

WATER ROCKET MANUAL

INTRODUCTION

A water rocket is a practical demonstration of construction and working of rockets. It can be made by the simple household material like plastic bottles, electrical tape, polythene bags etc. It is an interesting project to explain the working and aerodynamics of a rocket in which pressurized air and water are used as fuel of the rocket.

MATERIAL REQUIRED

To build a water rocket, following materials are required:

- **Carbonated Bottles**

To make a water rocket, 2 carbonated bottles are required: one is for body of water rocket and other for skirt of water rocket to which fins will be attached.

The carbonated bottles are recommended because they do not burst and can bear high air pressure. It should be kept in mind that bottles with less designing and curves must be used to minimize weak points in bottles.

- **Plastic File**

One plastic file is needed to make four fins of water rocket; fins help the rocket in flight by cutting the air around. As water is used as fuel, cardboard or paper fins must not be used as they get wet, bend or tear apart.

- **Polythene Bags**

Polythene bags are served as shock absorber when rocket return to the ground. It is filled in the head of the rocket so that it may not get damaged.

- **A Pair Of Scissor.**
- **Electrical Tape.**
- **Marker.**
- **A Ruler.**



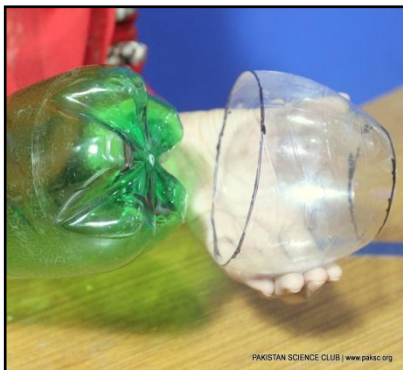
STEPS OF CONSTRUCTION

- **Making Of Nose Cone**

- One of the carbonated bottles is cut with the help of scissor from the upper side to make rocket nose cone which is of 3 inches.



- Fix the nose cone at the lower part of the other bottle with the help of tape.



- Fill the nose cone with the polythene bags, and cover the upper part of the cone with the tape.



- **Making Of Skirt**

- The lower part of the bottle (used to make nose cone) can be used to make skirt of the water rocket. The length of skirt is 4 inches.



- Wrap the skirt around the bottle and divide the circumference in four equal parts and mark on it.

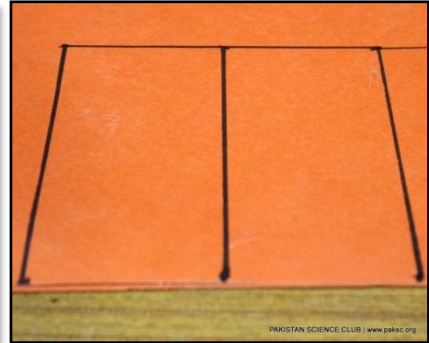


- The skirt is fixed to the upper part of another bottle with the help of tape in such a way that the neck of bottle is slightly below the skirt.

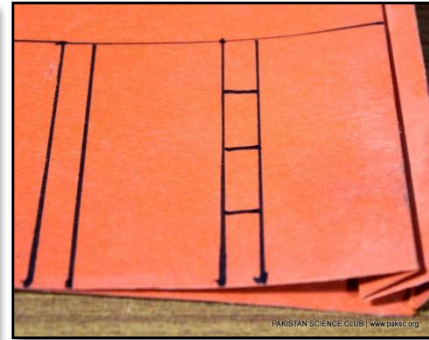
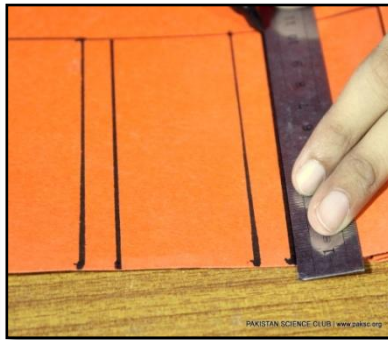
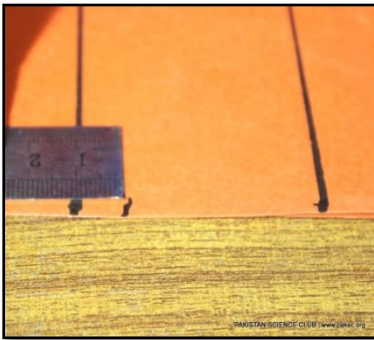


- **Making of fins**

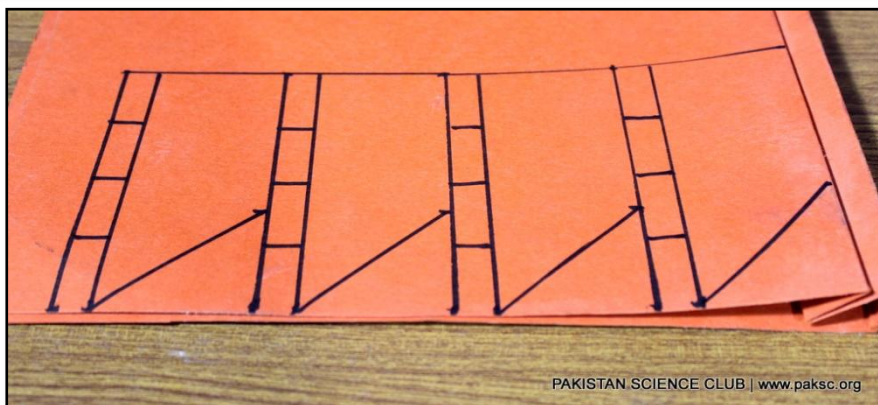
- Make four fins on plastic file measure 4 inches in length and two inches in width.



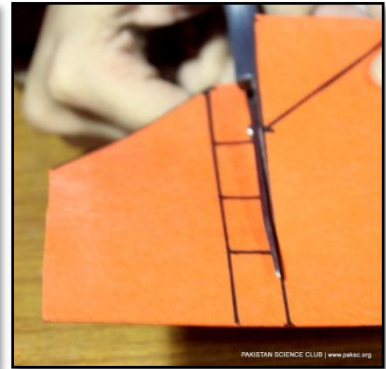
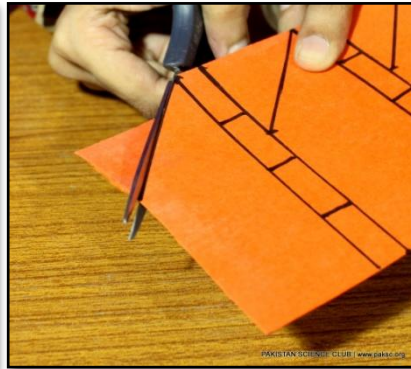
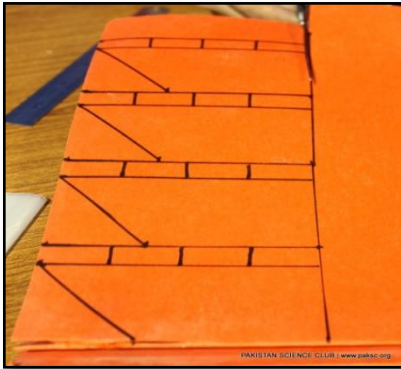
- Mark 1cm from the width of the fins and draw the line. Divide the length of the fins in four equal parts i.e. one inch.



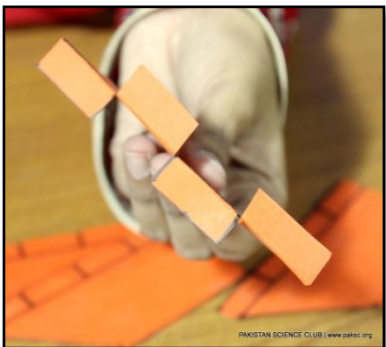
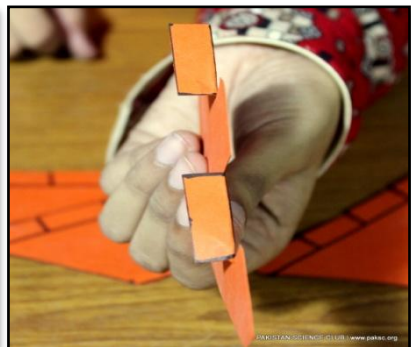
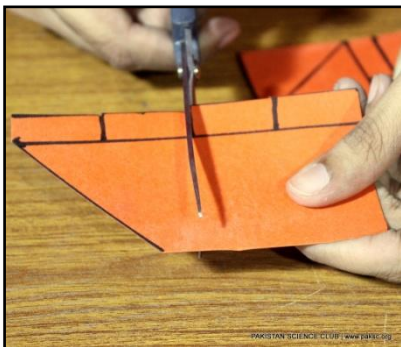
- From the opposite side, mark 1.5 inch and make a diagonal to the width.



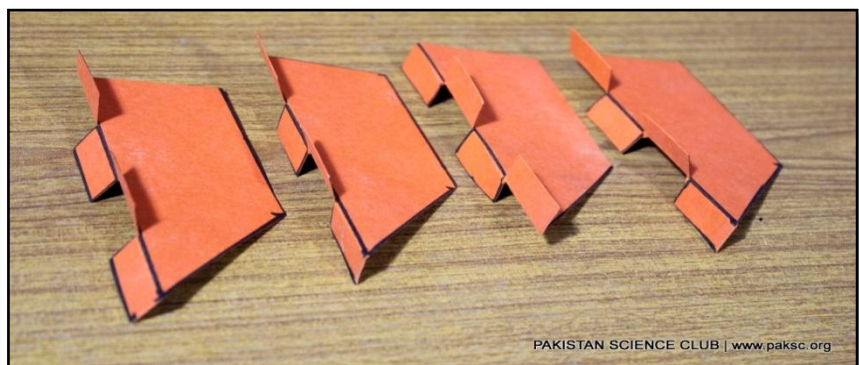
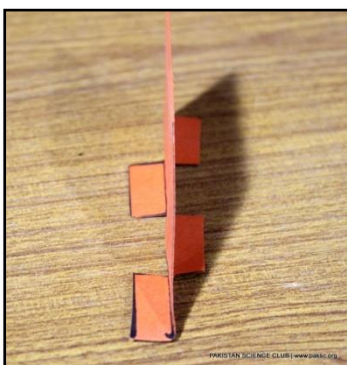
- Separate the fins from the sheet and cut them out carefully along the marks with the help of scissor.



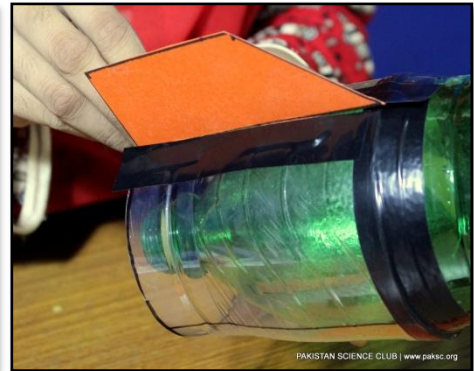
- Cut the 1 inch division along the length of the fin up to 1 cm mark and bend the cuts in alternative manner.



- Prepare all four fins in the same manner.



- Attach the fins to the skirt on the marked line with the help of tape in such a way the diagonal must be point towards the nose cone.



- Water rocket is ready for flight now.

