

AQUANAUT

Problem statement:

The participants are required to design and build a water rocket (single stage/multi stage) that is completely powered by the thrust provided by compressed air in the bottle and using water as the fuel .

Rounds:

Round '1'-Range Test:

- 1.The maximum range covered by water rocket (without any payload) is tested.
- 2.The distance between the launch pad and the point of landing is measured and taken to be the points in this round.
- 3.Two trials will be given to each team and the better of the two will be considered.
- 4.The rocket can be multi-staged but the total volume of the pressure chamber should not exceed 1.5 liters.
- 5.The pressure inside the pressure chamber should not exceed **40 psi**.
- 6.Only 40 percent of the participants appearing in first round will be qualifying into second round which depends upon the range covered.

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Round '2'- Accuracy Test:

1. Three trials will be given to each team and the average of the three will be considered.
2. The pressure inside the pressure chamber should The following formula will be used for judging the winners of the event in the second round.

Total points earned= not exceed 40 psi.

3. Winner is decided on final points secured.

$N \times \text{range of projectile (mts)} - M \times \text{deviation from centre line (mts)}$

The variables N, M will be decided on the day of the event based on the factors that affect the Projectile.

Arena specifications:

The event will take place in an arena of dimensions 100m*50m.

Limitations:

1. Only plastic soft drink bottles are to be used as the rocket body. Fins if required are to be constructed from lightweight non-metallic materials
2. The water rocket must only use compressed ambient atmospheric air as source of energy.

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3. Use of chemical explosives and electronic components are banned.
4. The rocket must be launched from a stationary position using a fixed launcher. Slingshots, trebuchets, catapults, cannons, and all other forms of launcher boost assists are forbidden. In other words, the internal pressure of the rocket must be the only source of energy for the rocket.

Note:

1. Launchers will not be provided by the organizers. Each team must have their own launchers.
2. Pressure compressors (foot pump) and water shall be provided.

A team can get disqualified if:

1. Any rocket is found to be dangerous to launch by the organizers and judges.
2. A rocket blasts before the launch.
3. A rocket launches before indicated by the organizers.
4. Any part of the rocket breaks off from the rocket during the flight.
5. Any ready-made models are used.
6. Any design rule is not abided by the participant.

The organizers reserve all rights to change any of the above rules as they deem fit.

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