

ROCKET PROPULSION

PROBLEM STATEMENT

You need to convert a simple plastic bottle into a rocket which can be fired through the rocket launcher (which will be provided) into the sky reaching weapon of mass destruction.

WORKING PRINCIPLE

For Rocket:

The plastic bottle is filled with alcohol vapour and secured on the rocket launcher. It blasts off as soon as an electric spark is produced by Rocket launcher. (Cheat Codes : For better control of the range of rocket, the concepts of Centre of Mass -Centre of Pressure should be applied while making the rocket.)

(For reference a photo is attached in the last)

RULES

1. A team can have at most 2 members.
2. Each team needs to bring a modified bottle rocket with them. The alcohol will be provided.
3. Inner diameter of mouth of the bottle should be slightly greater than the nozzle.

Judging Criteria

Judging will be based on the followings:

1. Each team must submit about 100 words text explaining their rocket design.

You can also add the image of your rocket .The last date for submission is 6 October by 5 pm. Send your responses in a MS Word file at devansh.cb16@iitp.ac.in (10 points)

2. The appearance of rocket . (10 points each)
3. The rockets will be shot and the range will be measured .

The range will be measured for only those rockets whose range exceeds a minimum distance, provided at the beginning of this round.

4.The rocket having the maximum range will be the winner. (70 points)

*** Final decision in case of any dispute will be solely in the hands of the organizers.*

It is advised to not to use bottles other than common soft drinks plastic bottles.

CONTACT

For any queries regarding the event, contact the organisers at:

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Photo of plastic bottle rocket for reference

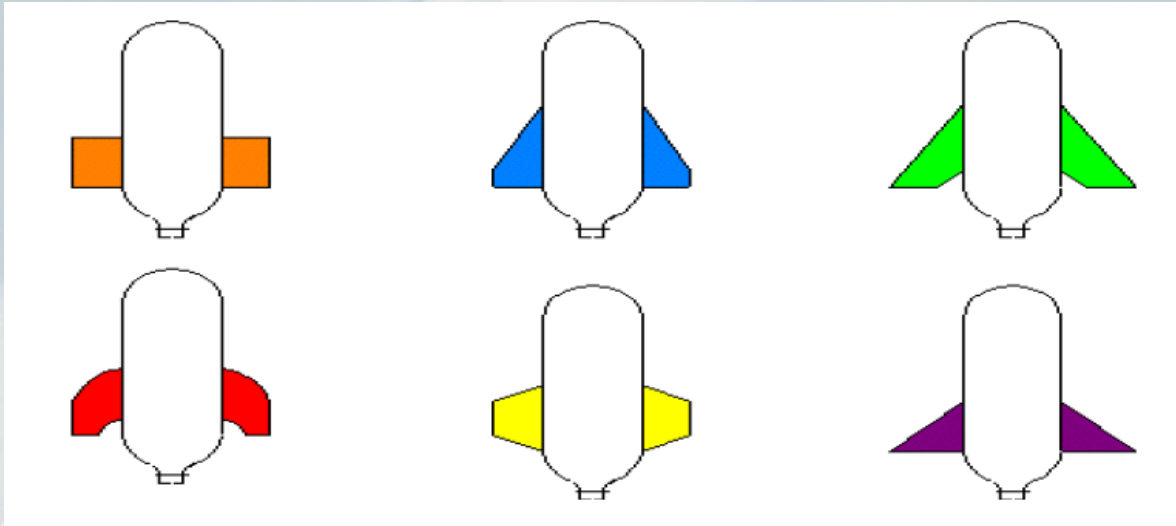


Method to launch



Concepts to Consider

Shape of Fins-



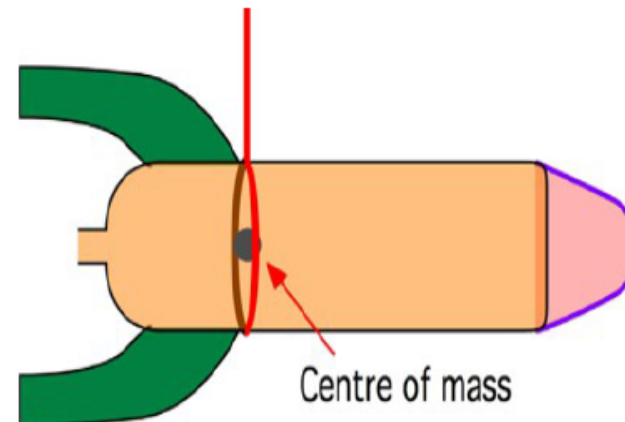
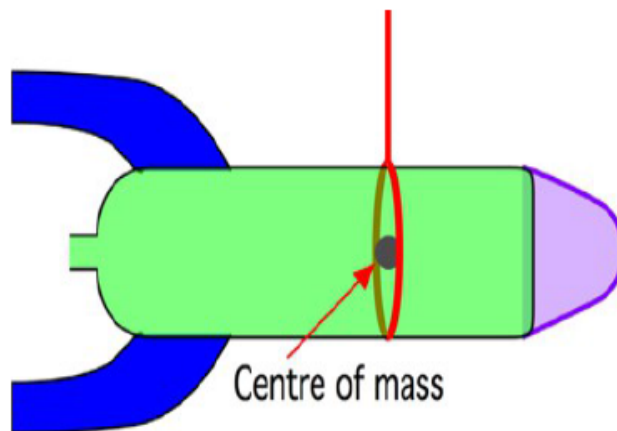
Square/Trapezoidal Fins yield MORE stability, but create MORE drag.

Triangular/ Epsilon Fins introduce LESS drag, but yield LESS stability.

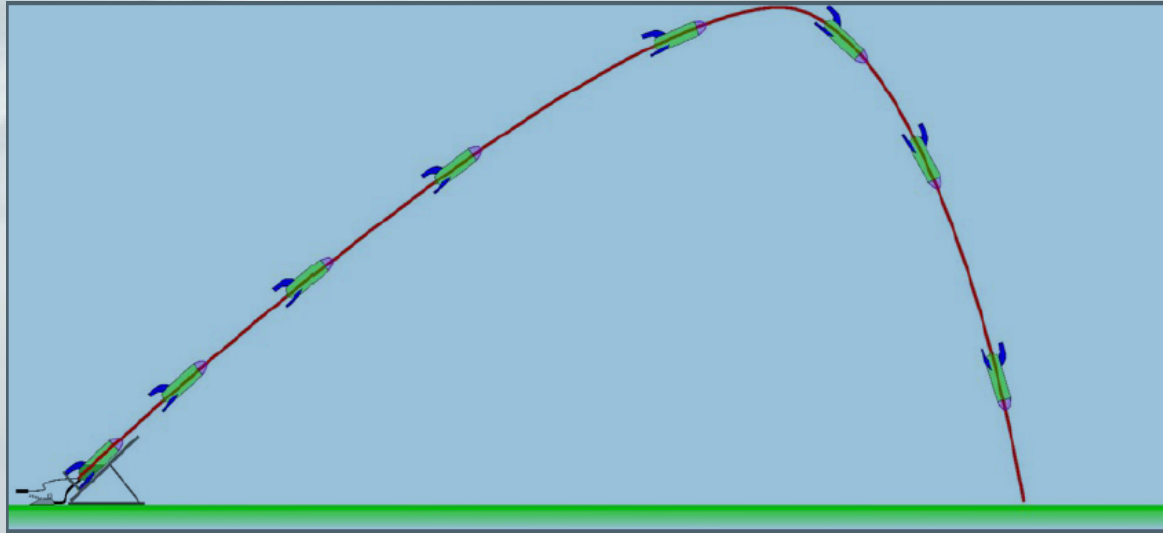
Paths According to Location of Centre of Mass

Rocket A

Rocket B



Rocket A



Rocket B

