each beam must be knocked out at least half-way.



+10: **per beam**

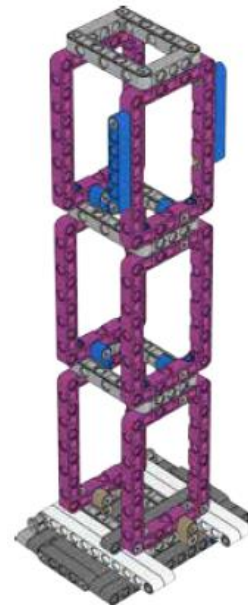
+5 for **Small Inspection**



Robot Game Missions

Mission 10: Steel Construction

If the Steel Structure is standing, and is Independent, and Supported only by its hinges (**20 pts**)



+20: **standing structure**

+5 for **Small Inspection**



Robot Game Missions

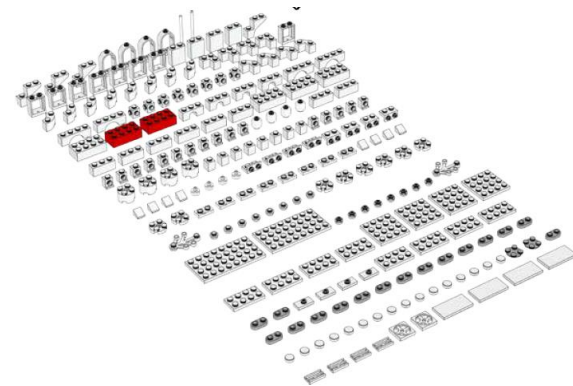
Mission 11: Innovative Architecture

Construct a team-designed Structure clearly bigger than a Blue Building Unit, built only from your white LEGO bricks. Place:

- Completely in any Circle **(15 pts)** **OR**
- Partly in any Circle **(10 pts)**

Restrictions:

- Some measure of the Structure must be at least as long as a four-stud LEGO element.



+15: Structure completely in Circle
OR

+10: Structure partly in Circle

+5 for Small Inspection



Robot Game Missions

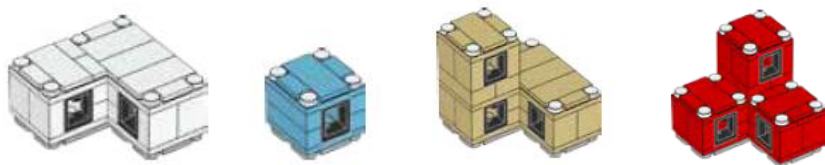
Mission 12: Design and Build

LOCATION: Each Circle with at least one colour-matching Unit Completely In, and Flat Down on the Mat (**10 pts per circle**)

HEIGHT: Independent Stacks at least partly in any Circles, add all of their heights together (**5 pts per Level**)

Restrictions:

- The Blue Circle is not part of Mission 12
- A Stack is one or more Building Units with Level 1 touching Flat Down on the Mat, and any higher levels touching Flat Down on the level below



+10: per Colour-Match

+5: per Stack Level

+5 for Small Inspection



Robot Game Missions

Mission 12: Design and Build (Examples)



Colour match = **NO**
Tan stack = **2 levels**
White stack = **1 level**

15 points shown



Colour match = **NO**
Bridged stack = **4 levels**

20 points shown



Colour match = **YES (RED)**
Red stack = **2 levels**
Other stack = **4 levels**

40 points shown

Robot Game Missions

Mission 13: Sustainability Upgrades

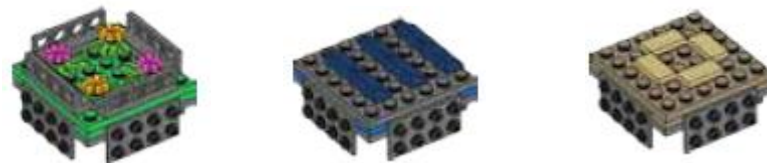
Upgrades (solar panels, roof garden, insulation) are Independent, and Supported only by a Stack which is at least partly in any Circle (**10 pts per upgrade**)

Restrictions:

- One Upgrade per Stack

+10: **per upgrade**

+5 for **Small Inspection**



Robot Game Missions

Mission 14: Precision

Number of Precision Tokens left on the Field:

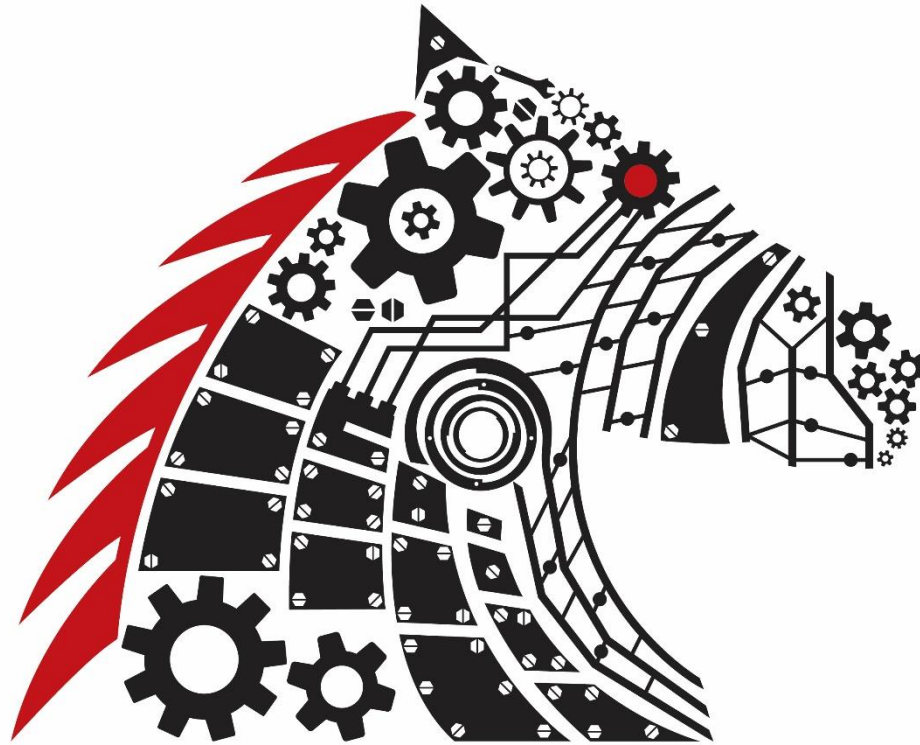
- 6 Tokens **(60 pts)**
- 5 Tokens **(45 pts)**
- 4 Tokens **(30 pts)**
- 3 Tokens **(20 pts)**
- 2 Tokens **(10 pts)**
- 1 Tokens **(5 pts)**



+60 to +5: **standing structure**

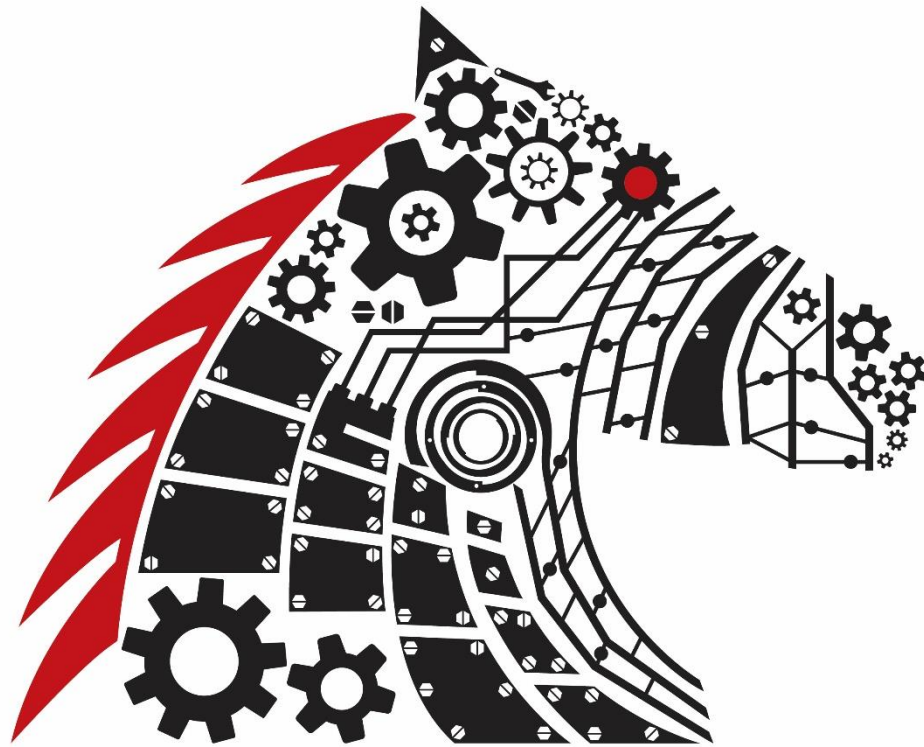
NO Small Inspection





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Questions?



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