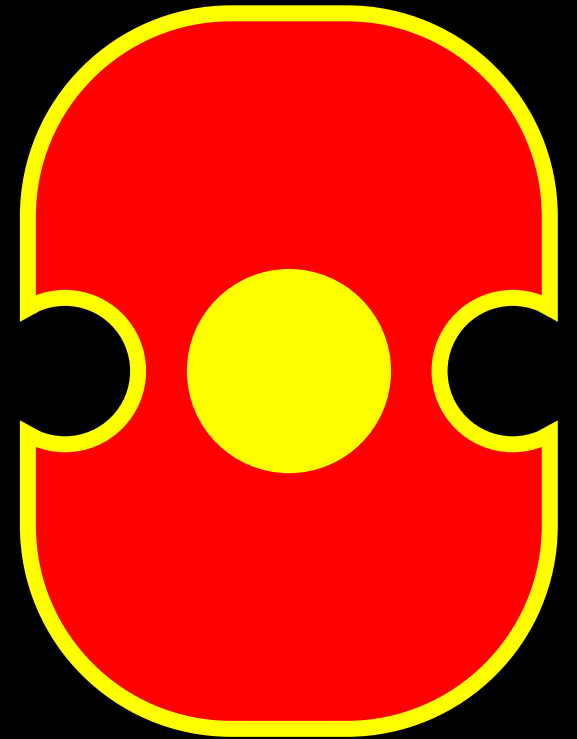
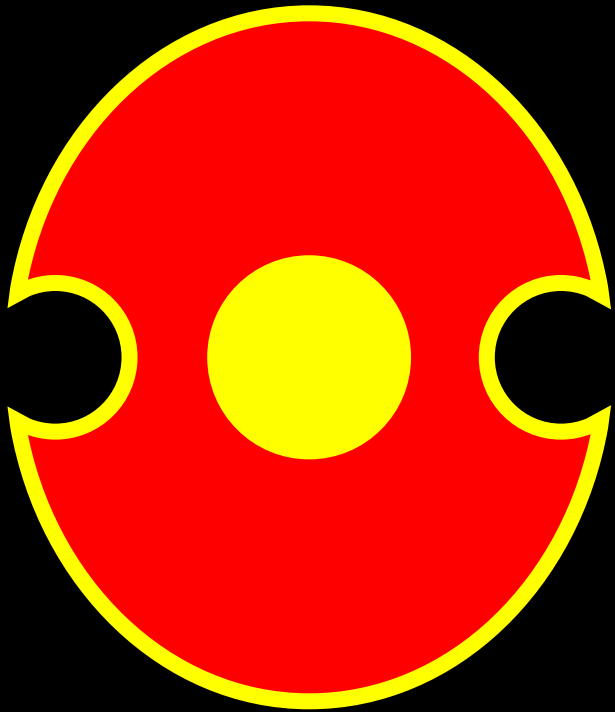


How to make a Persian shield



Materials

- 10-12 mm thick plywood (15 mm is just too damn heavy), a sheet of 2' x 4' is pretty common, fits in a car, and will make **one** shield without much fuss.
- Tough cotton-based facing material (like canvas, calico, etc)
- PVA (builders PVA from B&Q or Wickes is good and dries fast)
- Carpet tacks (length less than the thickness of the plywood)
- Leather (ideally minimum 2 mm thick)
- Padding material (Sheepskin works really well and you can get sheepskin cuttings on ebay or etsy)
- Rivets (ideally iron or copper because steel doesn't like to be riveted unless VERY hot and long enough to go through the plywood AND leather AND the washers)
- Washers sized to the rivets (need matching inner diameter of the washer to the rivet or you'll have to do a LOT of hammering)
- Thin scrap leather or rawhide for edging
- Leather cord

Tools

- Hammer with a rounded back (for riveting)
- Thin saw blade or electric saw (jigsaw) and/or standard saw (Cutting the main shape is easy, the cut-outs need a saw with a tight turning circle, so thinner blade)
- Big paintbrush (for the PVA)
- Scissors
- Table to work on (you can get a folding workbench pretty cheaply if you don't have one and plan on using any power tools)
- Pencil and ruler/tape-measure
- Hand or electric drill
- Leather hole punch

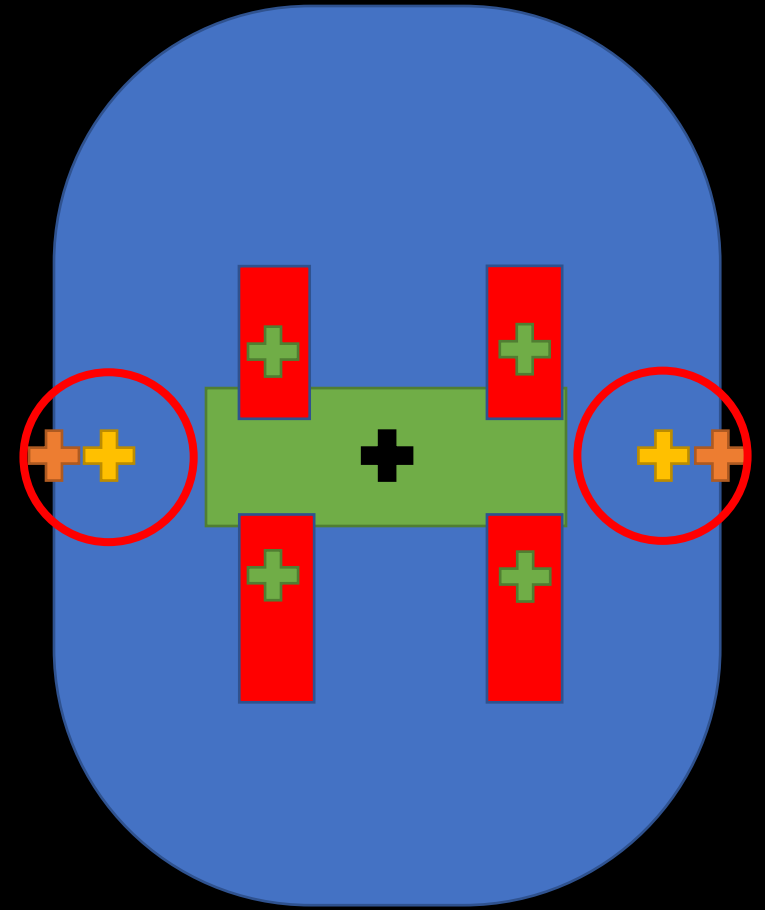
Getting the basic shape

- Firstly, decide on the rough shape you want. Shape A or B are perfectly valid based on the curvature of shields in reliefs.
 - I will note shape B is easier to measure for...
- Cut the plywood to between 75 - 90 cm in height and about 55 - 65 cm in width
 - If you bought a 2' x 4' plywood sheet, the width of the sheet is about 62 cm, which makes things easy.
 - Most importantly, the shield size shouldn't be so large that you can't see over it with you arm strapped to the middle, nor should it be too narrow that your elbow and knuckles will get hit when you make the side-cuts.
- For shape A have a look at some tutorials for drawing an oval. The easy cheat is to make the top and bottom thirds a semi-circle with a rectangular band in the middle.
- For shape B, you will need to draw quarter-circles (I went with 10" radius) to round off the corners and then cut those. You don't want these corners to be too severe (small radius) or it'll look to rectangular.



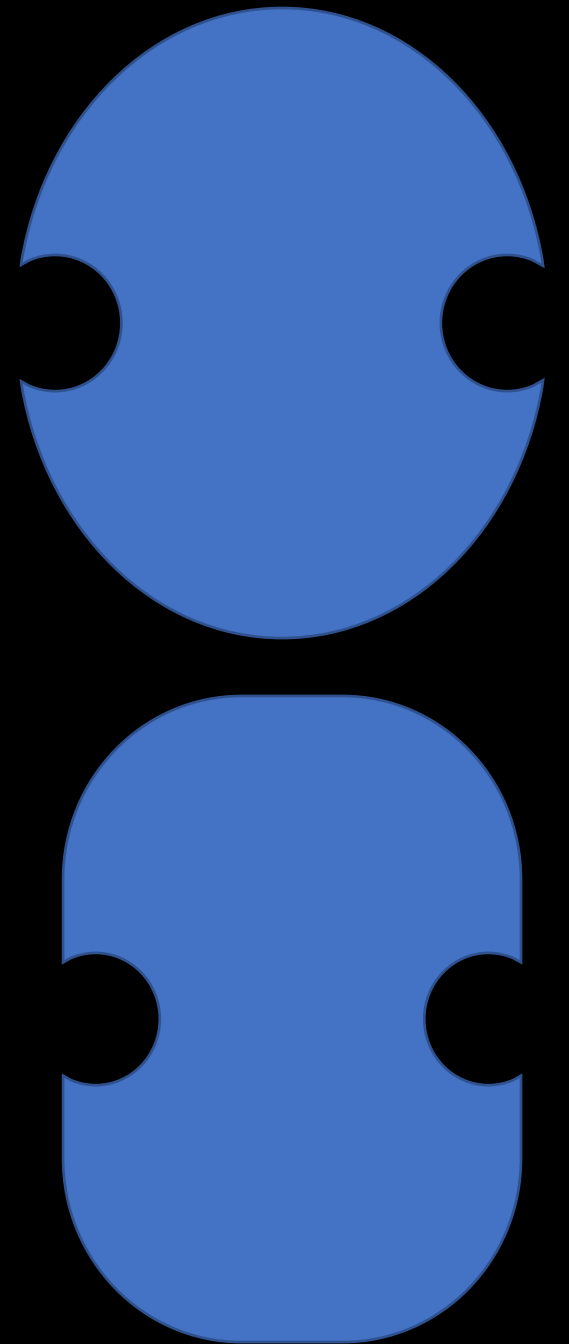
Facing the back, measuring the cut-outs

- This may seem counter intuitive, but now you have the basic shape, coat the BACK SIDE of your shield (choose a side and stick with it) in PVA, lay your facing fabric over it, then coat the fabric again in a layer of PVA.
 - You can use the paintbrush to smooth the materials' ripples and get rid of bubbles.
- While this is drying, trim the excess fabric so it lies very close to the edge of the shield shape. Now set the shield aside to dry.
- Once dry, we want to define the arm area and cut-outs:
 - Step 1 – Mark the exact centre of your shape (black cross). Then, lay your arm on the shield such that your knuckles (in a close fist) and elbow sit the same distance either side of the middle mark you've just made. Make a rough line for the edge of your elbow and edge of your knuckles.
 - Step 2 – Using these marks draw out a rectangle where your arm will lie (green area). Make another set of marks where you will put the arm and hand strap (green crosses).
 - Step 3 – Now for the cut-outs. Find the middle of the edge of the shield on either side and mark it (orange crosses). Now make a mark 1" in from that point (yellow crosses). These second marks will be your centre point for the cut-outs.
 - Step 4 – Now choose a circle size that won't reach your elbow/knuckles but will be easy to cut. Depending on arm size a 2" to 3" radius circle will work (I went with 2.5 "). Draw these circles (red circles) centred on your yellow crosses.
- Leave the cut-out lines for the moment, we need to attach arm straps and padding:
 - Step 1 - Make a set of 2 straps out of leather (2 pieces each). Ideally you want a thicker one for the crook of the elbow and a thinner one to grip.
 - Step 2 – Lay the straps with one end roughly over where the green crosses have been marked. Trim the top half of the straps to be shorter (you want the ties to secure this to be on the top and accessible).
 - Step 3 – Drill holes through the green crosses and make matching holes in the leather pieces. Then rivet these leather pieces in place with a washer on both sides. Make sure you thoroughly check the fit and positioning of this, once the rivets are on that's it. Also make sure your fit accounts for the padding that will go on under your arm.
- You now have the arm straps attached and the cut-outs marked and the back is faced! Getting there.



Facing the front and finishing the cut-outs

- Now turn the shield around you so face the front. You should have 4 visible rivets with washers, we're wanting to cover those up.
- Layer some PVA on the front of the shield and then add the facing material just like on the back side, remembering to smooth out the ripples etc. Trim the excess material close to the edge of the shield.
- Leave this to dry.
- Once dry, flip around so you're looking at the back side. You should still see your markings for the cut-outs. Take a thin saw blad or electric jigsaw and carefully cut out the partial-circles you've outlined. It is better to take off too little and adjust with a chisel or rasp afterwards if you have trouble following the lines you've made.
- You should now have one of the shapes seen to the right.



Edging the shield, finishing the straps, and padding

- We're almost there! You will now have a raw edge of plywood and fabric going all around your shield. This needs covering. Scrap leather (fairly thin, about 1 mm thickness) or rawhide (must be soaked in warm water first) should be applied in strips to the entire edge of the shield.
 - An easy approach is to lay a strip about 3" wide and however long along an edge of the shield. Then tack the middle of the strip into the edge of the shield. Stretch the leather on one side and tack it similarly, then do the other side.
 - You should then do this for enough leather/rawhide to cover the entire edge, including the inner parts of the cut-outs.
 - Now you need to tack or sew down the leather/rawhide. Either drill holes through the wood and leather and stitch the edging on or sparingly use tacks to secure the material down.
 - A tip for the cut-out areas – make small cuts in the edging on the inside face of the leather edging. This will allow it to stretch more easily on the front-facing side. If you're having trouble with stretching the leather, you can soak it in warm water like with rawhide.
- Next, size your padding material to comfortably fit under your arm and cut to size. Do not attach at this point, but lay it on the site where you want it. Then, make marks in the leather straps where you need to trim the size and put holes in. Punch the holes and add leather cord to fasten.

Painting and finishing touches

- Paint the back side first in a plain colour for your unit type. For Persians this will be either plain red or yellow.
- Let the paint dry on the back and then tack your padding material in place where your arm will be.
- Flip the shield over so you're looking at the front. For a Persian unit, paint a plain red background first. Once this is dry, paint a yellow border on the shield. This can be 1"-2" wide and either hug the edge or set about 0.5" in from the edge (your choice). Finally paint a yellow circle in the middle. I used a large cereal bowl for size, about 6" in diameter (you can go with bigger or smaller, these circles on the shields are often visible in the reliefs at Persepolis).
- The last step, once all the paint is dry, is to try on the shield and marvel at your work!