Dive-Bomber

INTRODUCTION:

Alien Spaceship comes to research our planet. Finds out that earth is feasible to live and survive. Starts contacting their own planet to reside on our planet earth which will destroy Earth forever.
Before the alien community contacts their own planet for establishing their base on our earth, we need to destroy the spaceship by building a rocket and demolish it from contacting.

PROBLEM STATEMENT:

Design and Build a water rocket which can be launched at any angle with respect to the horizontal. The teams will be participating in two rounds and the winners will be decided on the basis of rules given below.

ROCKET SPECIFICATION:

- Only plastic soft drink bottles are to be used for the rocket body.

- The nose cone and fins should not be made of metal or any sharp surface. The rocket should be launched using a string from a safe distance, not with the help of hands. If a team fails to meet this requirement it will be disqualified from the event.

- The water rocket must use only compressed ambient atmospheric air as its source of energy. Only tap water shall be used in the rocket, and the water shall be provided by the organizers. Water brought by the team shall not be allowed in the rockets.

- The amount of water to be filled in the rocket body is left to the choice of the team.

- The pressure inside the container (rocket body) before launch should not exceed 45 psi.

• Launchers and pressure compressors will be provided by the organizers, but points will be deducted if provided.

• The launcher to be constructed by the team should be fitted with an air compression device or pump for pressurizing the contents of the rocket body. A pressure-gauge having a minimum range of 0-90 psi to display the pressure of air in the water-rocket has to be attached to it too.

• The internal pressure of the rocket must be the only source of energy for the rocket.

• The rocket may or may not split into two or more parts only during the flight, in such cases the range of the farthest part will be considered.

• The teams may bring as many rockets as they wish but it should comply with the rules given above.

• Final decision shall be at the sole discretion of the organisers.

RULES AND REGULATIONS:

• Team Size: A team for DIVE BOMBER can have a maximum of 4 members. However, they need not be from the same college/university/institution.

• The rocket must have a variable launching angle capability.

• Burst Testing: All rockets will be tested to a pressure of 60 psi before they can be allowed to enter the competition. Teams are therefore advised to test their rockets to a pressure of 60 psi beforehand and also bring substitute rockets with them.

• If a team's rocket fails the Burst Test, ONLY ONE extra rocket shall be allowed to be burst tested. If that rocket fails the burst test too, then no points will be awarded to the team.

• Once a rocket passes the burst test, it shall be allowed only one attempt for launch.

• Participants are allowed to use multistage water rocket.

• In case of multistage water rocket maximum of 2 litres water is allowed inside the rocket.

• The rules are subject to change.
• In case of disputes, the decision of ORGANISERS is final and binding.

TASK:

• The participants have to launch the rocket from the launching point and the rocket should land in the launch arena.

• The launch arena will be a sector of circle with sector angle 30degree and the launch will take place from the centre of the circle.

• The range of flight is the distance between the point of launch and the point of first impact with the ground after launch.

• In case of multi-stage water rocket range of flight will be calculated as the distance between the point of launch and impact of 2nd rocket with the ground.

JUDGING PARAMETERS (Round-1):

• Participants are scored primarily on the basis of their range of their flight. Greater the range, greater will be the points earned.
• Rocket going out of the sector of an angle 30 degrees will not be awarded any points.
• Rocket landing inside a sector of angle 15 degrees will be given additional points .
• No additional points will be awarded if the rocket lands on the border of inner 15 degree sector.

JUDGING PARAMETERS (Round-2):

• Top 10 teams of round 1 will advance to round 2.
• The problem statement of round 2 of lift off will be disclosed on the day of the event.

Instructions for building a water rocket:

http://www.npl.co.uk/upload/pdf/wr_booklet_print.pdf