



Bungee Bazooka



by seamster

This is essentially a shoulder-mounted sling shot that shoots large homemade Nerf-type darts.

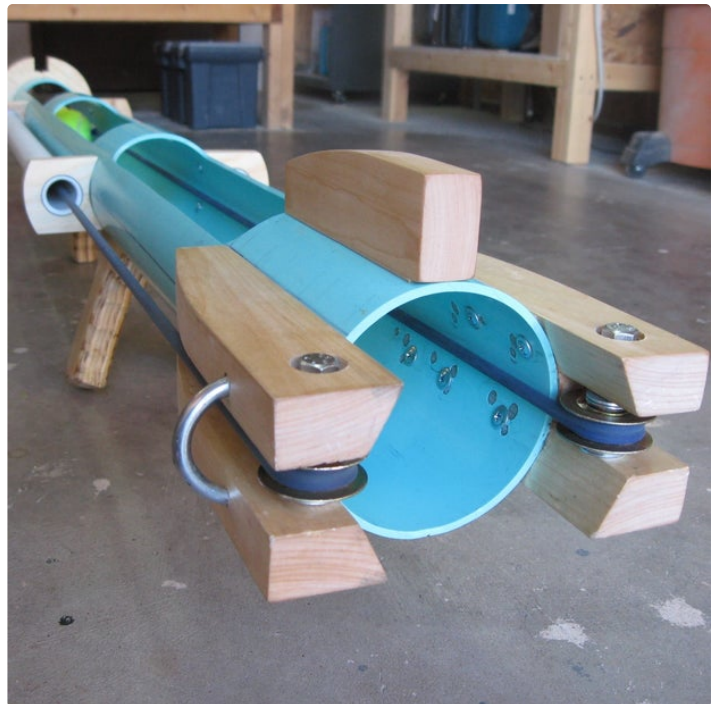
It can also be used to launch other things like tennis balls, golf balls, tomatoes, apples, and even raw eggs.

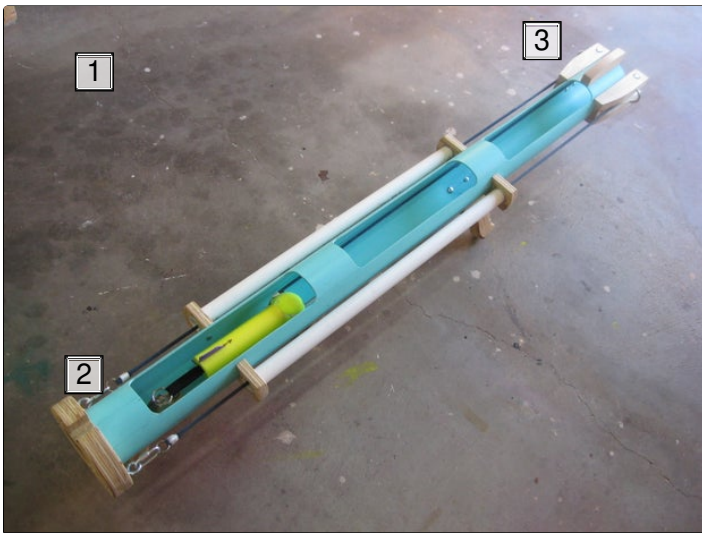
This is something I had been working on in the back of my mind for over a year, trying to figure out all the details. For some reason the challenge of making a homemade, self-contained, bungee-powered, multi-ammo launcher was incredibly intriguing to me. I had

never seen anything like it, and thought it would make a great experimental project.

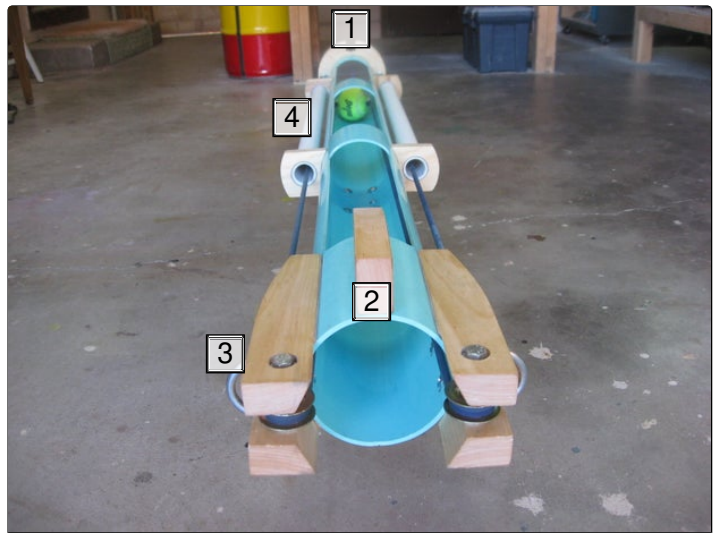
The finished product is by no means high-powered like a compressed air- or combustion-fueled cannon, but it still packs a decent punch for what it is, and has turned out to be extremely fun to play with.

Thanks for looking!





1. Loaded and ready to fire.
2. Resistance tubing bands are attached to eye bolts on this butt plate with quick links. Key rings are attached to both ends of each section of the stretchy tubing.
3. The tubing bands are stretched through a pulley on either side of the front end of the bazooka, attached to hooks protruding from either side of the dart, and the dart is pulled back down inside the tube and attached to a pin at the back end of the bazooka.



1. Rear sight.
2. Front sight. The sights are there mostly for looks.
3. These are U bolts that act as deflectors to keep the released tubing bands from whipping wildly out to the sides.
4. These PVC tubes keep the tubing bands from whipping the shooter in the face.



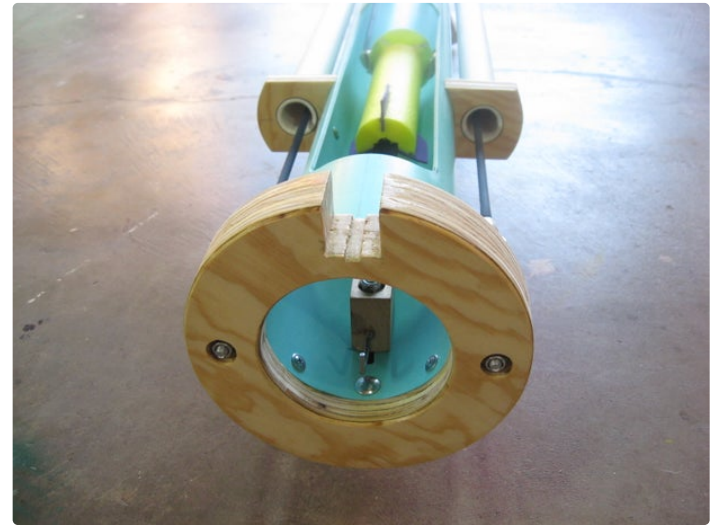
1. Thankfully, the bazooka didn't misfire right as I was preparing to take this photo!

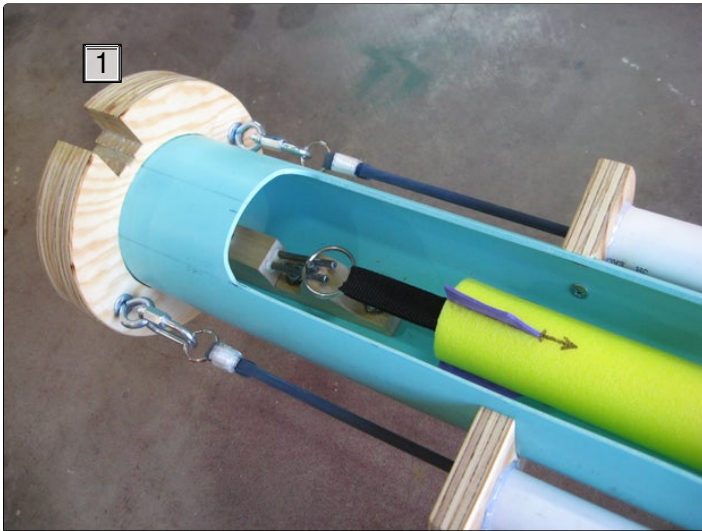


1. Rear handle section, which houses the trigger mechanism.

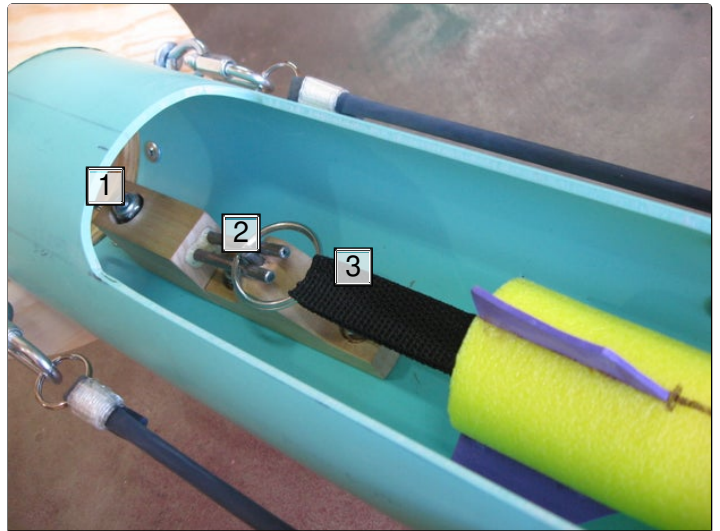


1. Trigger mechanism is housed in this piece.

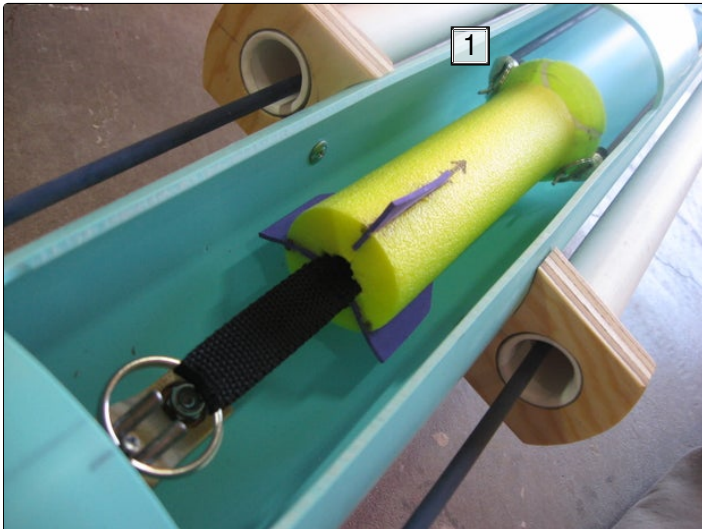




1. The ammo release mechanism. The back piece of wood with the two angled rods coming out of it slides backward when the trigger is pulled, and lifts the key ring off of a holding pin, this firing the dart.



1. This piece slides back when the trigger is fired...
 2. ...pushing the key ring up and off of its holding pin...
 3. ...and off flies the ammo.



1. There is a single piece of wire bent across and firmly attached to the bottom of the tennis ball, with small hooks bent on either side that protrude out just enough to slip on the key rings from the tubing bands. The black webbing you see is sewn to the tennis ball wire, and fed through the foam tube. All the energy from the tubing bands is directly transferred down the length of webbing back to the key ring which is held by a holding pin.



1. For firing other items, I made a sling out of webbing and a piece of cotton canvas, with two hand-bent wire hooks that connect this to the tubing band key rings.
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1. These hooks needed to be bent down a little tighter, but still loose enough to slip off when the object is fired. The sling sometimes flips out a few feet in front of the bazooka when fired, and other times stays attached. The object leaves the sling once it reaches the end of the bazooka either way.

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Step 1: Tools and Materials

To make your own Bungee Bazooka you will need a number basic woodworking tools along with all the various items listed below. Keep in mind that there are frequently many ways to accomplish the same task, so be sure to adapt as needed to the tools and materials you have available to you.

If you have access to a table saw, band saw, and drill press, it will simplify the making of some of the key wooden parts for this project. At minimum, you can get by with a circular saw, jigsaw, hand-held drill, a Dremel-type tool, and a few other basic hand tools. Specific tools are mentioned in the particular steps where they're needed.

Here is a finalized list of what I used to complete my Bungee Bazooka (some of which are shown in the photos above):

- 5 feet of 4" PVC sewer pipe (I've seen both green and white varieties. The wall on mine is 3/16" thick.)
- Two pulleys - for rope sizes up to 3/8". These must be the kind with a removable center pin, so you can take them apart and only use the actual pulley wheel. (Mine are made for ceiling/wall applications, and were purchased at an Ace Hardware store. The center hole in pulley wheel was 5/16".)
- Two 5/16", 3" long bolts with a section of smooth shaft on which the pulley wheels will spin.
- Handful of washers to match pulley wheel bolts. (I ended up using 14.)
- Two locking nuts to match pulley wheel bolts.
- Handful of key rings. Heavier-duty variety, four 1" size for bungee bands, and one 1 1/4" size for each dart. I got extras to replace ones that may break, and for making the sling for shooting non-dart projectiles (see steps 16 & 17). I got my keyrings at an office supply store.
- Two 3/16" quick links. Mine said "615 lbs. max load."
- Two 1/4" eyebolts, 2 1/2" long, with two washers and two locking nuts to match.
- One 3/16", 48" long metal rod (ended up only using about half of it.)

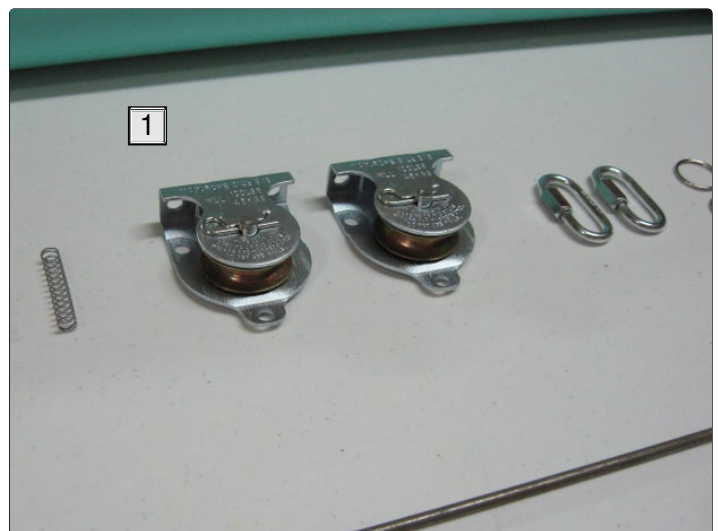
- Nine 1/4" carriage bolts, 2" long with matching washers and locking nuts. (Most were trimmed off with a Dremel once they were bolted in place. I bought them all long on purpose just to ensure they would all fit in their various applications.)
- About twenty 1-inch "pancake head" screws. I bought these at Ace Hardware. The screw head is thin enough that they can be used in the inside of the PVC pipe without them sticking up and being in the way. See the photo of them above.
- Two additional washers, one with a 3/16" inside diameter, and one with a 1/4" inside diameter
- Two U bolts designed for 1" pipe
- 8 feet of therapy resistance tubing. I had some blue Thera-Band that I used. You can get it from most medical supply stores. I actually got mine from welding supply store.
- A small amount of hardwood (I used birch), and a small amount of plywood (I used some 1/2" and some 3/4")
- A small amount of craft foam
- Various adhesives: wood glue, original gorilla glue, epoxy, hot glue

Here's a list of what I needed to make some darts and the sling for shooting other items:

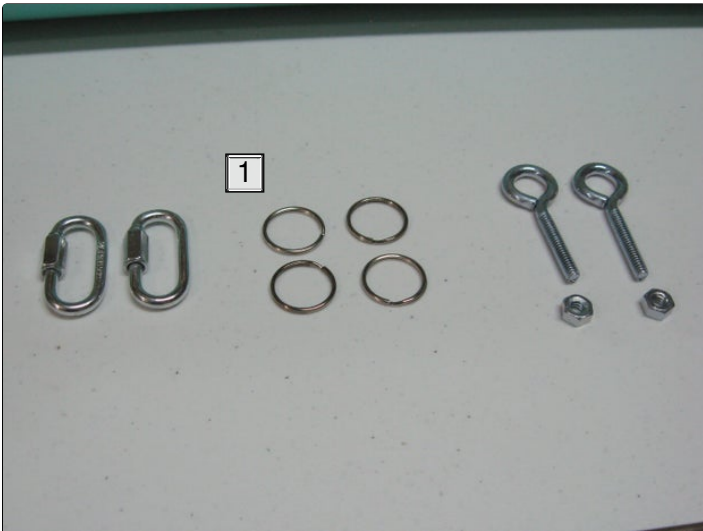
- Foam tubes. I got mine at a thrift store, and I'm not sure what their original purpose was. The outside diameter is 1 3/4", and the inside diameter is 5/8". Smaller pool noodles would work great, as would foam insulation for pipes.
- Small amounts of webbing. I used some 1" and some 3/4". You can get this out outdoor stores, craft stores, and most hardware stores.
- Craft foam for fins
- Stiff wire, like hanger wire
- Tennis balls
- Some heavy fabric (for the sling)



1. Metal-to-metal pancake head screws. They work well in this project because of the low profile of the screw head.



1. This specific type of pulley is crucial to this project. They have to be a kind that you can take apart and just use the actual wheel.



1. You will need a lot of key rings. Try to find some that appear to be somewhat heavy-duty.



1. Some scrap plywood and bits of hardwoods. Birch and ash.



Step 2: Main Tube Layout & Access Holes

Guidelines were laid out on the PVC tube for where I was going to cut the access holes in the top, and where I was going to attach the handles and other components to create the bazooka.

Begin by getting the circumference of the tube by wrapping a sheet of paper around it and marking where the paper overlaps.

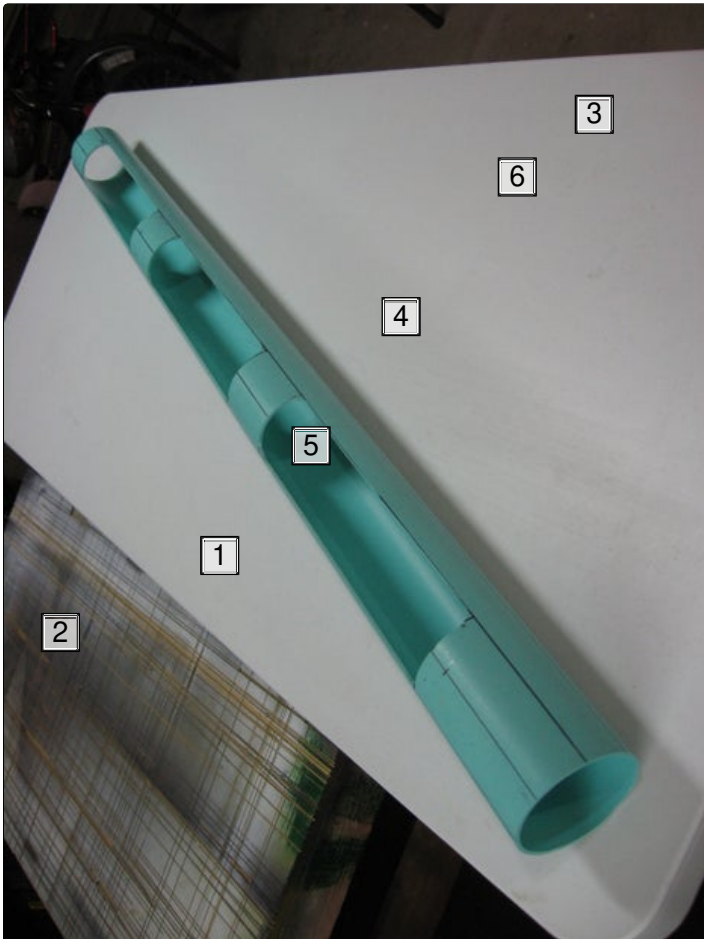
Measure from the overlapped edge to the mark you made. This is the circumference. On the paper, lay out and make marks as needed for the location of where you will want guidelines on the tube, re-wrap the paper onto the tube, and transfer the marks onto the tube.

I placed four guidelines equally spaced on the tube, dividing it into quarters lengthwise with a top and bottom line, and a left and right line. I then added

guidelines for the placement of the front handles, as well as the side cuts of the access holes.

A hole saw was used to cut out the corners of the access holes, and a jigsaw was used to make the straight cuts. These openings were sanded gently to take away the sharp edges.

Take a look at photo 3 in its original size (click on the box in the upper left corner) to see where all my marks were made to help layout my tube. If the circumference of your tube is close to 336mm as mine was, you can copy my measurements directly from that photo. If not, you will have to do some easy math to divide the circumference of your tube into equally spaced quarters, place marks on your paper, and create guidelines on your tube accordingly.



1. Mark here six inches from the front.
2. Front of bazooka tube.
3. Mark here four inches from the back.
4. This section is four inches wide.
5. Each of these openings is 14" long.
6. This section is four inches wide.



1. Getting a distance to measure to figure out the tube's outer circumference.



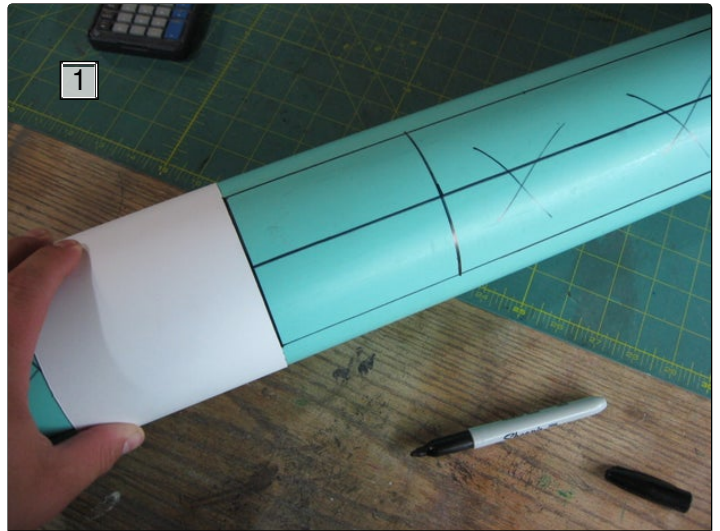
1. Circumference was 336mm. This means a middle mark would be at 168mm... and so on. Click on that little "1" to see this in it's original size so you can make out all the little measurements I wrote on this sheet.



1. The paper taped in place back on the tube, and all the marks transferred to the tube.



1. Use a straight edge of some kind to draw guidelines extending the marks along the full length of the tube.



1. A sheet of paper is wrapped tightly around the tube to act as a guide to make the cross-ways marks.



1. This is a 1 3/8" hole saw. It's not crucial to do it this way, but it makes the access holes look clean and nice.



1. Use a new, fine-toothed blade, work slowly, and wear eye protection. Always wear protection to avoid getting unwanted things... in your eyes.

Step 3: Trigger Handle Build-up

The trigger handle was made by laminating three layers of 1/2" plywood. The center layer is laid out and cut to allow room for the trigger and accompanying parts to be installed inside of it later on.

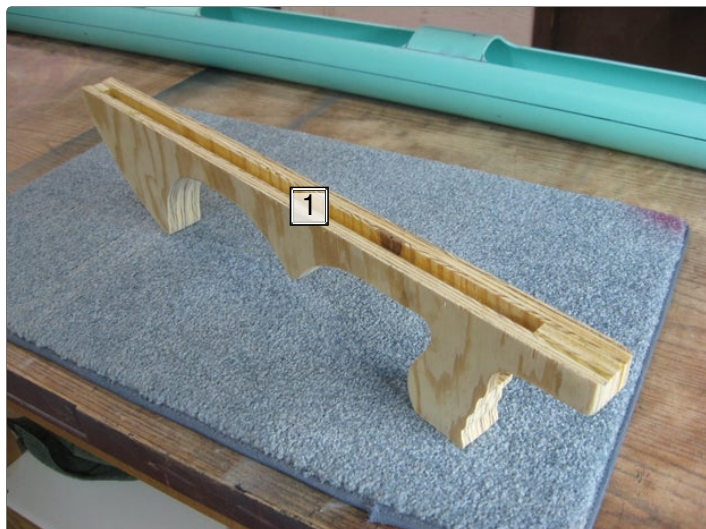
with room for it to slide back about 3/4", and a channel along the top for the metal rod to be housed that connects the actual trigger to the rear mechanism (see step 7 for lots of photos of this).

The shape of this trigger handle/trigger mechanism housing went through various modifications throughout the project, as you may notice in some of the photos. The main thing that is needed is a spot for the trigger

Be sure to examine all the photos and read the photo notes for dimensions and additional information.



1. This is made from three layers of 1/2" plywood glued and clamped together.
2. I sanded down any imperfections between the three layers after the glue-up and routed the edges with a round-over bit to make it more comfortable.



1. The trigger connects to a rod that runs down this channel and connects to the rear release mechanism.



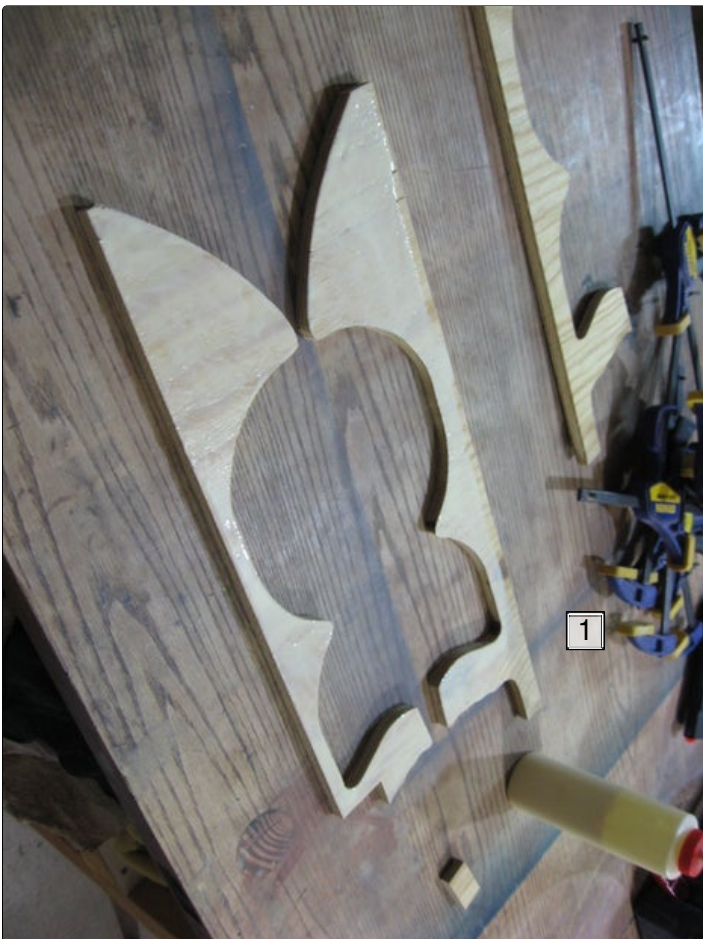
1. Walther P99 airsoft gun was the model for the handle shapes.
2. About 2 1/2" from front end to handle.
3. This piece is one inch wide, and entire length of the piece is 23 1/2".



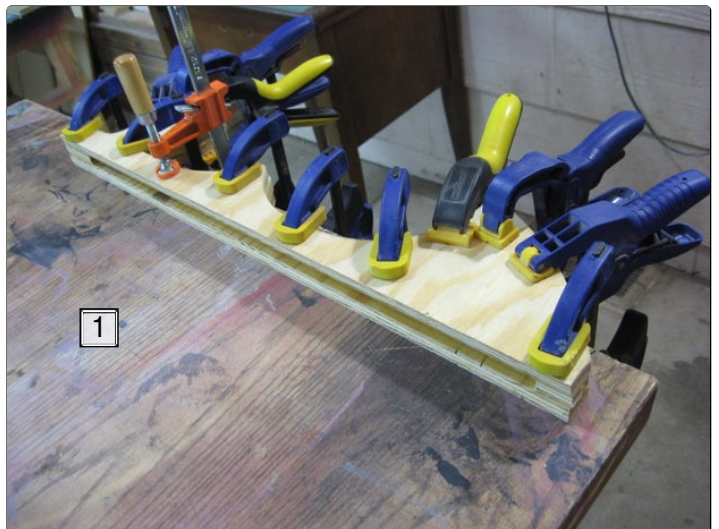
1. The first piece was cut out with a jigsaw, and then flipped over and traced as a pattern to make the other side.



1. This middle section was cut 1/2" thinner along the top, which creates the channel for the trigger rod.



1. Always apply a thin layer of glue to both pieces to be joined together. I glued one side to the middle section, and when that was dry, added the other side piece.



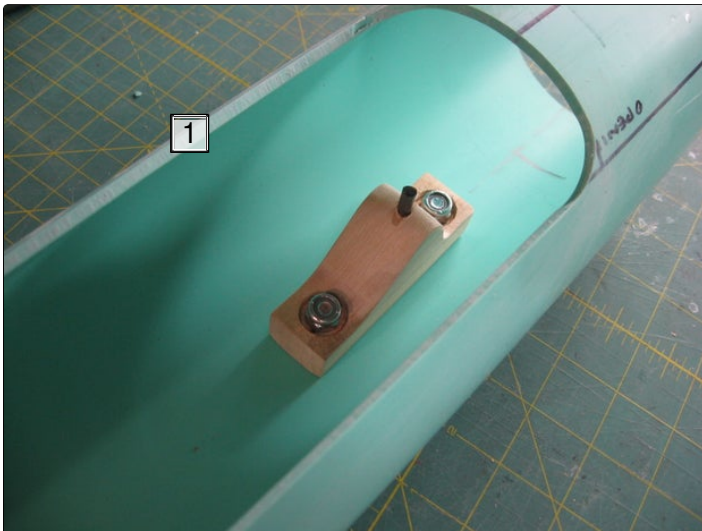
1. Clamped to the table itself to ensure that the piece dries up straight and not warped.

Step 4: Ammo Ring Holding Pin

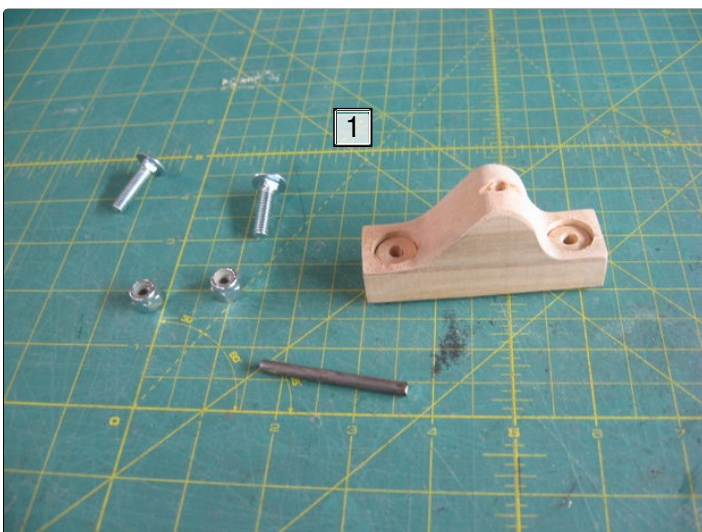
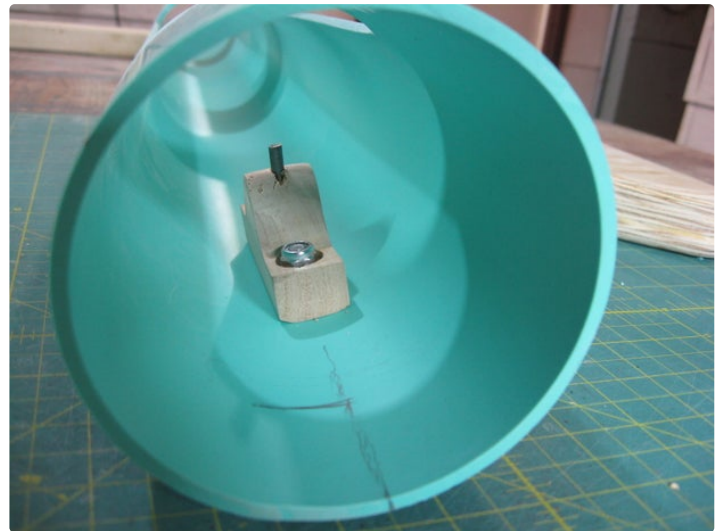
This piece was made from solid birch, with a short section of metal rod placed through the center of it. The metal rod is just a hair over the length of the diameter of the inside of the tube, and is placed through a hole drilled through the block all the way flush to the bottom of the block of wood. It should protrude 1/2" over the top of this block of wood. The backside of this block should be sloped enough to accommodate the two sloped pins coming out of the shuttle piece shown in the next step.

The block was bolted in place with carriage bolts with the back edge exactly 3 1/2" from the back end of the PVC pipe.

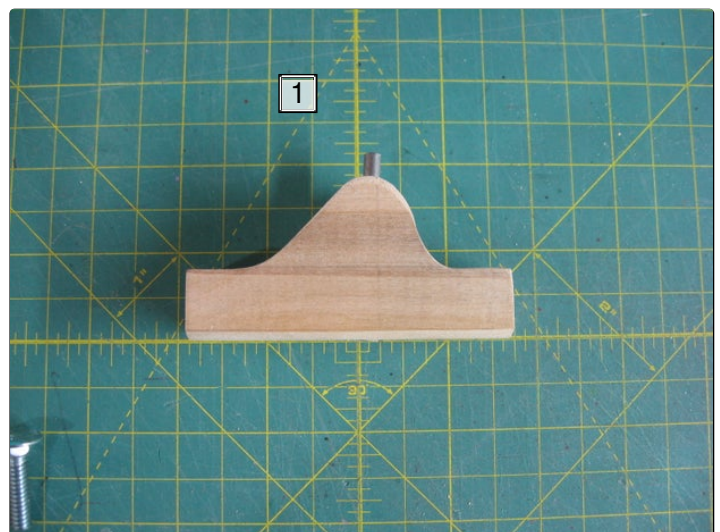
All components made from hardwood are made from 1" stock, except for the actual trigger piece (more info on that in step 7).



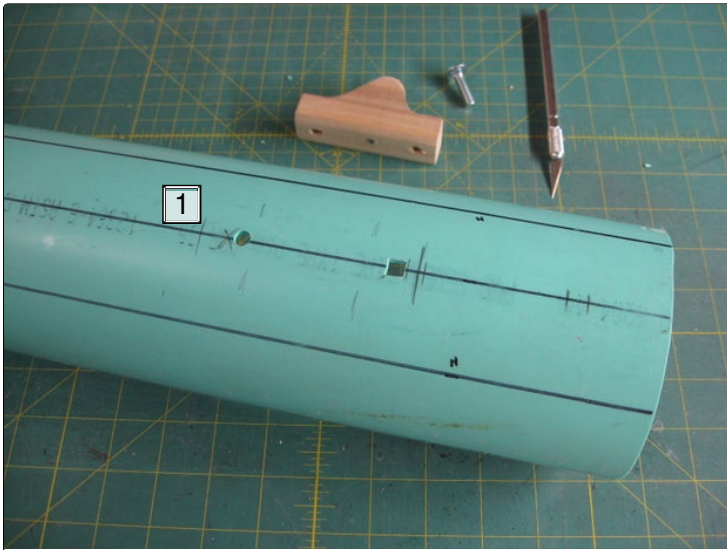
1. For the carriage bolts on this piece, push them up through the PVC from the outside. The rounded heads should be on this outside of the tube for this piece.



1. Use a hole punch to mark where you want to drill your holes. This helps center the bit and keep it from wandering.



1. Note that the pin is angled slightly back. This was intentional, and helps keep the key ring from slipping off accidentally and misfiring the bazooka.



1. All of the holes through which carriage bolts were attached were first drilled out, and then carved square with an exacto blade. A dremel could also be used for this task if you have a small carving bit. When attaching the carriage bolts, be careful not to over tighten them, as this will strip out the square cut in the relatively soft PVC.

Step 5: Ammo Ring Release Shuttle

This piece is made from solid birch. It slides backward when the trigger is pulled, and the two little rods lift the keyring off of the holding pin releasing the object to be fired. The release shuttle block is 2" inches long, 1 1/2" tall, and 1" wide.

There is slot cut into bottom of the PVC that is 2 1/2" long and just over 1/4" wide that begins immediately behind the block attached in the previous step, and

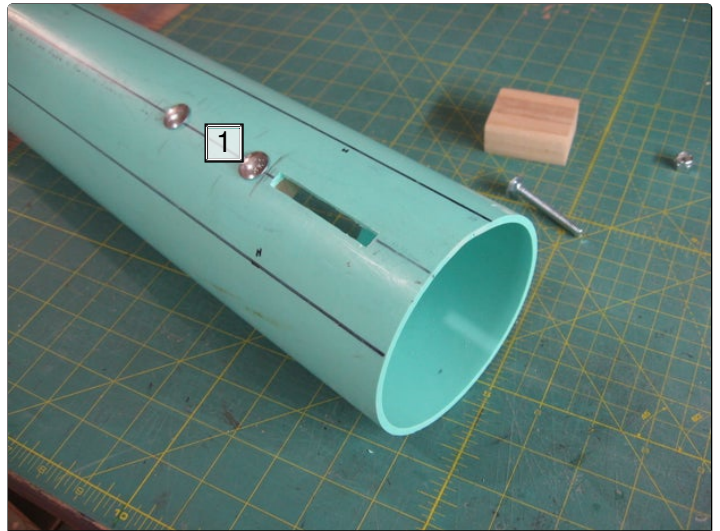
extends toward the back of the pipe.

This ring release shuttle piece is bolted in place with a carriage bolt in the back and a smaller guide screw in the front. The bolt and screw are kept just loose enough so that the shuttle can slide freely in a long the slot made in the bottom of the PVC when the trigger is pulled.

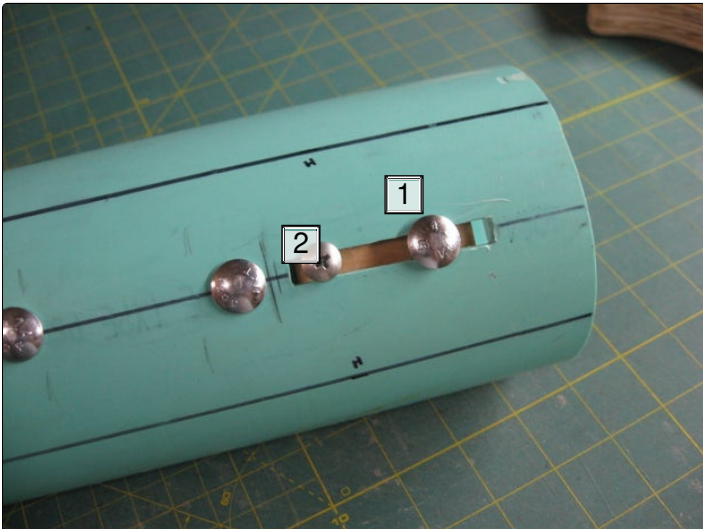


1. The angle on these rods is crucial. Use whatever method works for you to get them to fit and work correctly along with the holding pin created in the last step. Once they are glued securely in place, they can be bent and tweaked a little at a time. This part will require a lot of trial and error and minor adjustments to get it right.

2. These rods are imbedded into the wood about one inch or so, right to where the carriage bolt comes up through the back. Use some gorilla glue to lock them in place. Put the glue directly on the rods, and a few drops of water inside the holes, and tap them into place.

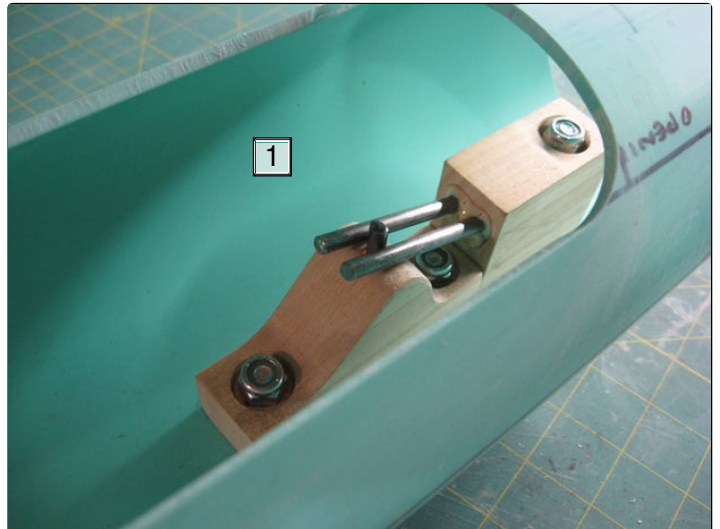


1. Drill holes first on either end of the desired slot location, and then cut out the slot with a jigsaw.

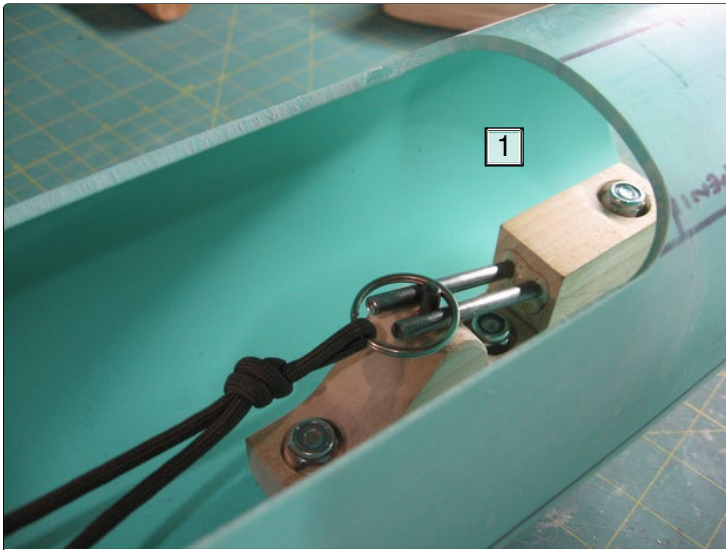


1. Carriage bolt tightened just enough so it keeps the block in place but allows it to slide smoothly.

2. A round-head screw was added to help keep this block straight as it slides back and forth. Couldn't use a carriage bolt here because the two metal rods were in the way.



1. The two rods should come up in the middle of the key ring (when it's in place), and rise to the same height as the holding pin. You may need to grind off the very top of the back edge of the pin to help the key ring slip off easier. However, don't do this until you've tested it out to find out if you really need to. Make sure the key ring stays on under pressure in the first place, and then you can worry about it coming off properly.

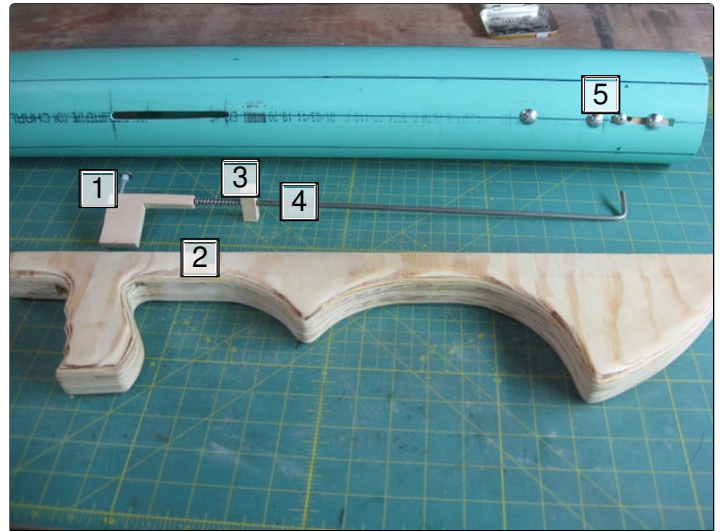


1. The shuttle should slide back and forth easily, and should sit flush up against the pin block, and travel backward about 3/4". This all needs fit and work precisely, so adjust and tweak until everything works thus far before moving on.

Step 6: Trigger Mechanism

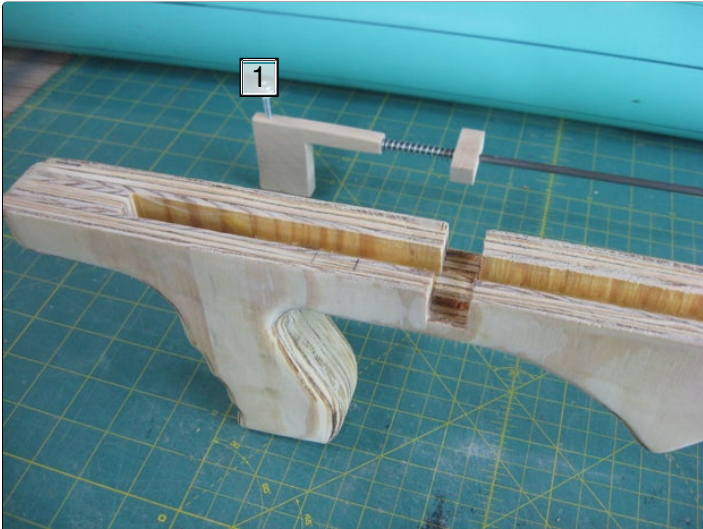
The trigger mechanism is completely housed in the trigger handle build-up, but not actually attached to it.

The trigger handle build-up is bolted to the PVC with a carriage bolt at the front and back. Please examine the photos for more detailed information.

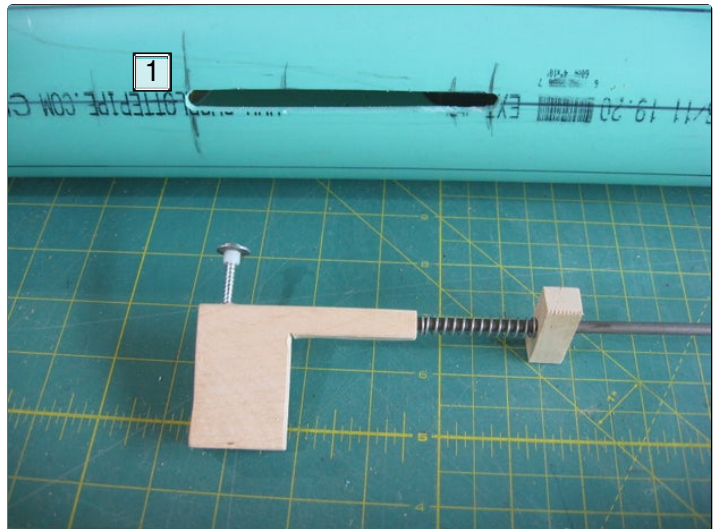


1. The actual trigger. It is made from hardwood, which is just a bit less than 1/2" thick so it slides smoothly in the opening created for it in the trigger handle. It is made so there is about 3/4" travel behind it when installed in the handle.
2. This notch was cut with a small saw and a chisel and holds the spring-stop block back so the spring stays under pressure.
3. The spring stop block. Made from hardwood to fit the notch cut below. A hole was drilled in the center, big enough to allow the trigger rod to slide smoothly, but small enough to not let the spring escape.
4. The trigger rod, made from 3/16" metal rod. I'm not sure on the length... measure and fit as needed.

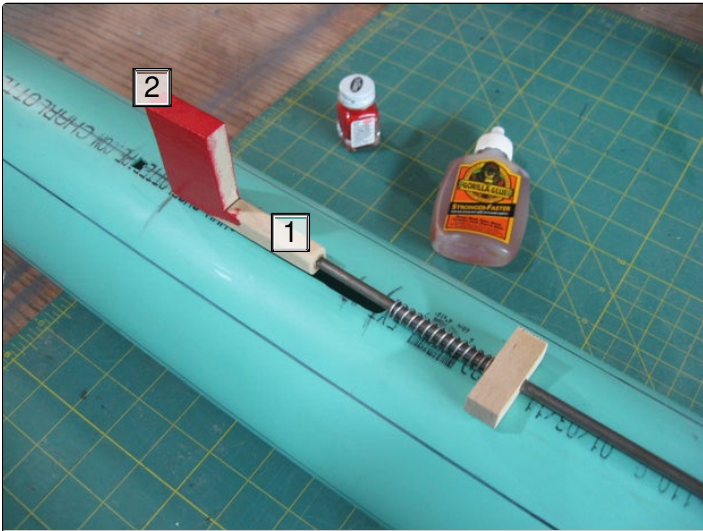
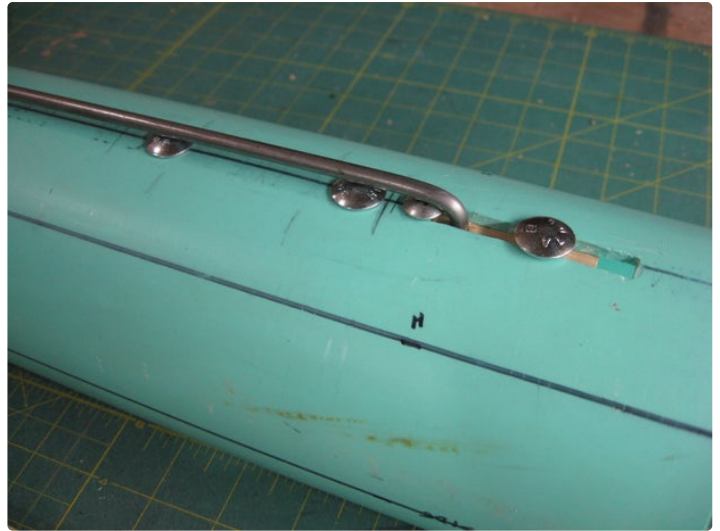
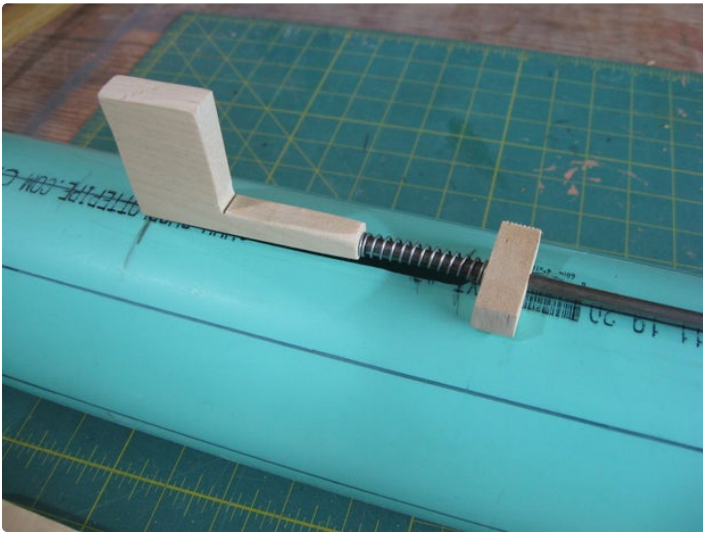
5. This end is bent up and matches up to a hole drilled into the bottom of the shuttle piece made in the last step.



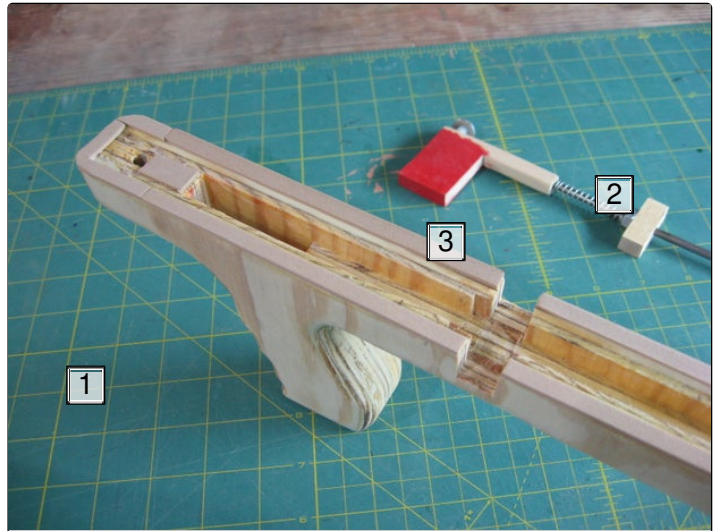
1. This is a pancake head screw with the two different-sized small washers I mentioned in the materials step, along with a 1/4" nylon spacer. This is tightened down when the trigger mechanism is attached to the main tube. This is attached through a slot cut in the main tube where it can slide back and forth freely.



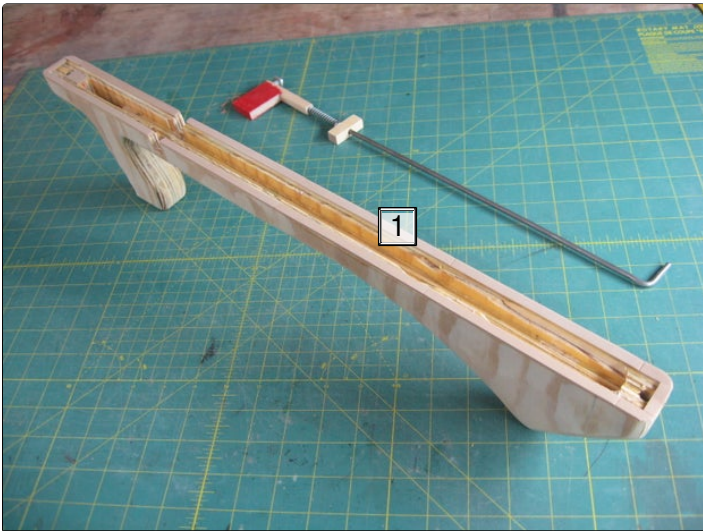
1. This slot is cut much longer than is actually needed.



1. Metal rod is glued into the trigger with gorilla glue.
2. Trigger was painted at this point.



1. I found that by adding a sort of "gasket" made from craft foam to the upper edges of the trigger handle piece, it fit better once bolted to the main tube. These little strips of craft foam were glued in place with wood glue.
2. I added a little bolt here because the spring wasn't putting quite enough pressure on the trigger with the spring stopping block where I had positioned it.
3. The spring stop block just sits in the notch and is not glued or attached in any way.



1. It might be hard to see, but the sides of the channel here have been carved out a little more with my dremel to make room for the carriage bolt heads so they don't either pinch and bind up or keep the handle from sitting flush with the main tube when bolted in place.



1. This entire piece is attached first, and then the handle is bolted in place over it. This set-up is nice because everything can quickly be broken down if need for adjustments or repairs.

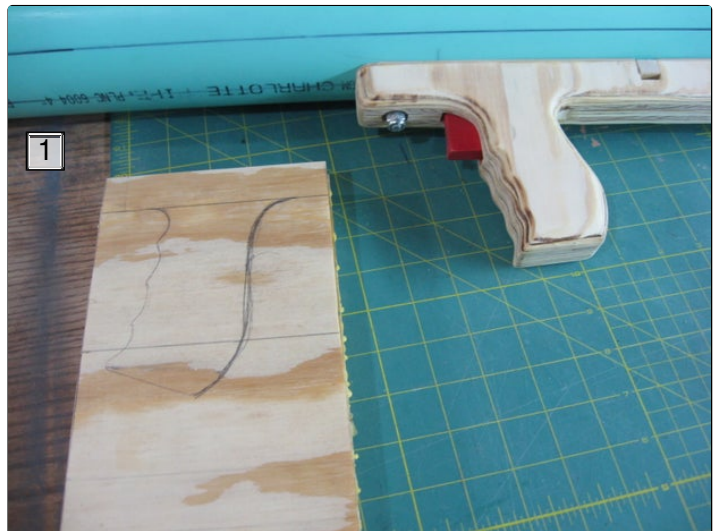
Step 7: Front Handles

The front handles are made from a laminate of 1/2" plywood and 3/4" plywood. This was just the thickness that felt nicest.

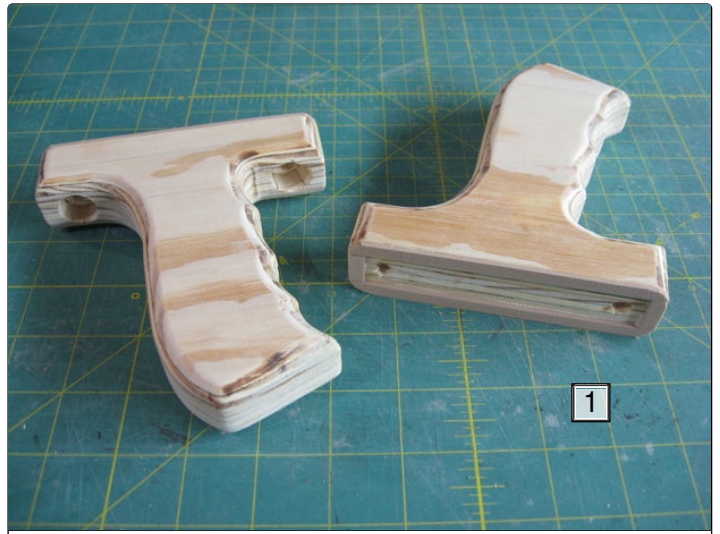
These were bolted in place with carriage bolts.



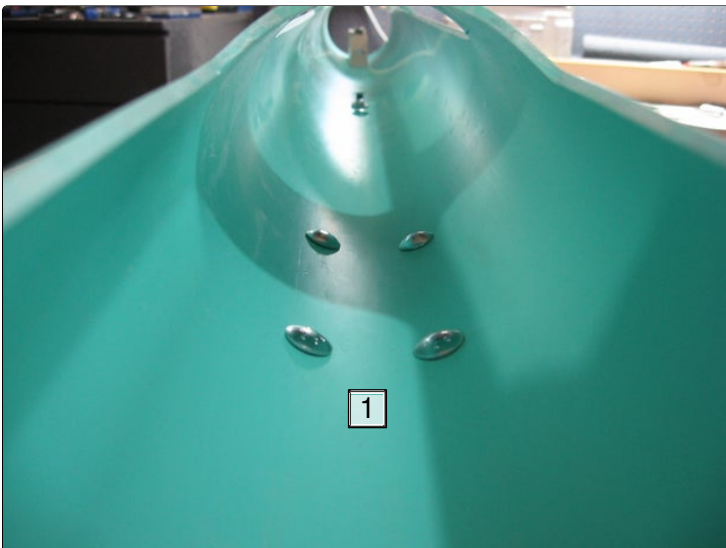
1. Note how these are placed on the handle guidelines--not centered, but lined up below them.



1. A modified version of the trigger handle, only angled forward for ergonomics.



1. Note the craft foam gasket once again. These were routed with a round-over bit for comfort.

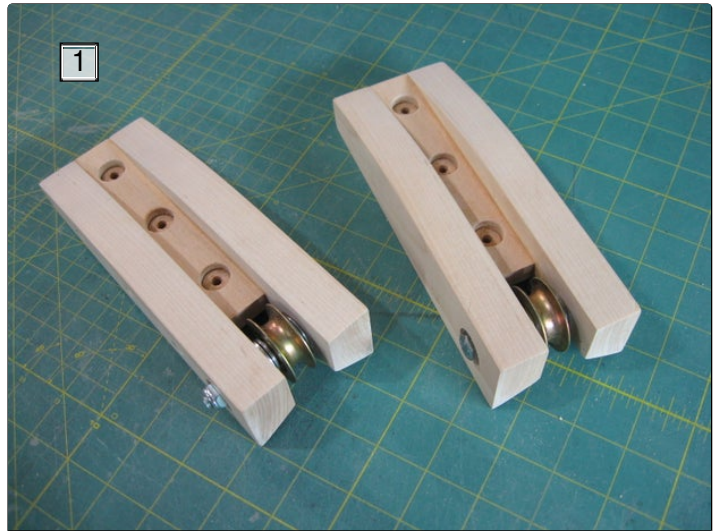


1. Carriage bolts placed through from the inside for the handles, to keep the inside of the tube as protrusion-free as possible.

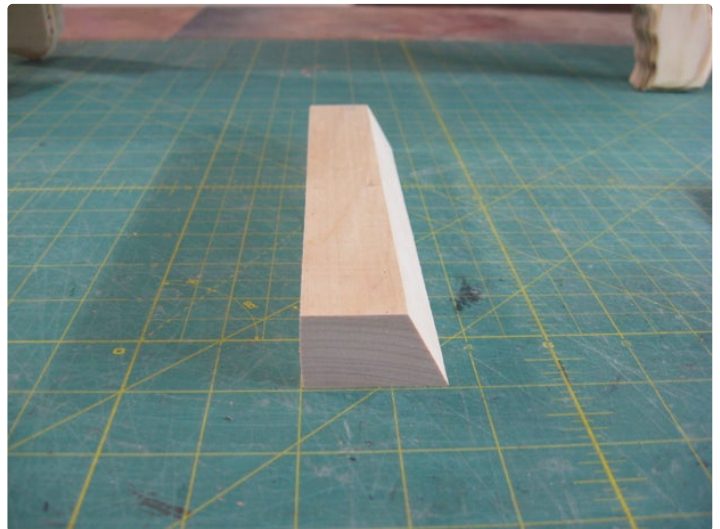
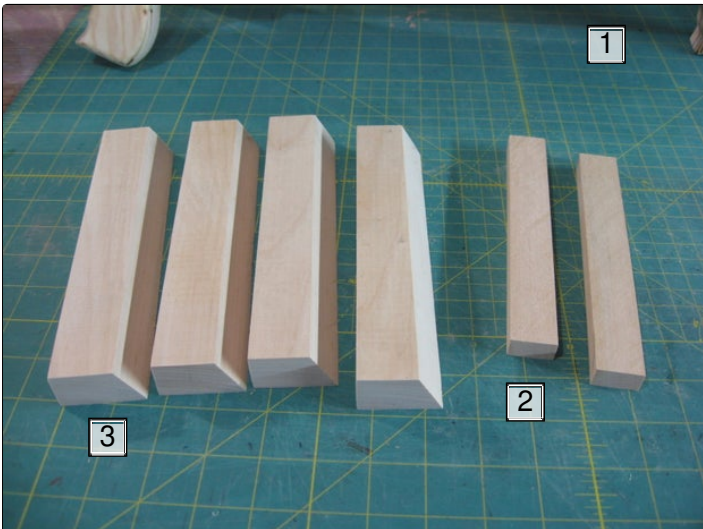
Step 8: Pulley System Front End Assembly

The pulley front end assemblies are made from birch.

Various pieces were cut and pieced together with screws and glue to create a secure way to attach the pulleys to the front of the bazooka. These parts are crucial, and the pulleys must be placed in precisely the right spot for the bungee cord to travel as needed both inside and outside the bazooka. See photo notes for details.



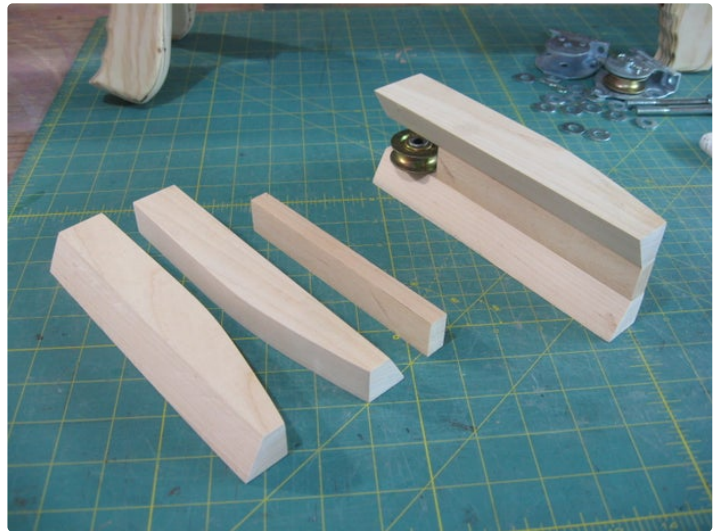
1. Those holes in center were a mistake, hence the plugs you see in the first photo. If I had bolted these in place through these holes as I had intended, the bolt heads (even though they were the round, mostly flat carriage-style) would have been right in the way of the tubing bands when the bazooka was loaded.

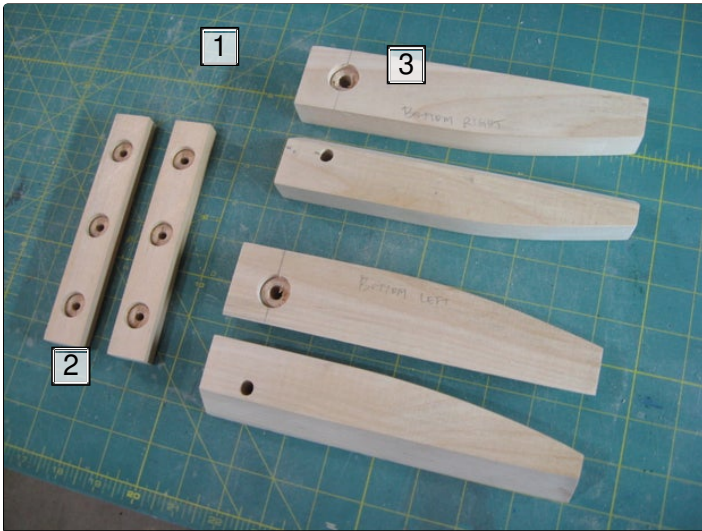


1. All pieces made from birch hardwood.
2. These pieces are 1" by 1/2" by 6".
3. These pieces are 1 3/4" by 1" by 8" to begin with. Then one side is cut at a 30 degree angle.

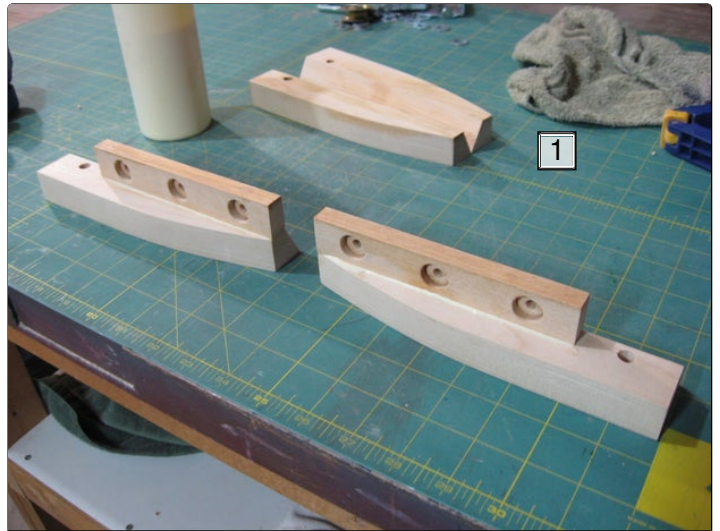


1. Edges were cut with a jigsaw to look sleek and tapered toward the back edges.

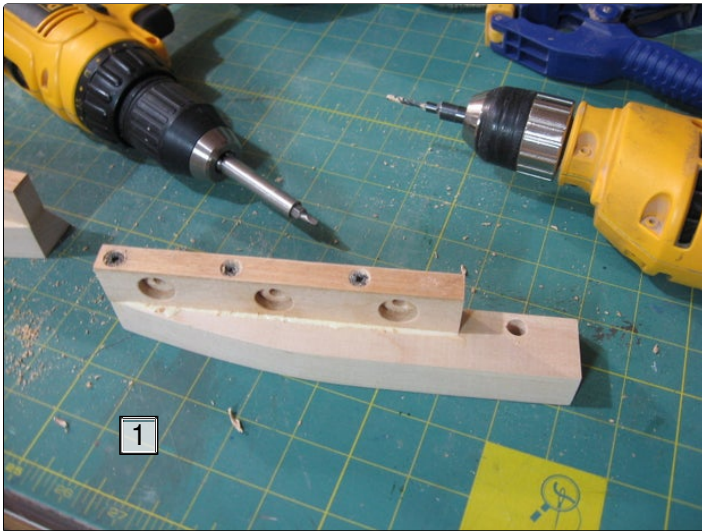




1. The placement of these holes is crucial, as this is what lines up the pulley with the opening of the tube. Make sure the pulley wheels are placed in a position that allows the tubing bands to enter the PVC tube freely, but keeping the pulley wheels away to the left and right of the bazooka mouth as far as possible so they don't obstruct the opening of the tube any more than they need to. This will require precise lining up and measuring on your part.
2. Disregard the holes on these pieces.
3. I countersunk the bolt holes about 3/16" on top and bottom with a spade bit (they are countersunk on the bottoms of the face-down pieces as well). If you don't do this, you may need to buy slightly longer bolts than I have listed.



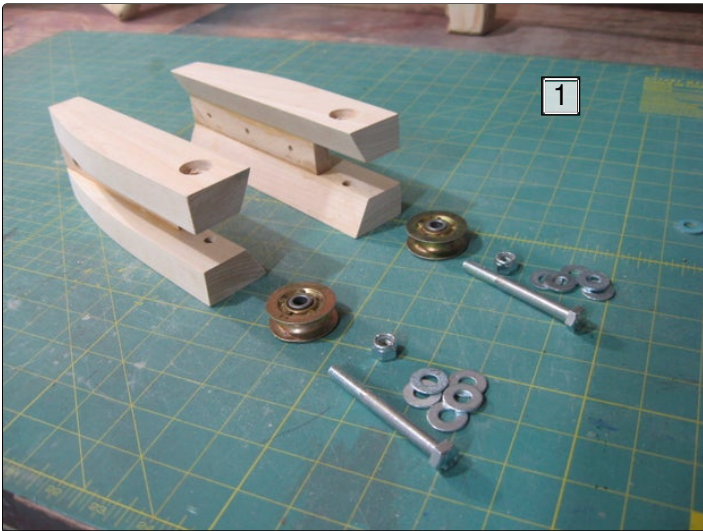
1. A combination of glue and screws was used to put all these pieces together.



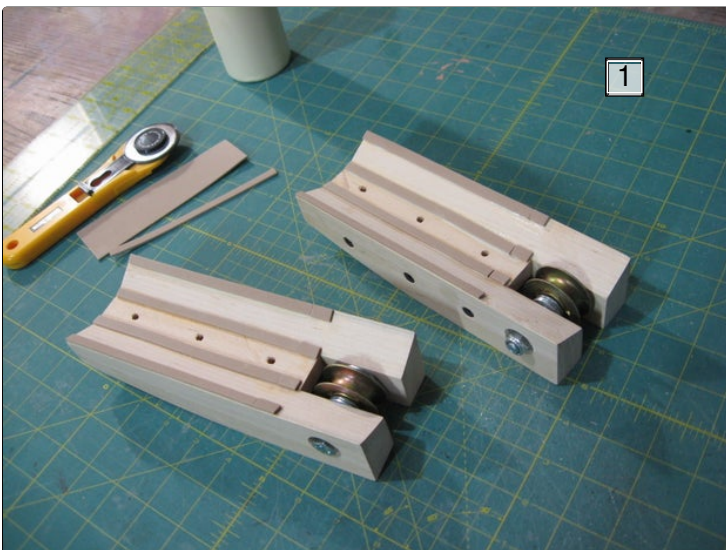
1. Pre-drill and countersink all holes for screws. The combination of screws and glue make these pieces extremely solid.



1. Carefully note where the first round of screws went, and place the next round accordingly to miss them.



1. I ended up needing five washers per bracket (three under and two over each pulley wheel) to lift up the pulley wheels and space them evenly in the front arms of the brackets.



1. Craft foam strips added to make a better fit against the main tube.

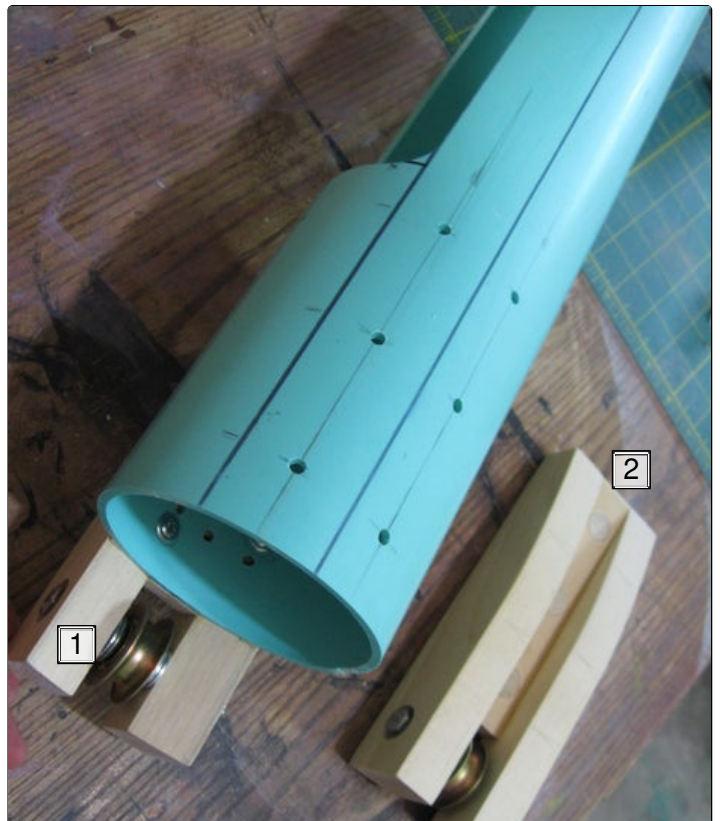
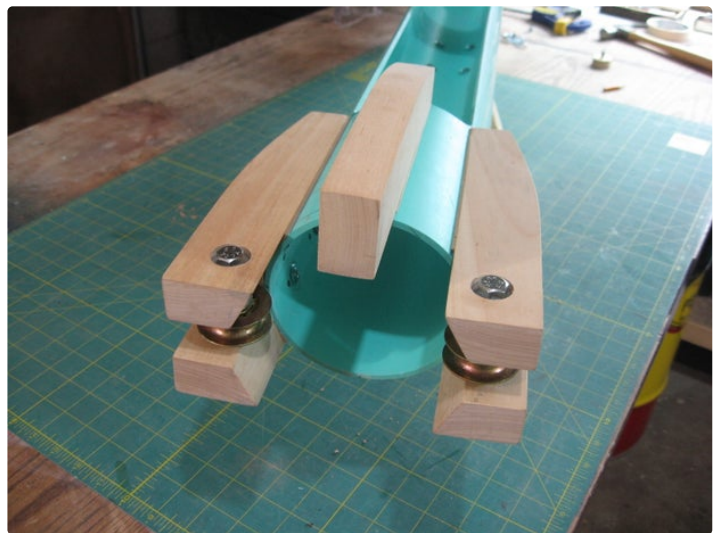
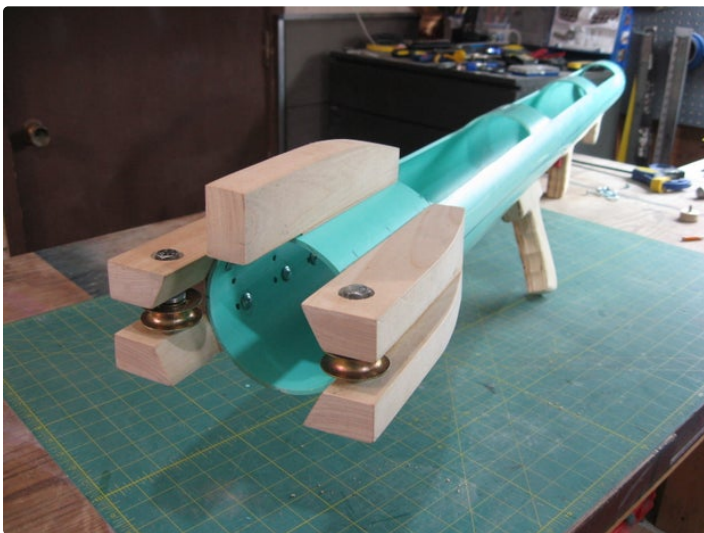
Step 9: Pulley System Front End Mounting to Tube


The completed pulley brackets were screwed to the front end of the bazooka with pancake head screws. Epoxy was added prior to screwing them in place to add more strength. I'm not sure how well epoxy holds up on PVC, but I'm guessing not so well. The screws probably suffice by themselves.

If you look inside the front end of the bazooka in some of the photos, you can see a lot of extra holes . . . these reveal how many tries it took till I got the pulley brackets attached precisely where I wanted them. (Turns out this

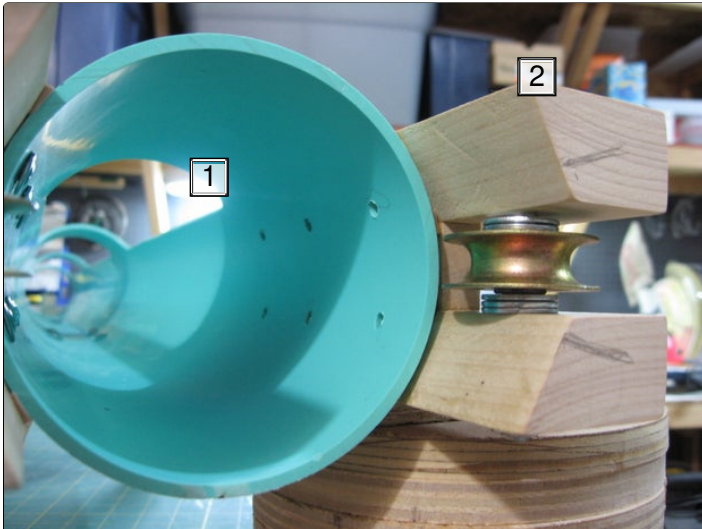
was not as easy as screwing two flat items together, that's for sure!)

I didn't have a stubby-enough screw driver to get into the inside of the pipe to put all these screws in place, so I had to make my own. You can see it in the last two photos above. It is made from a plug of wood created by drilling out a hole with a hole saw. A phillip's driver bit was glued into a 1/4" hole with gorilla glue. This super mini screwdriver worked really well.





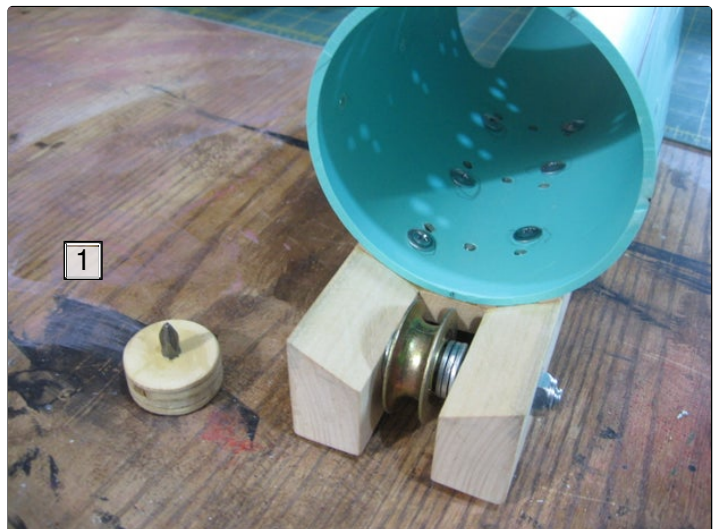
1. First mark and predrill holes in the PVC that will line up with the upper and lower arms of each bracket.
2. Then position the bracket in place where you want it, and use a short pencil to mark through the predrilled holes in the PVC onto the wood where you will need to drill pilot holes.



1. Use a pencil to mark through these holes onto the bracket.
2. These lines help position for the correct angle when you drill the pilot holes. Note that the screw heads will not sit flush in the inside of the pipe if you drill the pilot holes perpendicular to the slanted face of the bracket arms.



1. I added some epoxy just for kicks. I searched a bit for the best adhesive to attach wood to PVC, and came out knowing little more than when I started. My gut tells me Shoe Goo might work better than epoxy, but ultimately mechanical fasteners are the only way to go here.
2. See all the extra holes? The positioning of those didn't work out, so I placed pieces of duct tape on the inside of the tube, and filled the non-usable holes with hot glue. Then removed the tape when the glue was cooled.



1. Homemade screwdriver.



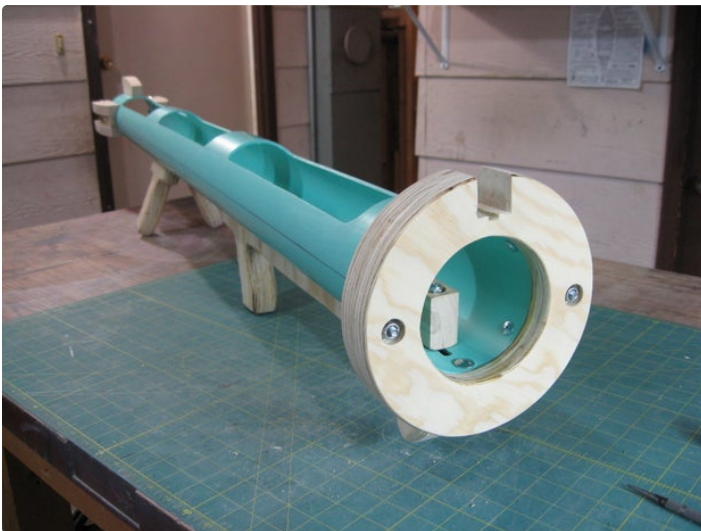
1. Toothpick used to wet the inside of the drilled out hole where the bit was to be glued in.
2. I used my rotary tool with a metal cut-off attachment to cut grooves and notches all around the bit. This gave a place for the glue to expand in and grab, locking the bit into the wood that much more securely.

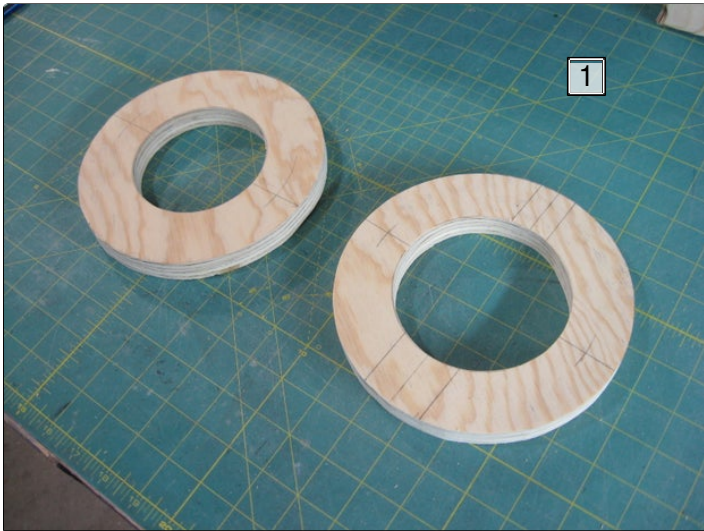
Step 10: Pulley System Back End

The pulley system back end is made from two pieces of 3/4" plywood that were glued together. These were laid out so the back piece inside diameter was equal to the inside diameter of the tube, and the inside diameter of the front piece was equal to the outer diameter of the tube. This created a lip so the tube butted right up against the back piece, to make it that much more

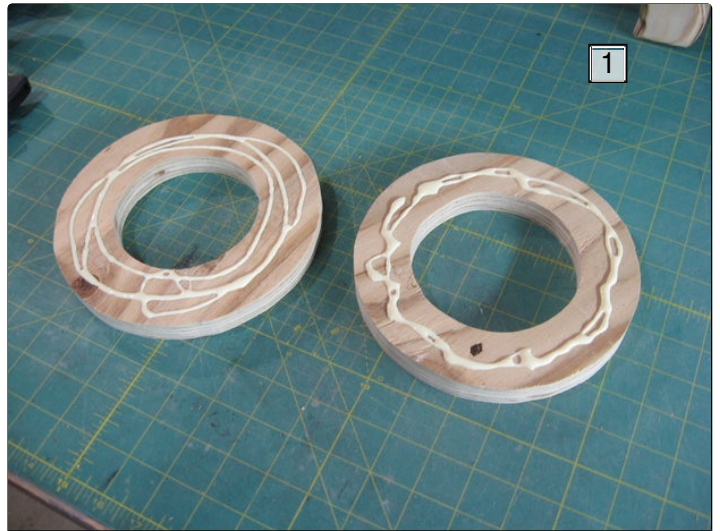
secure.

This was epoxied and screwed in place with pancake head screws. Eye bolts were added lined up with the left and right tube guidelines, to which the bungee cords attach with quick links.

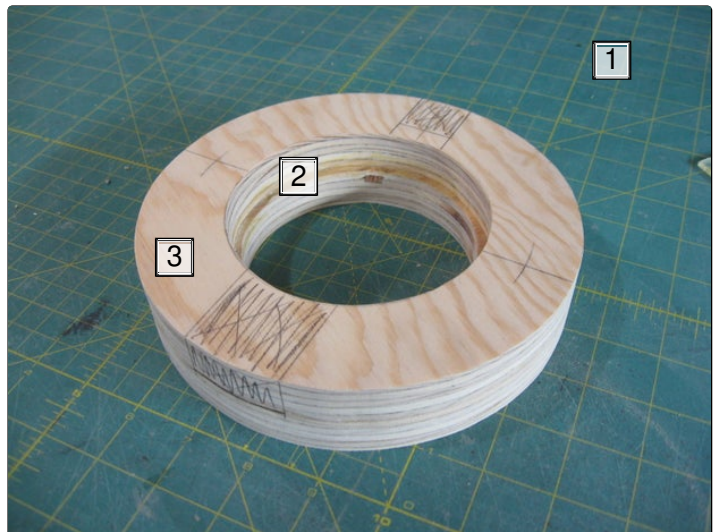




1. These were cut out with a jigsaw.



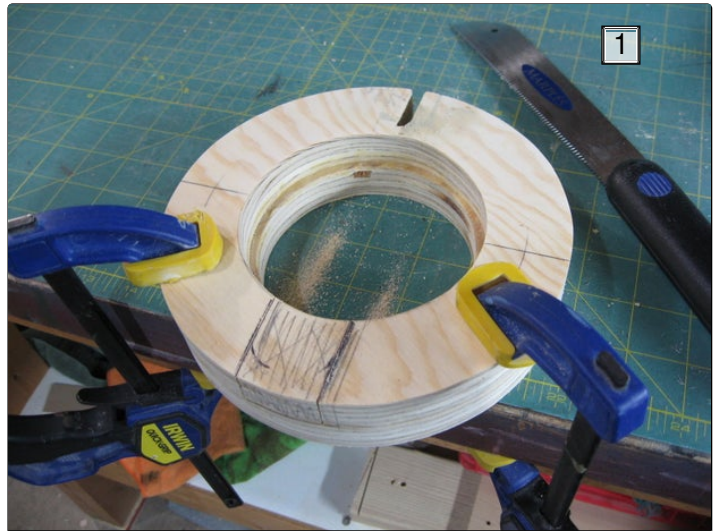
1. This glue was spread out into a thin layer before joining these two pieces.



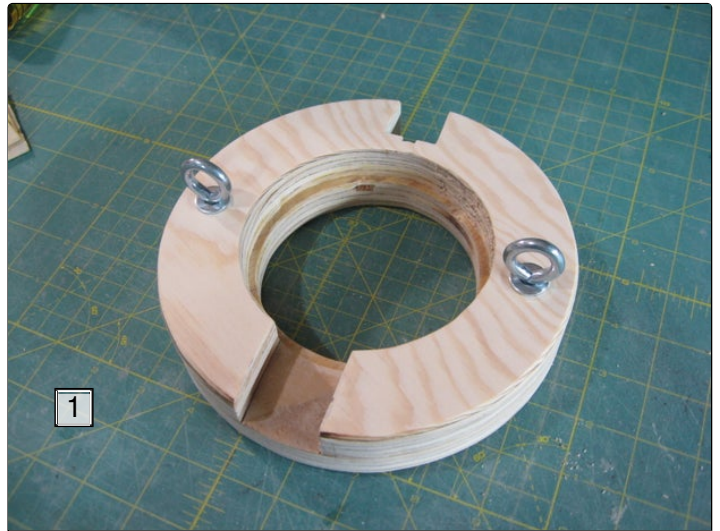
1. After the glue was dry, I ran a router with a flush trim bit around the outside of the ring on one side and then the other. This cleaned up any imperfections that existed between the two joined pieces.
2. That's about a 3/16" lip in there.
3. This are was removed from the front half of the ring to make room for the very back of the trigger handle piece.



1. This notch is for the rear sight. Not that it will ever be used, but I thought it would make the bazoopa look cooler... so you could use it as a sniper bazoopa if you wanted.



1. Pull saw used to cut down 3/4" on that bottom notch.

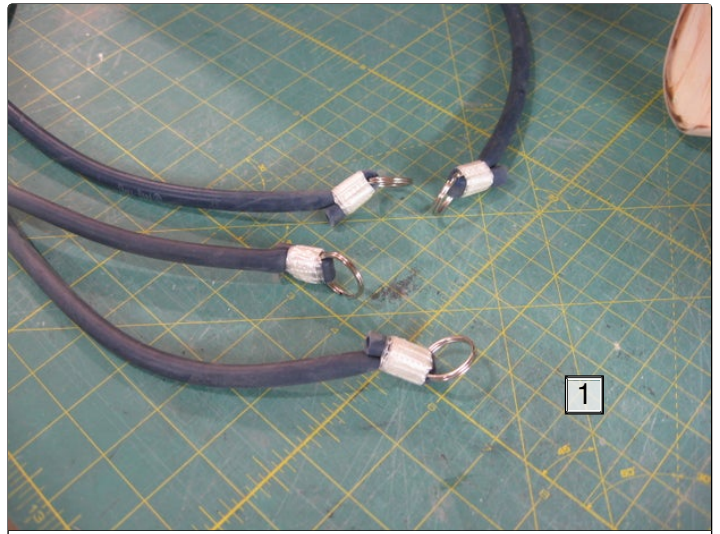


1. Bottom notch chiseled out, and eyebolts added to line up precisely with the side guidelines on the bazoopa tube.

Step 11: Bungee Tubing Bands

I ended up using two 4-foot sections of blue thera-band for my bungee tubes. I experimented with bands created with the same length of amber surgical tubing, and with other lengths of both types of tubing, but concluded that the 4-foot blue tube worked the best.

Each end of tubing was wrapped over a keyring, and taped tightly in place with filament tape.

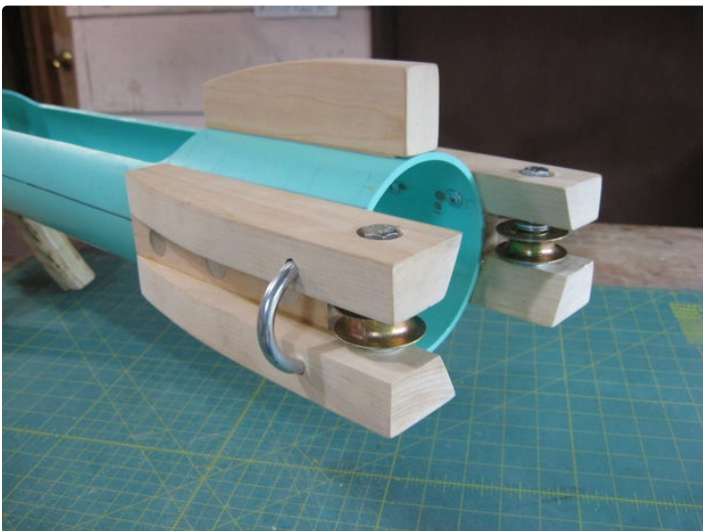


1. I was wary about just taping these in place, but it has held up very well. I still keep an eye on them and check them every time we use the bazooka to make sure the tubing hasn't slipped through at all.

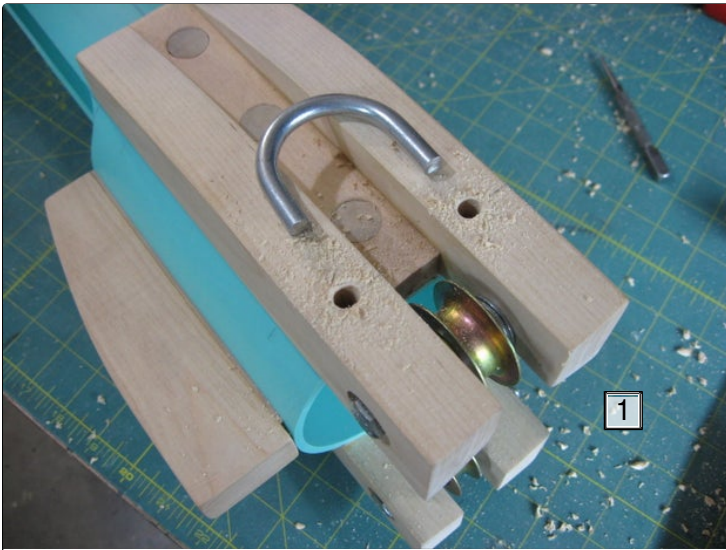
Step 12: Bungee Kickback Deflecting Loops

Without these, and the side tubes shown in the next step, the bungee cords would kick back and smack the shooter in the face.

These U bolts act as an initial deflection that force the bungee tubes to retract back parallel to the main tube itself, rather than whip wildly out to the sides.



1. I cut the threaded sections off of these U bolts with my dremel . . . er, Black & Decker rotary tool. (I generally think B&D branded tools are junk, but this is an excellent tool and cost less than \$30.)

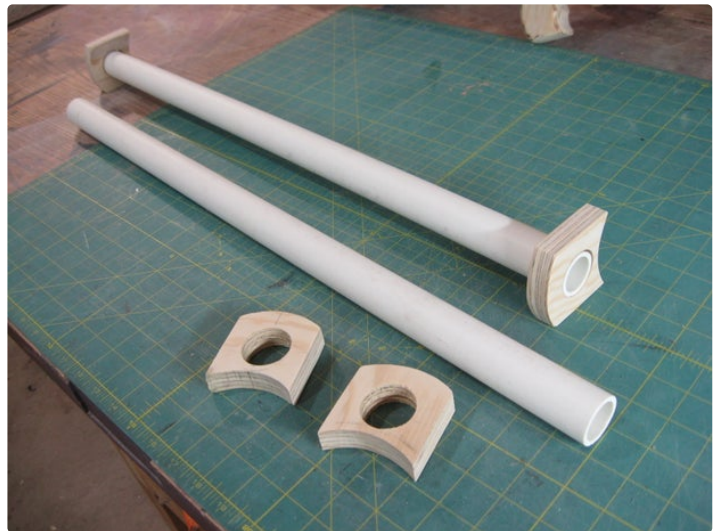
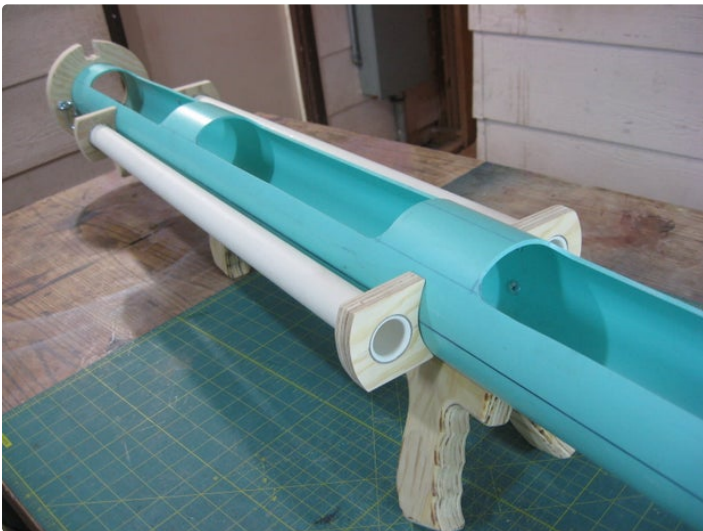


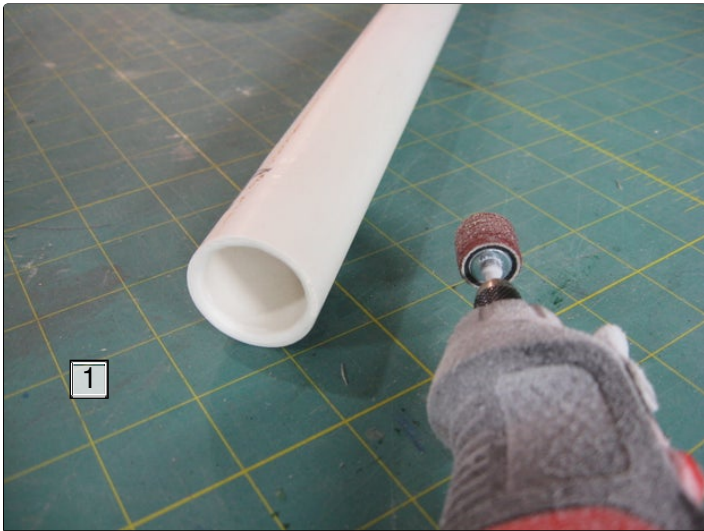
1. Measured and drilled out holes for U bolts. I just pounded them in place and didn't use any glue. They're not coming out any time soon.

Step 13: Bungee Kickback Deflecting Side Tubes

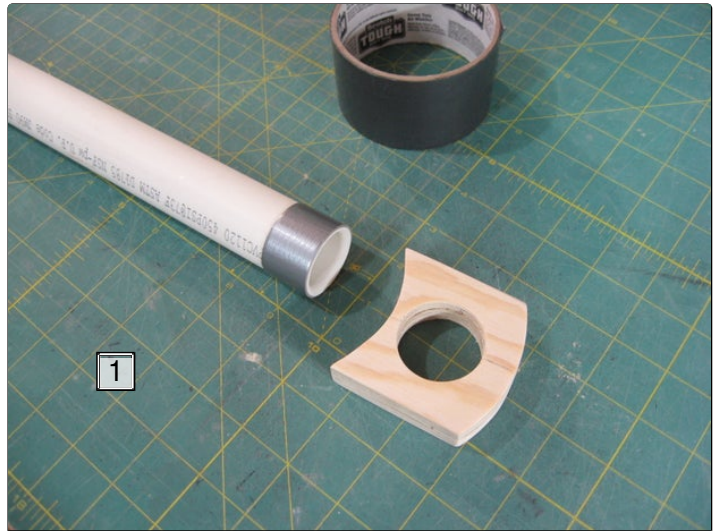
These side tubes keep the tubing from whipping all the way back and smacking the shooter in the face. They are made from 28-inch long pieces of 1" PVC.

Wooden brackets were made from plywood. The PVC is glued to the plywood brackets, and the brackets are screwed to the main tube.

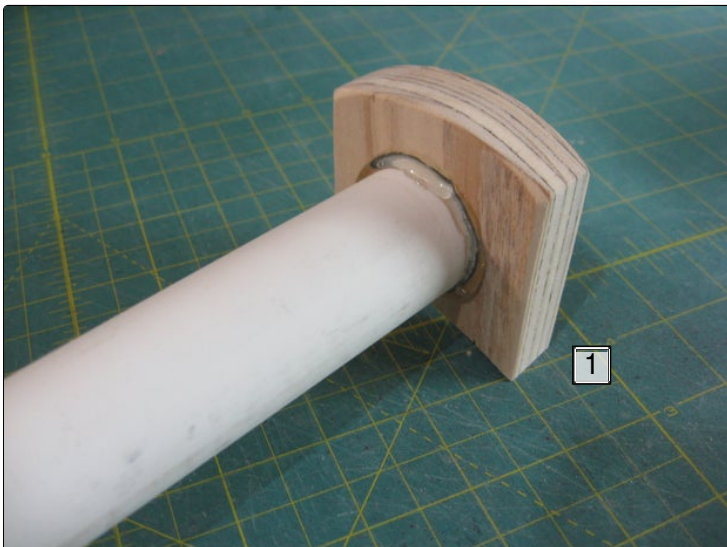




1. Used a coarse sanding attachment to flute out the inside edges of both ends of each PVC pipe, to make sure they don't cut up the tubing bands.



1. The pipes didn't quite fit into the holes made with my closest-sized hole saw, so I added a few wraps of duct tape till they fit snugly.



1. These were glued in place with a ring of hot glue.

Step 14: Wood Finish

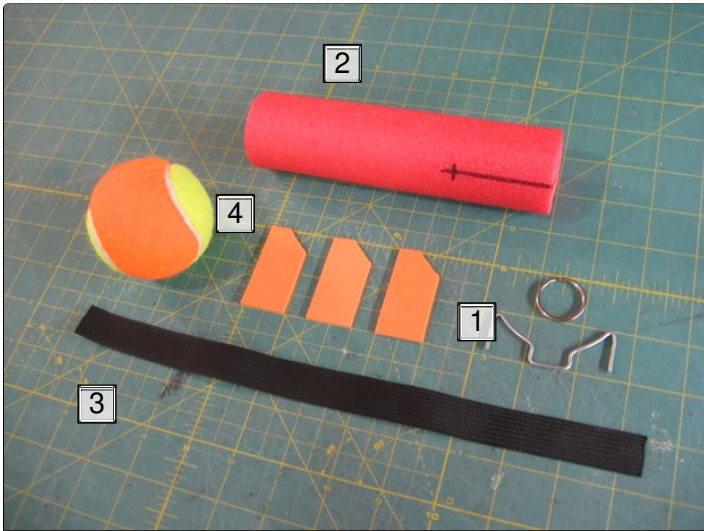
All wood surfaces were finished with a few coats of brush-on polyurethane.



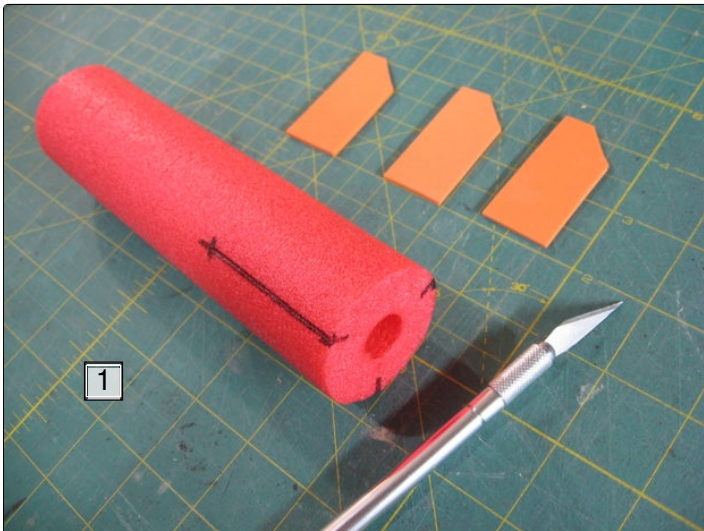
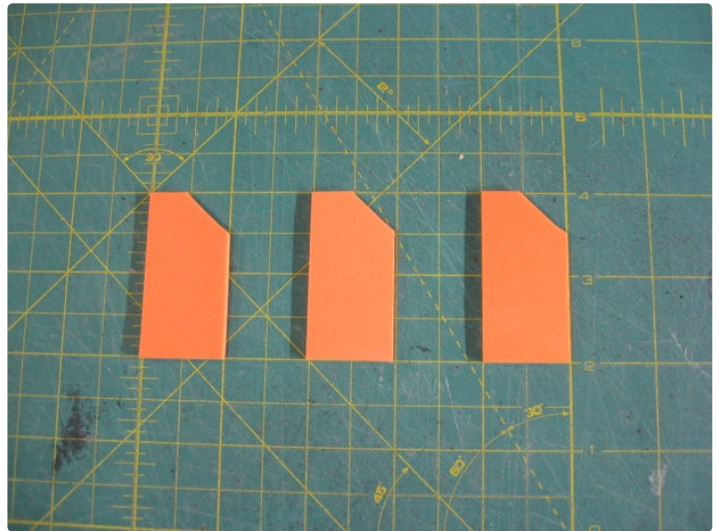
Step 15: Dart

The darts are basically a foam tube with a tennis ball on the end. The wires that stick out the sides attach to the front key rings on the resistance tubing on the bazooka, and transfer the pull of the tubes back down the webbing to the back key ring, which is attached to the holding pin at the back end of the bazooka. See photo notes for details.





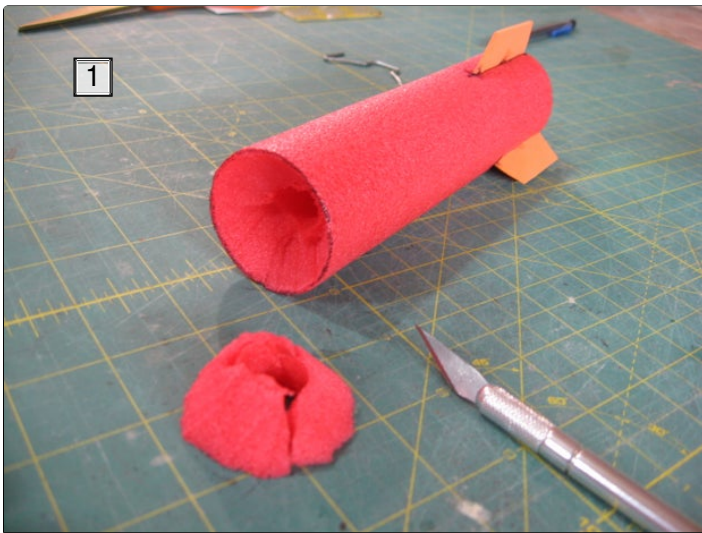
1. Wire hook piece, to be attached to underside of tennis ball. I traced this and included a PDF of the pattern to help you out if needed.
2. Seven-inch section of foam tube.
3. 12 inches of 3/4" webbing.
4. 1" by 2" pieces of craft foam for fins.



1. I just eyeballed the placement of the fins, marked the spot, and cut a slit about a half-inch into the foam along each line.

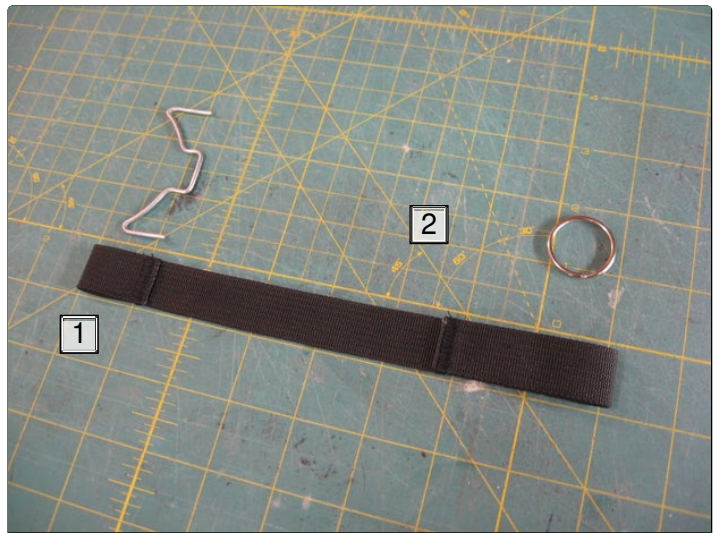


1. I used tweezers to help wedge each fin into their slots in the foam. A few dots of super glue were added to keep the fins in place.



1

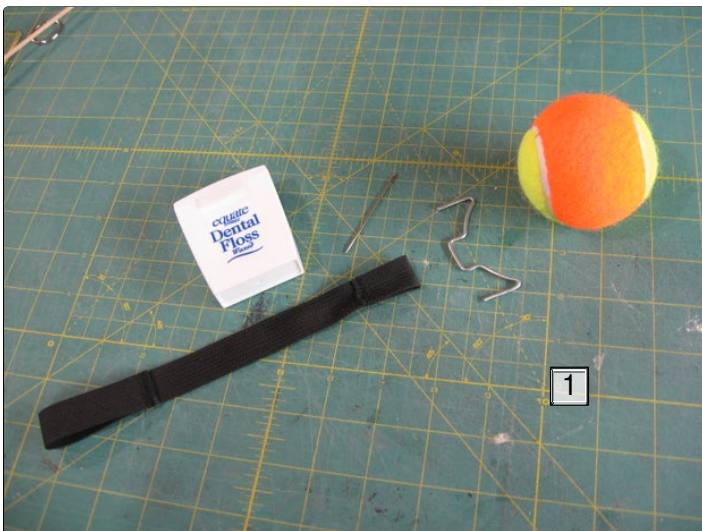
1. The front section of the tube was hollowed out a bit to make room for the backside of the tennis ball.



2

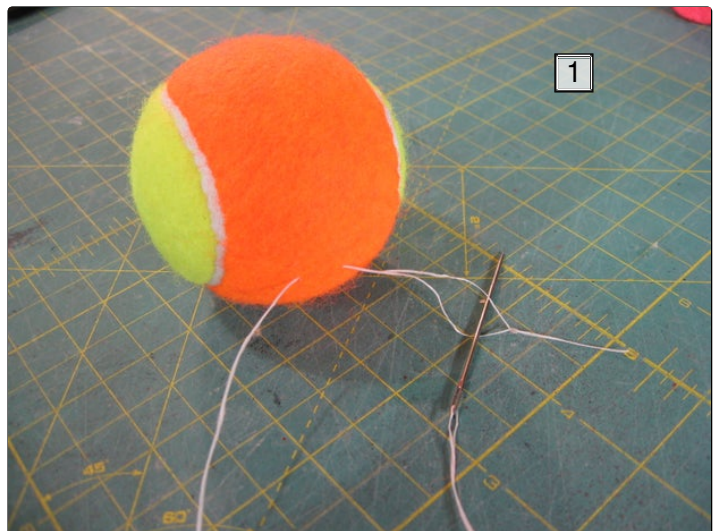
1

1. Front end of webbing folded over 1 1/4" and zig-zagged down with sewing machine.
 2. Back end of webbing folded over 2 1/2" and zig-zagged down. (The back end loop is made large enough that you can put your fingers through to pull on it when loading the dart in the bazooka, rather than pulling on the ring. I had a ring stretch all the way apart due to the pressure on one of my first trial darts, and the dart took off without notice and the key ring ripped a big gash in my finger as it stretched apart.)



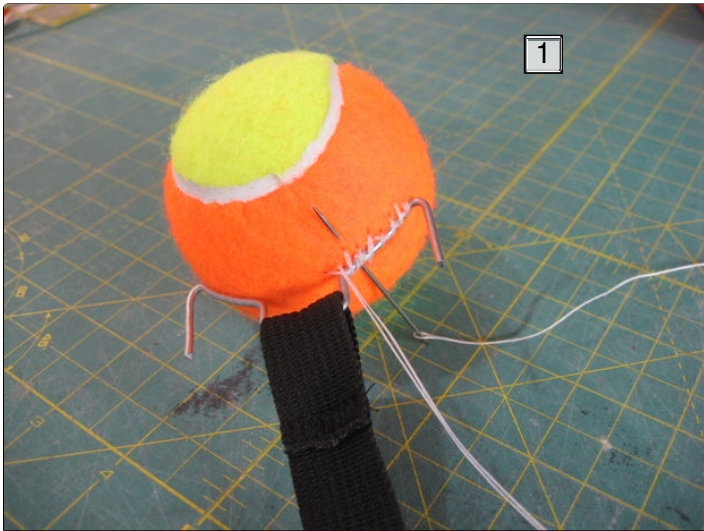
1

1. Dental floss is extremely tough, and I like to use it to sew stuff to tennis balls through the felt.



1

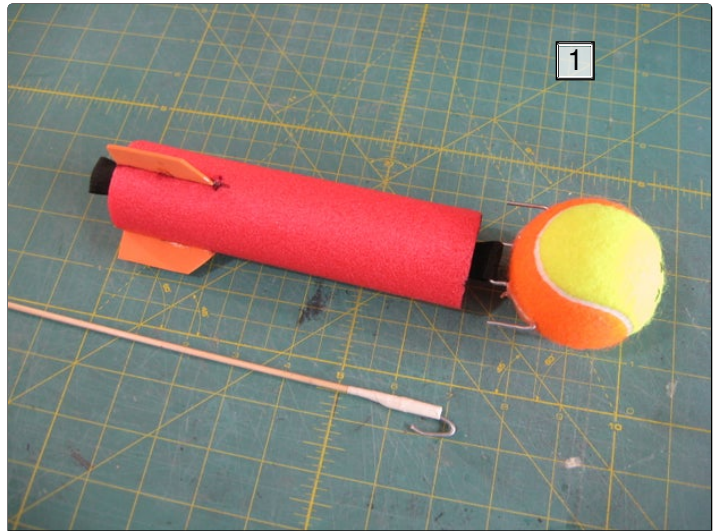
1. Thread some dental floss onto a sewing needle, double it up and tie the two loose ends. Start by threading the needle through a chunk of the tennis ball felt (but don't puncture the tennis ball). To make sure the knot stays put, thread the needle back through the two strands of floss, right in front of the knot, and pull it tight.



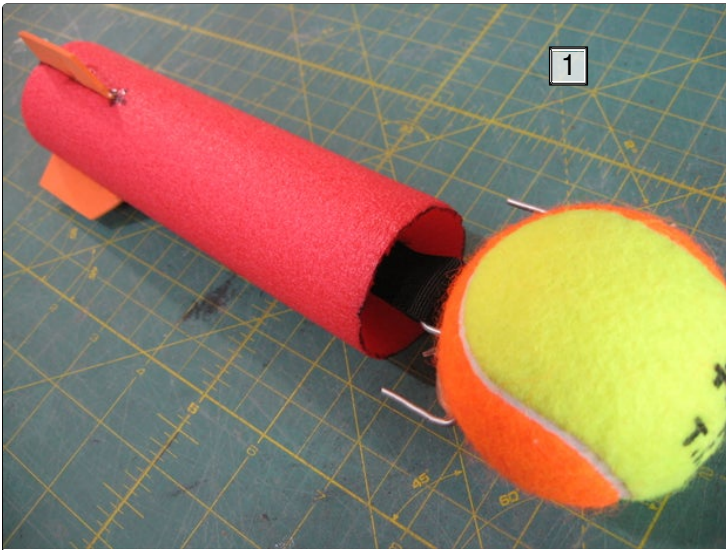
1. Stitch over the wire and through some of the felt with each pass. Pull it tight, and make a few layers of stitches over each side where the wire is in contact with the ball. Make sure you slip the webbing into place over the wire before you stitch up both sides.



1. I added a few globs of hot glue over the sewed-on wire for good measure.



1. Thread the webbing through the foam tube from the front to back. I had to make a little hook to reach up and grab it from the bottom.



1. Leave a small gap between the tennis ball and the top of the foam tube, and squirt some hot glue onto the ball. If you squirt it onto the foam directly it will melt it (at least it did on the first dart I made). Wait a few seconds for the glue to cool just a bit, and then pull the webbing and tennis ball tight against the foam.

Download



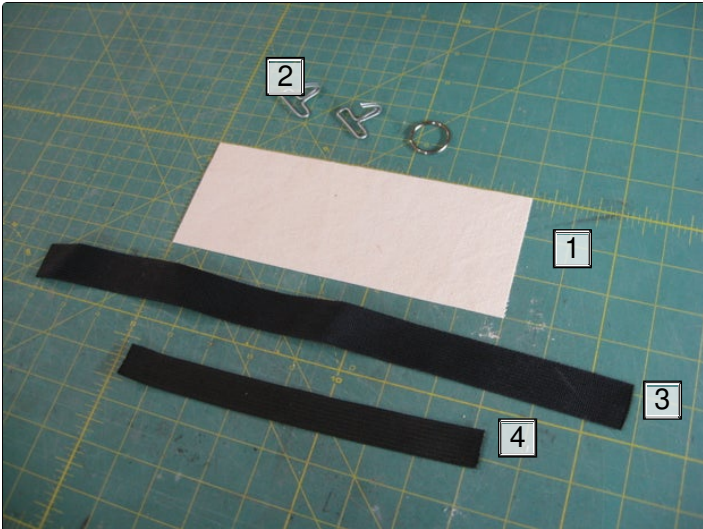
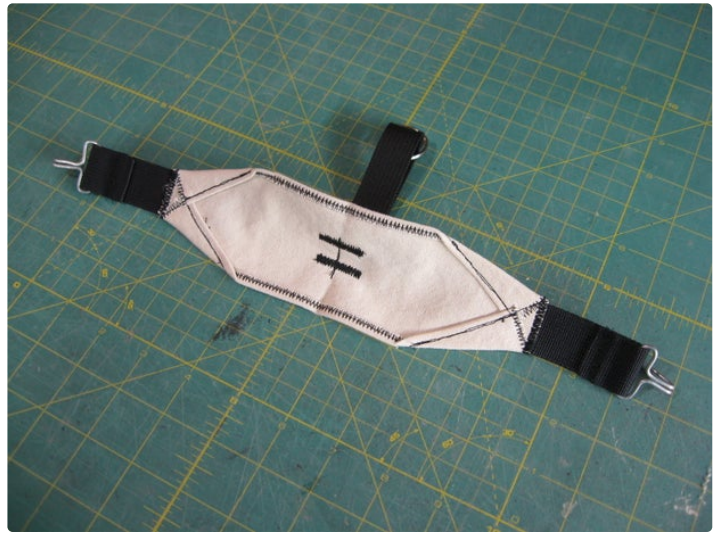
<https://www.instructables.com/ORIG/F13/O5QM/GTGCQXM0/F13O5QMGTGCQXM0.pdf>

Step 16: Sling for Alternate Ammo

The sling for alternate ammo is made from a piece of heavy canvas, some webbing, and some hand-bent wire hooks.

Well, I think that's about it. Thanks again for looking, and let me know what you think!

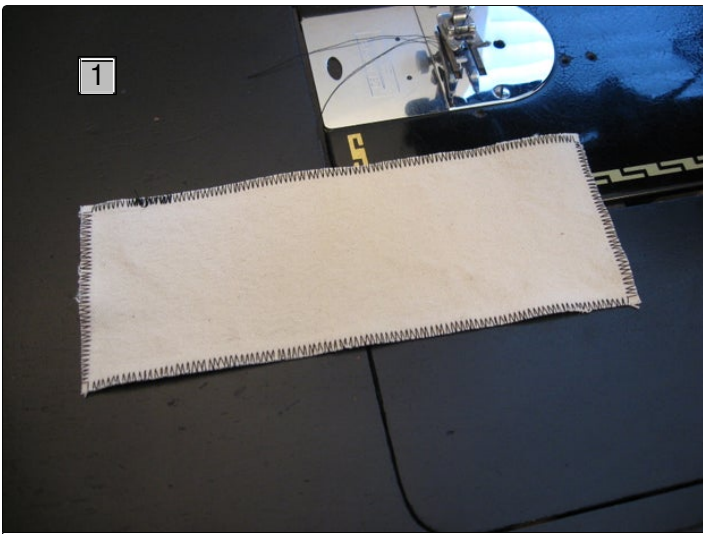




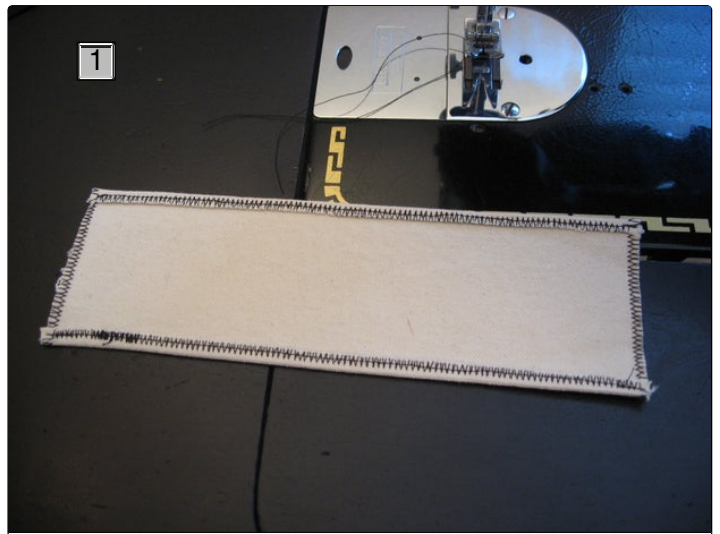
1. 3" by 8" piece of heavy material.
2. Two hooks and a key ring.
3. 14" of 1" webbing.
4. 8" of 3/4" webbing.



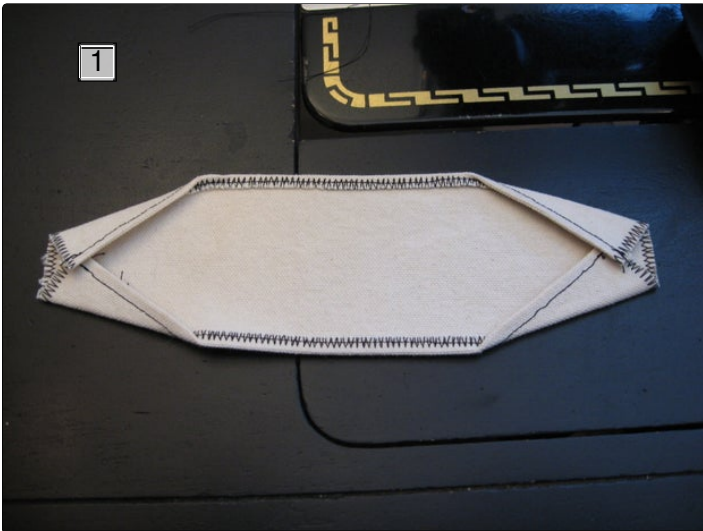
1. I used a couple of needle nosed pliers to make these little hooks.



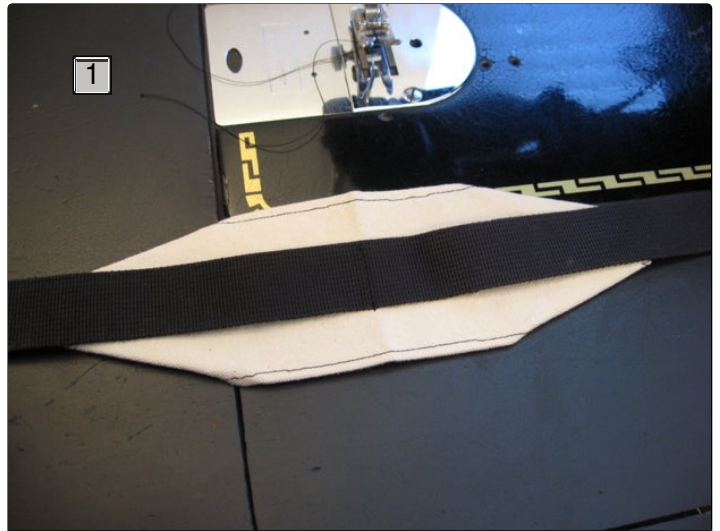
1. I began by zig-zagging around the outside of the piece of fabric.



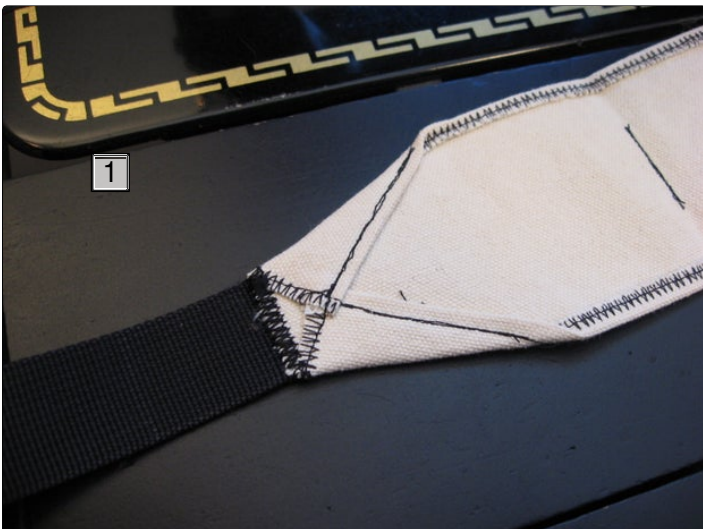
1. I ironed down the top and bottom edges, and straight-stitched them down.



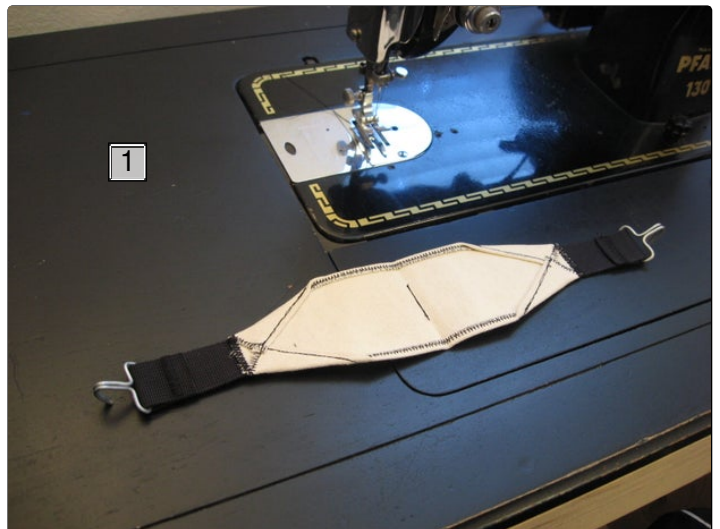
1. I ironed down the corners like you see here.



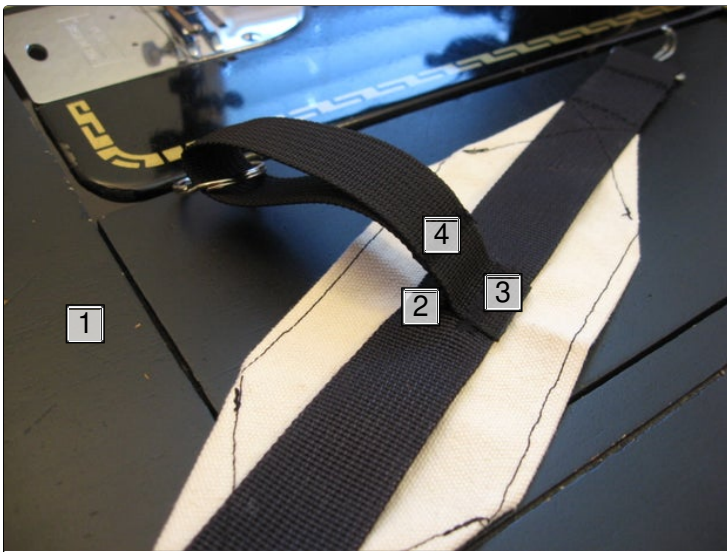
1. The 14" long piece of 1" webbing was sewed down to the center of the fabric with a straight stitch.



1. From this side facing up here, the ironed down flaps were straight-stitched down, and the fabric edge was zig-zagged down to the webbing.



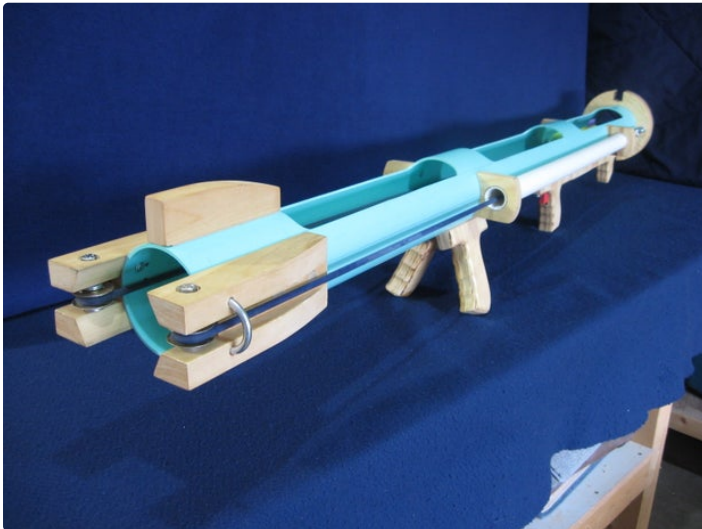
1. The hooks were slipped over the ends of the webbing, and these ends were zig-zagged down.

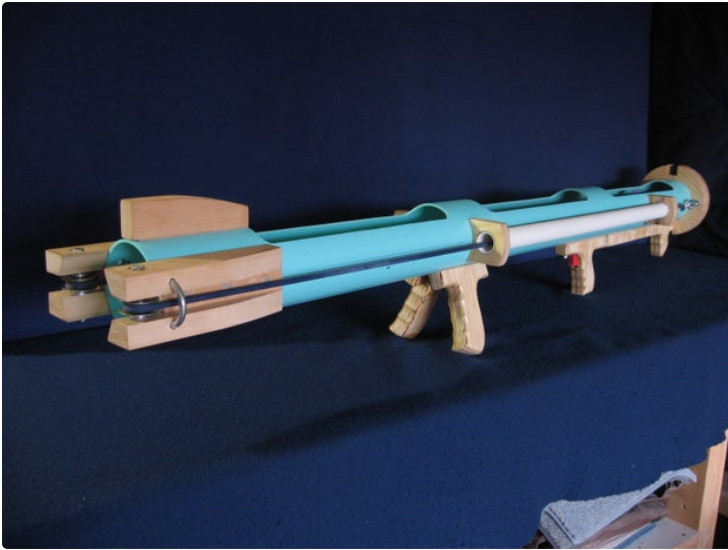
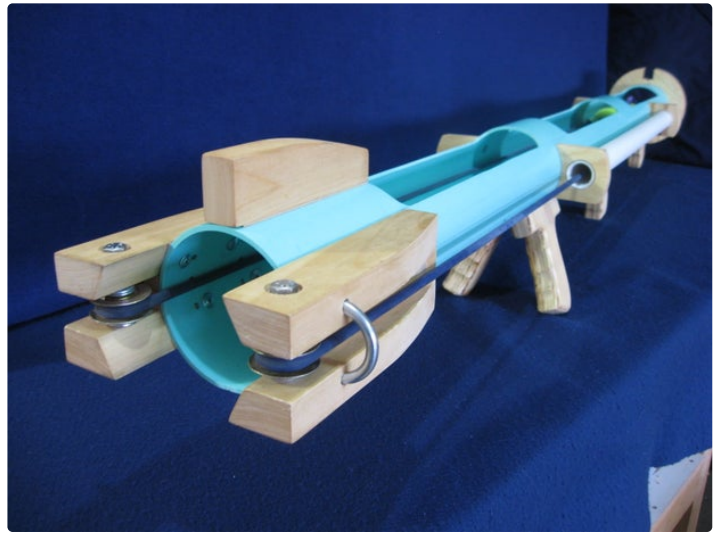


1. The 8" piece of 3/4" webbing was zig-zagged down to the backside of the sling with a key ring in place on it.
2. Zig-zag to the sling here.
3. And to the sling here. Be sure to go back and forth on all zig-zag spots three or four times, and keep the stitch lengths short.
4. To itself here.

Step 17: Extra Photos

Here are a few more photos.





hi! thank you so much for this education!! excelent.



How much does this cost?



It depends on what you already have available, but I'd say it could be done for around \$50 if you had to buy all the stuff new.



Semester, do you have plan's I can buy?



A wonderful toy



hahaha it is still in the planning stage, I might post it. the goal is not to launch it straight at you super fast, just kind of launch it in the air a bit to where you can catch it from a distance.



I saw a customized mini fridge on youtube that robotically launched a cold beer onto the couch when a button commanded it from a remote. hahaha



OHMYGOD! THAT WOULD BE PERFECT FOR MY DAD!



WHAT, Hahahahahahaha



Hahaha I saw that too, it was awesome! I don't know if I can build one like that though...should try to and see what happens...



I like the idea, hope to see you pull it off. Keep me posted, okay?



For sure!



Is the epoxy is a must have?



Oh my gosh, it looks like a K-9 cannon on steroids! I'm so gonna make this.



Great idea. good finish.



How do you make the foam rocket, can you post the link



Step 16 covers the full details of how I made it. Good luck!



nice



In the main picture what are you shooting at. It looks like a paraglider



It's a small RC plane, about 36 inches wide.



Cool. Wish I had an air field for that



can this thing shoot water balloons? I'm trying to make something similar



No, the barrel is a bit too small. Well, I take that back. I think it would actually work for a small, half-filled balloon.

It would leave quite a welt though, and wouldn't even pop. Youch!



also, how hard is it to draw it back and lock it in? And do you think speargun surgical tubing should get more range?



My 10 year old son can't draw it back, but my 15 year old nephew can. So I'd say medium pullback difficulty.

As far as speargun tubing, I don't have any experience with it so I can't say either way.



about that ground to air combat in the video, maybe with some practice vs. womp rats you'd have better luck? I used to bull's-eye womp rats in my t-16 back home. They're not much bigger than 2 meters.



That's impressive. Pretty complicated, but well made.



bravo "seamster"
it's very attractive



How hard is it to pull back? I am building a vending machine that launches out a soda to you, using rc parts to trigger it. Do you think a rc car motor could pull it back?



Launches soda at you? Sounds dangerous!

I don't think an rc car motor has enough torque or power to pull back a bungee cord strong enough to launch a can of soda, no. But I'm not sure how exactly you're attempting this, and with what supplies. I'm interested to see how this all turns out though! Are you going to post this project when it's completed?



This is too awesome - I'm heading to the shop this weekend to build one!



Very very very cool, I like it, might have to make one if I have enough \$. Favorited this to come back when I do



haha Loving Bazooka's!



Great work!



This is so going to solve my dogs-barking-at-squirrels-in-trees problem !



...Do you shoot the dog or the squirrel?



Some days that's a toss-up (lol) but we have some really persistent squirrels that have actually come down from the trees and 'knocked' on the storm door when the dogs were inside the house !



We have a window mounted bird feeder and during breakfast the squirrels will come up and hang from it while eating bird seed. The only problem is that we get a nice pretty view of their um.... underside while we are trying to eat. Blech!



I've made many paper rockets like this one, some longer than others. You have given me an idea for a bazooka with a thinner barrel and a single length of tubing attached on both sides that could be hooked to the paper clip. With just a small length of bungee from my backpack, this rocket travels over 5 houses down from mine.



The fins may need to be protected by a cardboard discarding sabot during launch.



Not bad!

But man . . . that looks like it would do some serious ocular damage!



I've got to make one of these! Judging by the surgical tubing and size of the thing, I can imagine it kicks like a mule when fired and packs one heck of a punch.



Oooooohhhh... a balloon full of paint- paintball bazooka/mortar!



I'm not the only one who thought paintball bazooka then?



have you attempted to shoot a rolled up t-shirt like at sporting events? I am thinking may be cool at the school I teach at in the gym? not to far, not to hard and no FIRE involved.



Shrink wrap the shirt fist.



have a question. if i made these to sell, would you be mad? or even care?



I wouldn't mind one bit. Go for it.



You should change the license on this Instructable if it doesn't matter, it means people know what they can do with it!



Perhaps I will. (But in this case I'm not too worried about it.)