

# HOW TO PLAN THE CONSTRUCTION OF A WATER ROCKET

## TIPS & TRICKS

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### TIPS FOR BUILDING A WATER ROCKET

- Do not overestimate your own capabilities. Start small and then slowly increase the level of difficulty.
- The size of your rocket depends on the number of joints between the plastic bottle sections. So, if you want to build a very big water rocket, that means you will have to deal with quite a lot with them. But watch out: Every joint is a potential weak spot on the rocket.
- First of all, you have to decide how big your rockets should be.
- Keep it simple!
- It's very important to focus on the following aspects:
  - Reducing weight
  - Optimizing flight characteristics
  - Increasing reliability
- Decide, which method of construction you want to use:

### METHOD OF CONSTRUCTION

#### 1) A single large vessel:

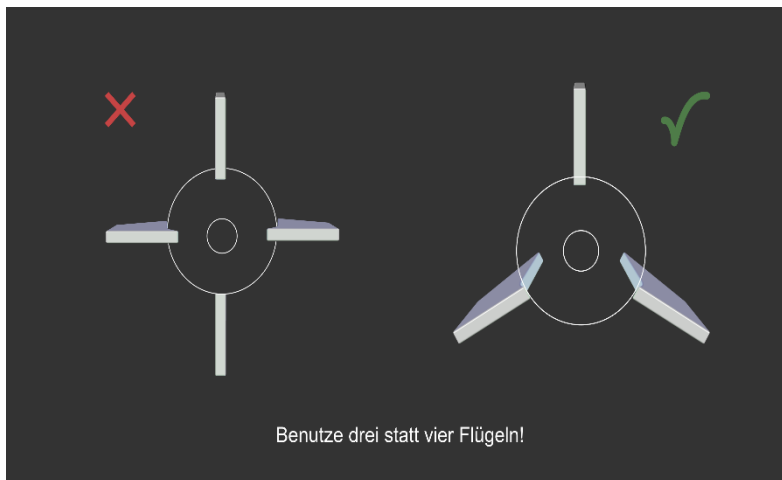
The first method is the construction of a single large vessel. The parachute system sits on top and ejects the parachute sideways or upwards. Because there are no hollow spaces the chamber is very small and light.

#### 2) Two pressure vessel segments:

The pressure vessel consists of two, differently sized segments, which are joined with a small adapter. This helps to optimize the center of gravity of the rocket, which results in better flight characteristics. The two-segment-vessel is a bit larger and heavier than a single vessel but it allows the use of radial parachute systems.



## THE FINS



The fins are essential to ensure a stable flight of the rocket. Of course, they should be as light as possible, so choose a material which is very light but durable at the same time - like Corflute, for example. The fins of the rocket shouldn't be too large, because that usually results

in uncontrollable flight behavior. The typical shapes already used by many water rocketeers usually work quite well. We also recommend using only three instead of four fins on every rocket to save even more weight.

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To succeed with the construction of a water rocket, you will have to work very precisely and carefully. Especially some of the adhesives and resins are pretty dangerous. Thus, please wear gloves when working with adhesive or epoxy and don't breathe in the gases. It is recommended to work outside whenever toxic gases could develop. The launch of a water rocket may need permission from the competent authority, depending on your location. You need the permission of the landowner if you launch on foreign territory. Please wear safety goggles when pressure testing or launching your rocket. Keep a safe distance to the pressurized rocket. We can not guarantee the accuracy, completeness or feasibility of any of our tutorials. We are not responsible for any damage or harm on objects, animals or humans. We do not guarantee that the information provided on this web site is complete, accurate and always current. This applies also to all links cited on this website points, either directly or indirectly. We are not responsible for any damage or harm to objects or individuals.

