START YOUR JOURNEY

Welcome to Rocket Research 102

Stability

So why isn't the water rocket stable?

Compare the pictures of the water rocket and the typical model rocket.

Typical Model Rocket

Our Water Rocket

What is our water bottle rocket missing?

a) Nose cone
b) Body
C) Fins
d) Don't know

<< Back **>> Continue**

Any comments, concerns, or questions should be addressed to:
Developer: **David Mazza**
Responsible NASA Official: **Jo Ann Charleston**

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Stability

Wind Tunnel: NOSE CONE

Yes our rocket is missing a nose cone.

The nose cone is simply a cone glued to the flat bottom of our original rocket. OK, so it's not a designer nose cone, but it works. It does add some weight to the top of the water rocket. So the **center of gravity** (CG), or balance point, will move a little bit towards the top of the rocket. The water, however, is still the heaviest component.

-- Open the Wind Tunnel --

Select the "**Start**" button on the wind tunnel page.

What happened when you added the nose cone?

a) It helped to stabilize the rocket.
b) Nothing happened--it was still unstable.

<< Back - try another selection

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Stability

Wind Tunnel: FINS

Our bottle is missing fins! Before you add fins, you have to decide Where to put them. There are some choices of position in the wind tunnel. Try out as many as you can.

>> Open the Wind Tunnel <<

and select the fin position, size of fin, and then "Start" button on the wind tunnel page.

What is the best fin configuration?

a) Small fins, top of the rocket
b) Small fins, middle of the rocket
c) Small fins, bottom of the rocket
d) Large fins, top of the rocket
e) Large fins, middle of the rocket
f) Large fins, bottom of the rocket

<< Back - try another selection **Continue >>**

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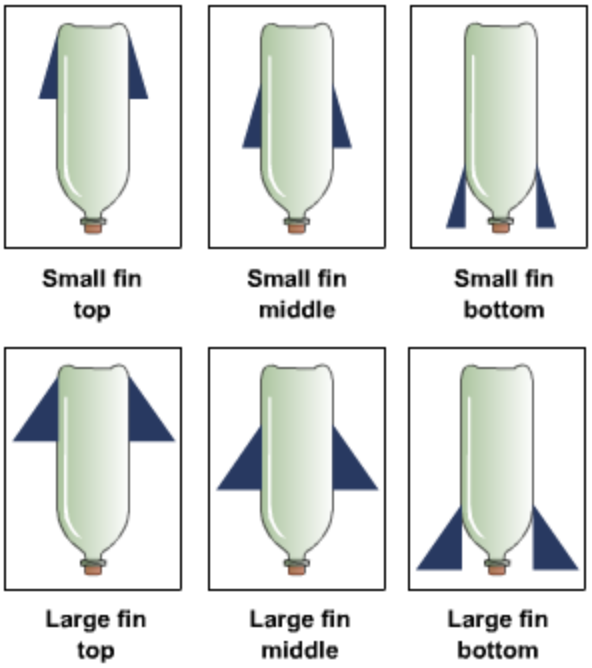
Our Wind Tunnel

Please choose a fin shape and position below and test it.



What is the best fin configuration?

a) Small Fins, top of the rocket
b) Small Fins, middle of the rocket
c) Small Fins, bottom of the rocket
d) Large Fins, top of the rocket
e) Large Fins, middle of the rocket
f) Large Fins, bottom of the rocket

f) Large Fins positioned at the bottom of the rocket give you the best stability. Great job! Now let's continue. Select the continue button.