How to build a huge water rocket

by **RaketfuedRockets** on May 17, 2015

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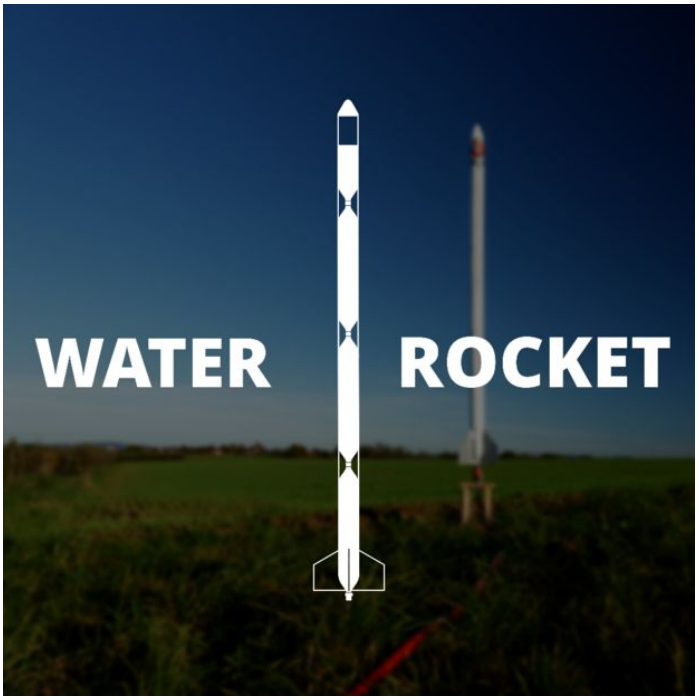
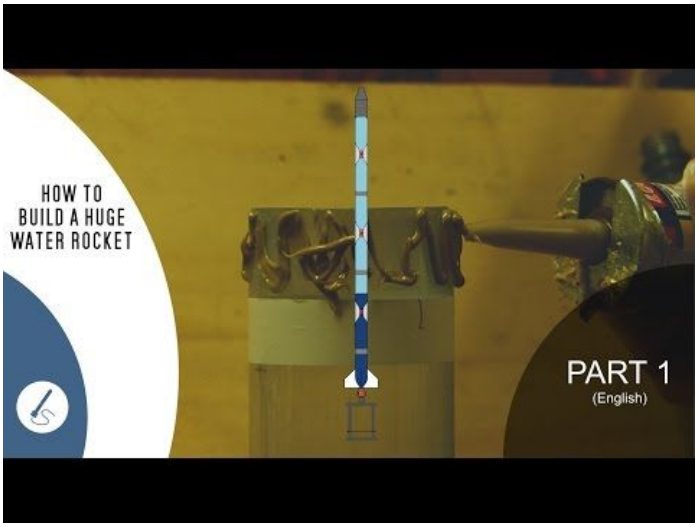
Intro: How to build a huge water rocket

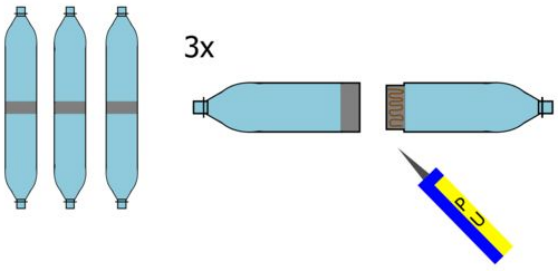
Hey there and welcome to this tutorial about building a giant water rocket.
In this tutorial we will show you the construction of a two meter large water rocket with a parachute mechanism and a suitable launcher.
The tutorial is split in five sections:
Part 1) Construction of the pressure vessel segments
Part 2) Construction of the launcher and the nozzle
Part 3) Pressure test and assembly of the pressure vessel
Part 4) Construction of the parachute mechanism (Phoenix 5)
Part 5) Preparations, safety aspects and launch



Step 1: Construction of the pressure vessel segments

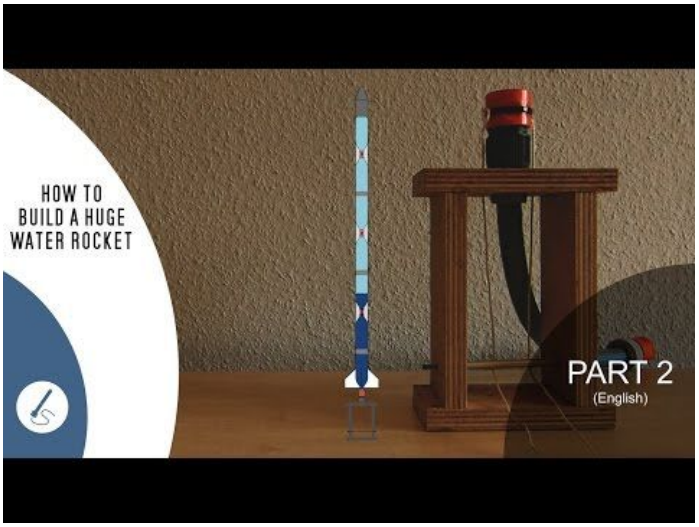
In the first part of this tutorial we will show you the construction of the pressure vessel segments.
For the best results, you will need to use a single type of bottle for the entire rocket. We recommend that you find narrow bottles with straight sides. Bottles with textures or patterns molded into the sides are not well suited for this type of rocket. To simplify the construction of the rocket, we will make the rocket in three short pressure vessel segments, which we will connect together later. To glue the bottles together we use an adhesive based on polyurethane. We recommend PL Premium Construction Adhesive, but there are thousands of different adhesives you can try if you prefer to use something else.

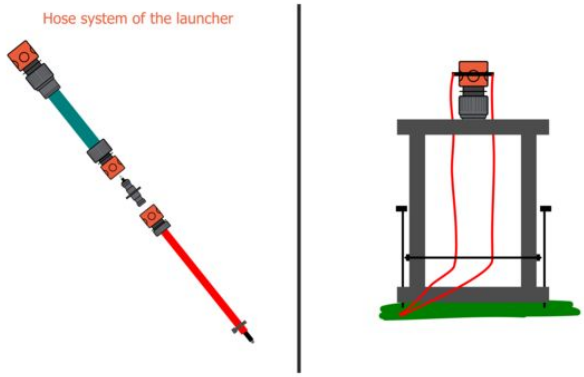




Step 2: Construction of the launcher and the nozzle

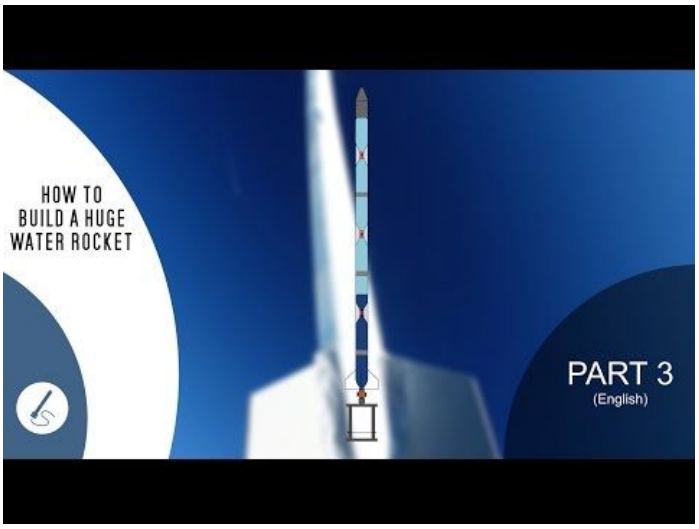
In the second part of this tutorial we will show you the construction of the launcher and the nozzle.
The launcher is a simplified version, built from three components: the stand, the gardena system, and the trigger.
The stand can easily be made of wooden planks.You should drill some small holes so that you can anchor the launcher to the ground. If you want the launcher to last for a long time, you should paint it to make it waterproof.
The nozzle is made of a Gardena tap nut adapter, into which is glued a bottle-cap with epoxy resin.

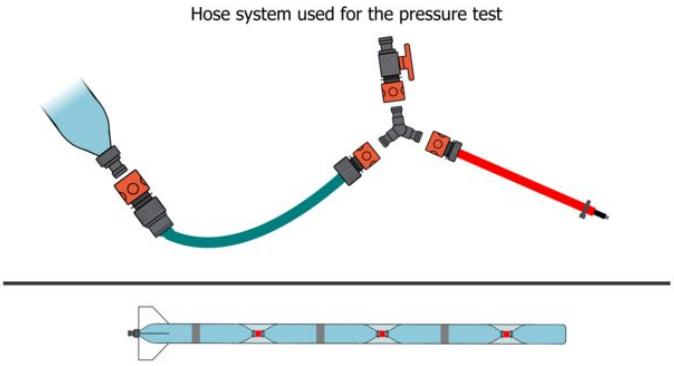




Step 3: Pressure test and assembly of the pressure vessel

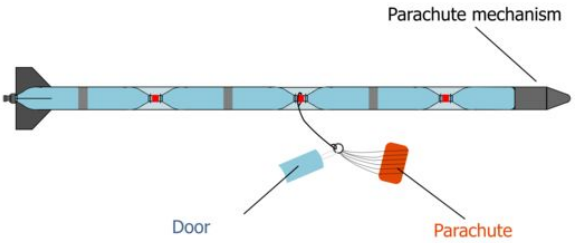
In the third part of this tutorial we will show you how you can pressure test your segments and the assembly of the pressure vessel. For the pressure test, the segment should almost completely filled with water. Screw the nozzle onto one side of the segment, and on the other end a bottle cap. The test should always be performed outdoors behind a barrier, so that in the event of an explosion no one gets hurt. Once you are ready, you can start increasing the air pressure using the hose system of your rocket launcher. We currently test our segments to 130 PSI. An optional Gardena Regulator Valve allows the pressure to be released after a successful test, but you can also use your tire valve for this purpose. If all of your segments and the nozzle have passed the pressure test, you can connect the individual segments with connectors called Tornado Tubes.





Step 4: Construction of the parachute mechanism

In the fourth part of this tutorial we will show you the construction of the parachute mechanism.
The outer shell of the parachute deploy system consists of a bottle, the same type used for the pressure vessel segments. Two round plates made of the same material as the fins are glued into the housing using a hot glue gun. The shaft of the Tommy Timer is bend at the middle with two pairs of pliers. After the paint has dried, you can attach the timer to the housing by means of a cable tie.



Step 5: Preparations, safety aspects and launch

In the fifth and last part of this tutorial we will show you the launch and explain the preparations.

Selection of your launch site:
-empty fields or meadows
-far away from houses, streets, trees or electrical wires
-In some cases you will need a permission of a competent authority

Take into account the weather:
-Don't launch in strong winds
-Don't launch in thunderstorms
-A few drops water from above have never hurt a water rocket

Safety aspects:
-Safety glasses are a must
-Keep distance to the pressurized rocket
-Keep an eye on walkers, children and animals

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Comments

2 comments **Add Comment**

seamster says: May 17, 2015. 9:32 AM **REPLY**

This is excellent! Thank you for sharing this great tutorial.

I've always wondered how to make a parachute ejection system for a rocket like this. Your design looks perfect! Very well done!

RaketfuedRockets says: May 17, 2015. 9:34 AM **REPLY**

Thanks a lot seamster!