



## GEARLOOSE

*Team Event, Open To All*

*Points: 30*

### **Introduction**

Creativity is seeing what everyone else has seen and thinking what no one else has thought.

-Einstein

Everyone as a child desires and have impulse for making simple machines. All you need is to awake and bring out the engineer inside you. Get ready to baffle your mind to come up with an ingenious idea for this year's problem statement of designing a vehicle that can perform certain tasks.

### **Mission Objective**

The objective for this competition is to design a vehicle that can travel down an incline, launch itself clear over a wall and land the furthest from the wall without going out of the sand box.

### **Problem Statement**

The arena consist of an incline followed by a flat horizontal surface and a wall (4' high and 1'' wide) and a sand box lying at its base. The bot/mechanism has to move down the incline and traverse the flat surface. Next it must launch itself by means of some internal potential energy or acquired kinetic energy. Design and fabricate a vehicle which is capable of moving on incline and jumping across the wall.

### **It must be capable of performing two tasks-**

- 1.) Firstly it must smoothly descend the incline and cross the horizontal surface.
- 2.) Secondly, it must launch itself to jump across the wall and land on the sand box.

### **Rules and Regulations**

- A team may consist of a maximum of 3 members from the same pool.
- The dimension of the vehicle must not exceed a length of 12'' and width and height of 4''.
- All components used must be part of the vehicle and must remain attached to the vehicle at all times.
- Only non-electrical sources can be used. They must not pose any kind of danger to the spectators and competitors. NO EXPLOSIVES OR CHEMICAL REACTIONS OF ANY KIND WILL BE PERMITTED.
- The launching mechanism may be some sort of spring, wind up mechanism, compressed air, etc. All part must remain with the vehicle at all times.
- The only power for the vehicle to get passed the marked line (see fig.) will be potential energy.
- Vehicle should not damage the arena in anyway otherwise it might lead to disqualification of the team.
- The chassis of the vehicle can be made from cardboard, plastic boxes, thermocol etc.

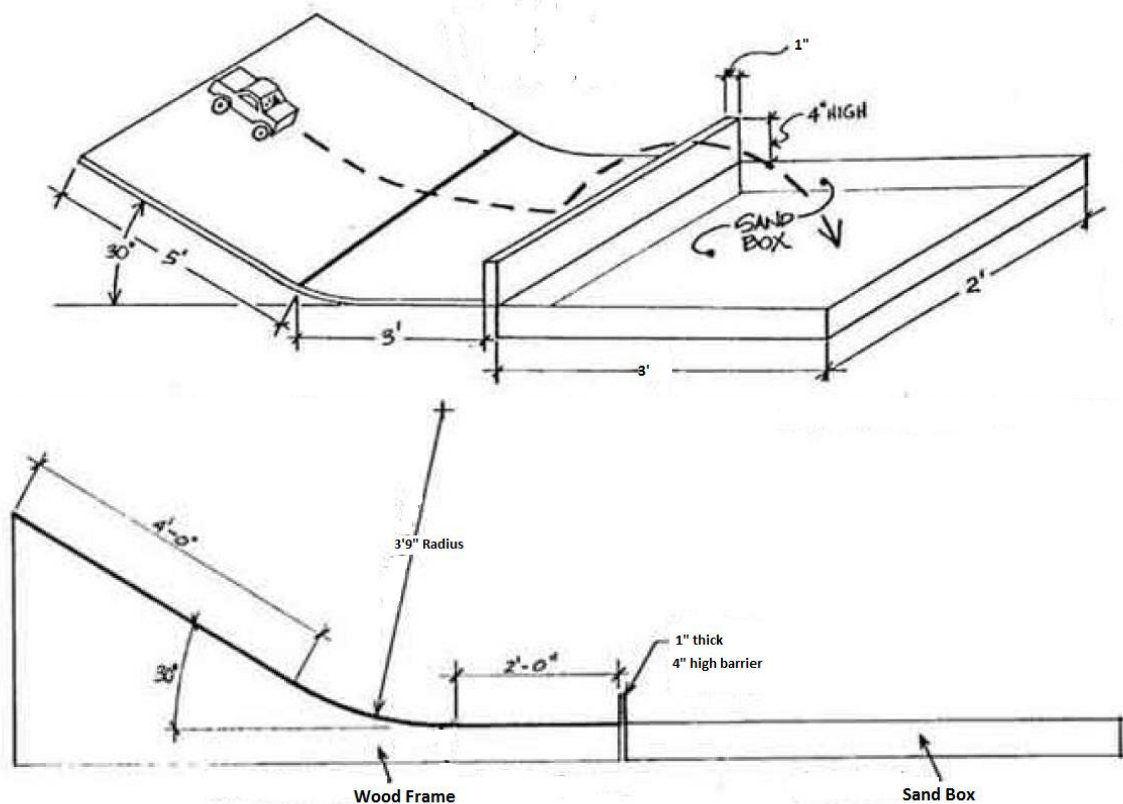


**SCORING**

- A maximum of 100 points will be awarded to a team.
- 30 points will be awarded if vehicle moves stably on the incline. If vehicle falls no marks will be given.
- 30 points will be awarded if the vehicle jumps across the wall cleanly without touching it. If the vehicle comes in contact with the wall 0 points will be awarded.
- The distance will be measured from the base of the wall to the first point of contact with the sand box. Suppose the distance measured is  $x'$ , then
  - if  $x < 1$ ; 10 points will be awarded.
  - if  $1 < x < 2$ ; 20 points will be awarded.
  - if  $2 < x < 3$ ; 30 points will be awarded.
  - if the vehicle lands outside of the sand box then no points will be given.
- 10 points will be provided if the vehicle lands on its feet.
- Only one intervention is allowed and that too when the vehicle is on the incline and it has completely stopped. 10 points will be deducted for the intervention.
- Each team will be provided 3 chance and the average of 3 scores will be taken.

**ARENA**

VEHICLE INCLINED PLANE



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