

# TUG OF WAR

## Rulebook



## Tug of War Competition Rules

### 1. Objective:

Teams must design and build a robot using LEGO and NON LEGO to compete in a tug of war. The goal is to pull the opposing team's robot across the center line or hold your ground for the duration of the match.

### 2. Competition Structure:

- The competition will be organized as a tournament, with elimination rounds leading to finals.
- Each match will be one-on-one between two teams.

### 3. Team Composition:

- **Team Size** : 3 : 5 people guided by a Coach.
- **Teams will be divided into two age categories**:
  - **Junior**: Ages 7 - 12 years (**LEGO KITS**).
  - **Senior**: Ages 13 - 18 years (**NON.LEGO using any type of robot**).

### 4. Arena Setup (Playground):

- **Dimensions**: The arena will be a rectangular field with **244 cm X 120 cm**.
- **Center Line**: A line will be marked in the center of the arena and **will be 2 cm**. The robots start behind their respective lines on opposite ends.
- **Pull Zone**: Robots must remain in the pull zone during the match. Crossing into the opposing zone may lead to penalties.
- **Playground Material** : will be from **banner**.

### 5. Rope Specifications:

- **Length**: The rope will be **70 cm** in length.
- **Material**: The rope used in the competition will be made of **cotton** and will have a thickness of **5 mm**.
- **Attachment**: The rope will be securely tied to the robots via designated attachment points (**defined in robot design**).



## 6. Robot Specifications:

- **Dimensions:** The maximum size of each robot **25 cm X 25 cm**.
- **Weight:** Robots must not exceed **2 kg** in total weight, including all attachments and mechanisms.
- **Pulling Mechanism:** The robot must be designed to pull the rope from the front (**facing the opponent**). The pulling force should be directed from the robot's front face, ensuring a head-to-head tug of war.
- **Hook Attachment:** Each robot must incorporate a designated attachment point or mechanism capable of securely holding a hook. This attachment point should be positioned in the front and must be easily accessible for connecting the rope's hook at the start of the match.
- **Motors:** Each robot is limited to using up to **4 motors (for LEGO category)** And no limitations (**for NON-LEGO**)
- **Sensors:** Optional, but teams may use any sensors to enhance performance.
- **Modifications:** Only parts from the LEGO kits may be used. No external materials or NON-LEGO components are allowed (**for LEGO category**).

## 7. Power and Control:

- Robots must be controlled autonomously using pre-programmed code. No external remote controls or manual input during the match.
- The robots must be fully powered by battery packs.

## 8. Match Duration:

- Each match will last a maximum of **2 minutes** with **3 rounds**.
- Robots must **stop pulling** after **2 minutes**.
- If a robot successfully pulls the opposing robot across the center line within the time limit, that team wins.
- If no robot crosses the line by the end of the time limit, the winner will be determined based on which robot is closer to the center line.

## 9. Robot Start Position:

- Robots will be positioned on either end of the arena, **with a distance of 35 cm from the center line**.
- Both robots must be stationary before the match begins.

## 10. Penalties:

- **Line Violation:** If a robot crosses the opponent's pull zone boundary, it will be penalized by a reduction in match points.
- **Unfair Play:** Any attempt to interfere with the opposing robot (other than pulling via the rope) will result in disqualification.

## 11. Scoring:

- **Win:** Successfully pulling the opposing robot across the center line awards the team a win.
- If no robot crosses the line by the end of the time limit, the winner will be determined based on which robot is closer to the center line.
- If the **hook attachment breaks** during the pulling phase, the **other robot will automatically be declared the winner of the match.**
- However, you can **repair the hook attachment** after the round to **participate in the next round.**

**Draw:** If neither robot crosses the center line after 2 minutes, and both remain in the same position relative to the center line, the match will be considered a draw.

## 12. Safety Rules:

- No sharp edges or dangerous parts may be attached to the robots.
- Participants must adhere to safe building practices and ensure the robots are stable and secure during operation.

## Note:

To download the playground ready for printing click this link:

[https://drive.google.com/drive/folders/1VSD-whHtiEAEo3t\\_rKHtvRbfiJMgDBME?usp=sharing](https://drive.google.com/drive/folders/1VSD-whHtiEAEo3t_rKHtvRbfiJMgDBME?usp=sharing)



**Good Luck**