

Science Olympiad

Trajectory and Storm the Castle

Items Required

- High Impact Safety Goggles
- (C team) Projectiles and counterweights
- Design Log
- The Machine itself
- Two calculators, of any type

Design Log

- It should include a labeled photo of all components in your launching device
- A few graphs or tables, that show the relationship between your components positions and the distance traveled.
 - Include calculations
 - Max of 4 graphs
- Design log will be submitted with the impound time

Impound

Your machine must be able to fit within a 65/60 (B/C)cm cube

During Impound, you must also impound your design log, your design log should include yours and yours schools names.

Construction parameters

The triggering device, will not be considered a part of the rest of the device, and it must reach 75cm away from the launching area(The launching area will be a square measuring 1x1/1x1.5 m)And unsafe measures for triggering devices are not allowed.

(B team) - the counter weights and projectiles will be provided, but the devices must be able to fit such devices, the projectiles will be a racquetball and a tennis ball, the counter weights will be two different calibration weights, no bigger than 15 cm on any side.

No devices should include breaking parts that could damage people or the environment

Competition area

The launching area will be designated by tape, the devices should have no part that leaves this launch area, except the trigger device which must sit behind another tape line that is 75 cm away from the launch area.

The competition area will have a light coating of sand, just to insure relatively accurate measurements for distances.

Competition area B (part 2)

The target will be a 5 gallon home depot bucket, the target will be along a centerline that will be denoted by tape.

The distance that the bucket is from the launch area, will be stated during the competition, and will be the same for all launches of that type, near or far.

Competition area C (part 2)

The targets will be a 1x1 m tile.

The near target will fall on the taped center line, and the far target will be a maximum of 2m away from the center line, in intervals of .25m

The tiles will be a minimum of 2m away from each other. In the most direct path.

The location of tiles, will be the same for all teams, however will not be announced until the competition starts

A 5 gallon bucket is available upon request, if you wish to attempt a bucket shot that must be stated prior to the shot and it will replace one of your 4 shots. You must state which type near or far shot that it will replace, however it can only be requested if the first shot was within 500mm of the target

The competition

When you decide to start your trials, you will have 8 minutes to setup your device, any launch intended or otherwise will count against you. You are allowed 2 shots for each type(Near/Far). This will total to 4 shots. All shots must call which one you are attempting to do before launch is commenced.

Points for distance will be calculated by distance in a straight line. Any projectile that hits a wall or pillar will count from that impact, if it hits the roof, we will choose the next surface it hits instead.