

Threaded Tube Coupling

A threaded tube coupling normally consists of a hollow threaded tube that joins two bottles together allowing air or water under pressure to pass from one to the other. This increases the volume of the pressurized area. Often a number of bottles can be cascaded this way to gain even more volume.

If your making large water rockets you will need to support the rocket on the ground and have some kind of guide rail or rods to make sure the rocket goes straight up and not fall over.

The threaded couplings can be used to join bottles neck to neck, base to neck or base to base depending on the rocket design you maybe planning.

The main advantages of the threaded tube couplings are that they relatively easy to make, install, reusable and if a section of the rocket is damaged it can be removed and replaced easier then a rocket glued together.

The main disadvantage of the threaded coupling is that they typically only have a small hole and hence restrict the internal flow, which is not the best thing for the wider necked rockets.

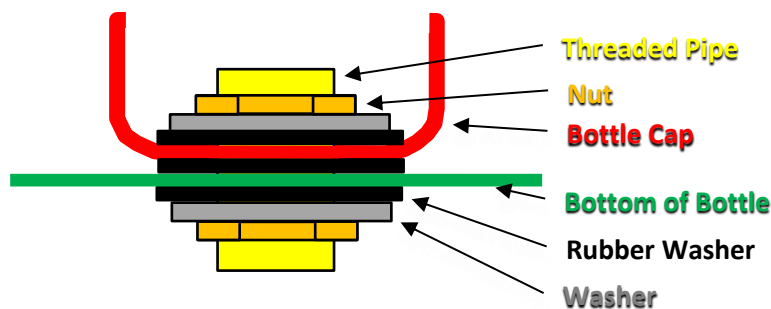
The threaded tube coupling is based on the **Robinson coupling**.

Tools Needed are:-

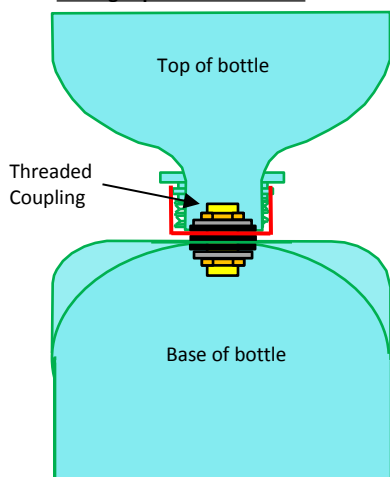
- 1 X Soldering Iron
- 1 X Drill
- 1 X 10mm Wood Drill Bit
- 1 X 14mm Nut Socket
- 1 X Extension Bar For Socket
- 1 X Ratchet For Extension Bar
- 1 X 14mm Spanner or Pliers
- 1 X Sharp Knife

Items Needed are:-

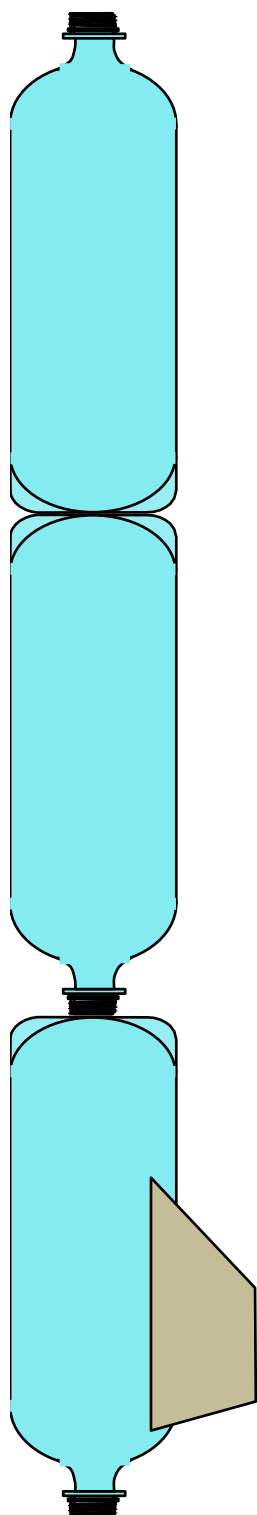
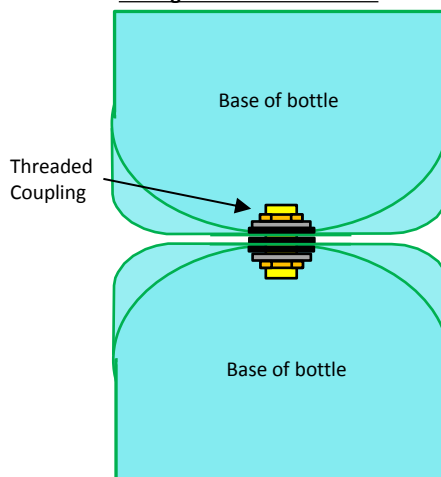
- 1 X Bottle (soda/ Coke)
- 1 X Bottle Screw Top
- 1 X M10 Threaded Tube (25mm length)
- 2 X M10 x 1mm Pitch Hexagon Nuts
- 2 X M10 washers (20mm diameter)



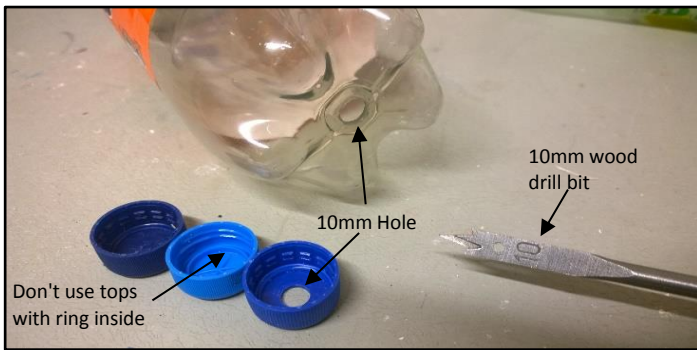
Joining top to base of bottle



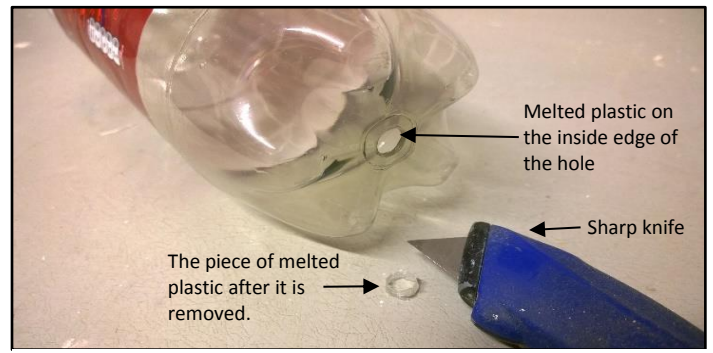
Joining base to base of bottle



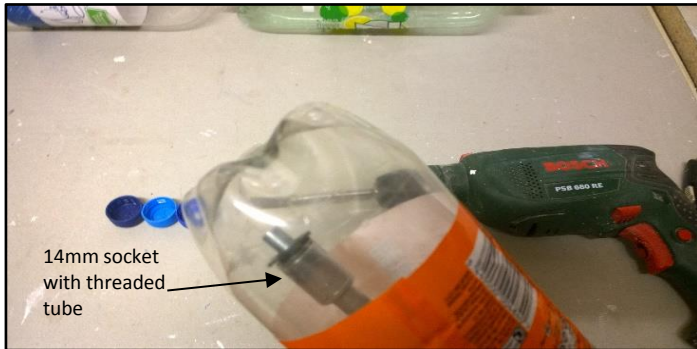
Fullbore Water Rocket Launchers
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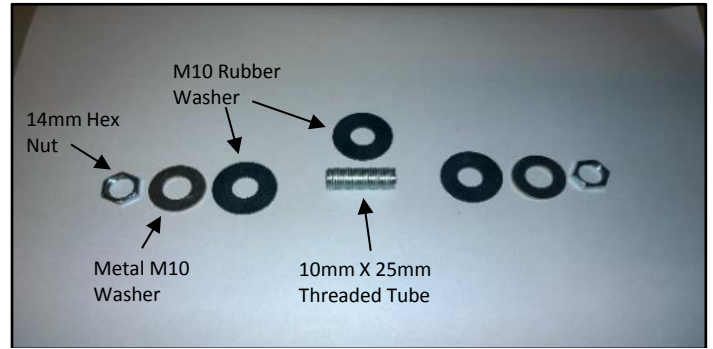
1. Use the soldering to make a small location hole in the base of the bottle so the drill bit doesn't slip as you gently push the drill bit through the base of the bottle.



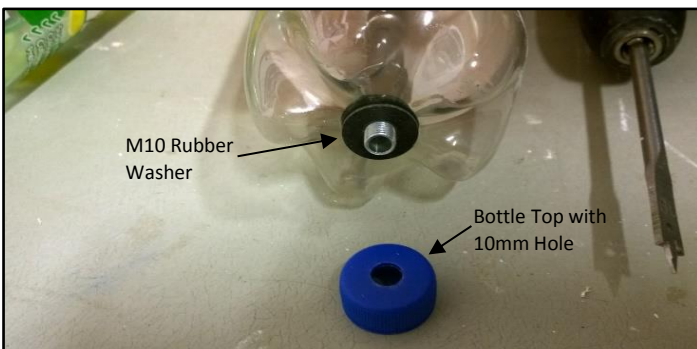
2. After the drill bit has made the 10mm hole in the base of the bottle you will need to remove the plastic that has built up just inside the hole with a sharp knife.



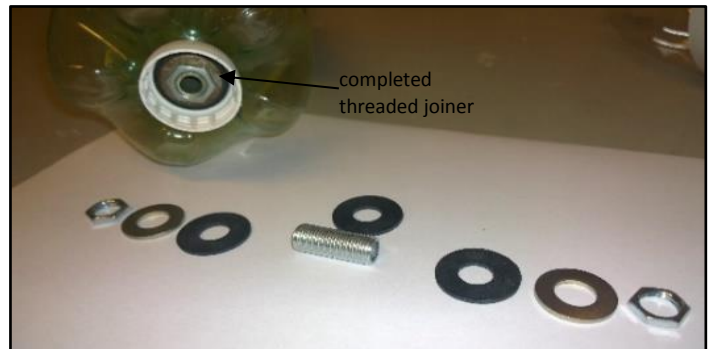
3. Using the 14mm socket, locate the threaded tube with the rubber and metal washers in the base of the bottle through the 10mm hole you made.



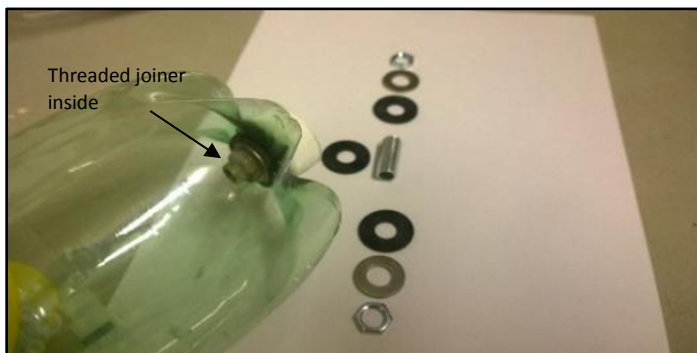
4. The components of the joiner are shown in the picture above.



5. The threaded tube is pushed through the bottom of the bottle and a M10 rubber washer, then the bottle cap.



6. To finish the joiner get another M10 rubber washer and then a M10 metal washer and finally the 14mm hex nut. Tighten the two hex nuts, make sure it's all aligned.



7. View looking inside the bottle and the components of the threaded joiner. I put most of the threaded pipe on the inside of the bottle so any water will drain and not add weight.



8. The finished join using the threaded joiner. You can add a fairing between the two bottles to make it more streamlined.