MATERIALS AND TOOLS LIST FOR THE WATER ROCKET

You can get the materials from a building center or hardware store with a good plumbing department, and the tire valve from an automotive parts store. The video shows all the parts, or ask a clerk to help you identify pipe parts.

1 piece 1/2 inch (by the label not actual measurement, standard American pipe sizes do not represent actual dimensions, either inside diameter or outside diameter), **schedule 40** (schedule refers to the wall thickness of the pipe, schedule 40 is by far the most common available) **PVC**--not CPVC!--**plastic pipe**. It comes in 10 ft lengths, which is exactly how much you'll use. You can ask a clerk to cut the 10 foot length at 4 (or 6, depending how you look at it) if it makes it easier to transport.

1 piece a short piece of **1 1/2" PVC schedule 40 pipe**. Since you only need a 2" long piece, you might be able to get a scrap from someone handy. **If you can't find a short piece of 1 ½" pipe**, Andrew Baillie has discovered that using a 1 ¼" slip connector works instead (this is not updated in the video instructions yet). And it's already 2" long!

1 piece 1/2" slip Tee. Slip means you put glue on and slip it onto the pipe for a strong glue connection.

2 pieces **1/2" slip end caps**.

1 piece 1/2" adapter, slip and internal thread.

1 piece 1/2" adapter, slip and external thread.

1 roll small roll **teflon tape**.

1 small can PVC cement. I prefer the kind with the applicator built in to the lid.

1 piece hose clamp that opens to **at least 1" diameter**

8 pieces multipurpose ties (sometimes called zip ties), as close to **8" long (20 cm).** They will likely be in the electrical section of the store. Other sizes might work, but I know this size works.

3 feet of **twine** or thin rope

1 piece tire valve (sometimes called a stem). You get this from any auto parts store or a place that fixes tires might give you one free. Either the long or short stem kind is OK and the cheap pull-on kind is fine (you don't need the expensive threaded kind). If it is

available in more than one diameter, you want the thin kind (thanks to Ben Manvel for pointing out the thicker size).

Optional **1** cheap air **tire pressure** checking **gage**. I recommend that people not pressurize the bottle to more than 70 psi for safety. it is hard to get much higher than that with a regular bicycle pump, so for most people it's good enough to pump until it gets difficult, then launch. But if your tire pump doesn't have a pressure gage and you want to know, they are cheap in auto parts stores.

2 bottles empty 2 liter plastic bottles. You can shoot smaller bottles also, but you might have to cut off a bit of pipe so it can fit on, and you might have to readjust the hose clamp/ zip-ties every time you switch between big bottles and little ones.

1 piece sandpaper, any grit

TOOLS and stuff around the house

marker

hack saw or any saw to cut plastic pipe

1/2" drill bit and a smaller drill bit about the diameter of whatever twine you end up using (listed above).

pliers (you might need a big pair to get the lid off the glue)

tape measure

candle

duct tape

scissors

air pump, with a pressure gage is nice (the foot operated kind has not held up well for me).