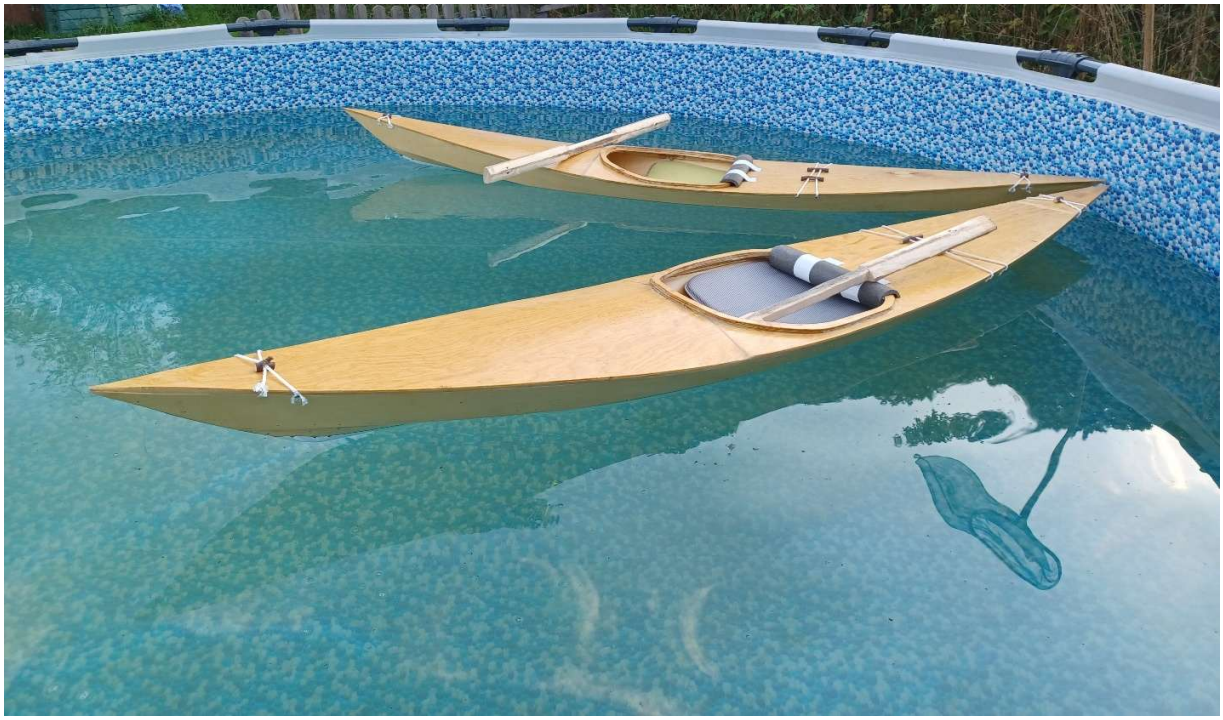
The Q-Cub

Description and building manual v1.0

The Q-Cub is a stitch and glue kayak designed specifically for children from 3 years of age up to 7 years old. It aims to accommodate them with a kayak, help them learn kayaking, develop self confidence on the water, and help transitioning to a bigger boat later.

The kayak has a deep Greenlandic influence, and is easy to build, the process being similar to building a big scale model. After its owner outgrows the cockpit space, the kayak can become a beautiful decorative model, hanging under a ceiling, or stretching on a wall.



WARNING

Never leave unattended children use the boat. Always keep an eye on them on the water. Always use a personal floating device specifically designed for children.

It is recommended to use lateral augmented stability sponsons at first, until a sense of balance on the water is acquired.

General characteristics

Length: 250cm

Beam: 46cm

Depth: 12cm

Weight: aprox 5-6kg

Required materials

1pcs 250/120cm (8/4ft) 3 or 4mm thick sheet of plywood (4mm works best) – fir, poplar, pine, spruce, or dedicated marine grade plywood, for the hull and the decks

1pcs 120/60cm 9 or 12mm thick sheet of plywood for the cockpit coaming

2pcs 250/2.5/0.5cm battens for the internal gunwales

1pcs aprox 70cm long 5 cm wide 2.5 cm thick batten for the back rest

A few pieces at least 70cm long of straight scrap wood for the masiq. The masiq is the curved deck beam which comes above the knees

1.5-2 kg of epoxy resin and hardener to laminate the hull and also make glue

1kg of varnish or paint

1 pcs 130 cm long, 5 cm wide, 4 or 5cm thick board for paddle making. A 2.5cm thick leftover plank also works

Diverse nylon or polypropylene lines for deck lines making.

The model is too small to require joint taping, fiberglass dressing or other reinforcement.

Building the Q-Cub

The kayak is built via the classical stich and glue method. Nothing complicated.

1. Download and print the plans on a plotter at 100% scale
2. Glue them on the plywood sheet, fix them with duck tape or punch the shapes with a rubber hammer and sharp screwdriver like creating an offset. Make the marks 2cm apart if this method is used
3. Make sure you have two side panels and two bottom panels
4. If you cut out one side panel and a bottom panel you can use them as templates and draw around them to obtain the other two

5. Start drilling the holes for the wires, roughly 2.5 cm apart. Make sure they match on the sides. DO NOT drill any holes in the upper sides of the side panels
6. Stitch the panels together with copper wire or small zip ties. Wire is the best
7. Mark the exact center of the boat
8. Open the stitched panels like a butterfly's wings

9. Glue the side battens (thgunwales) with thickened epoxy, holding them in place with clamps or clothes pegs

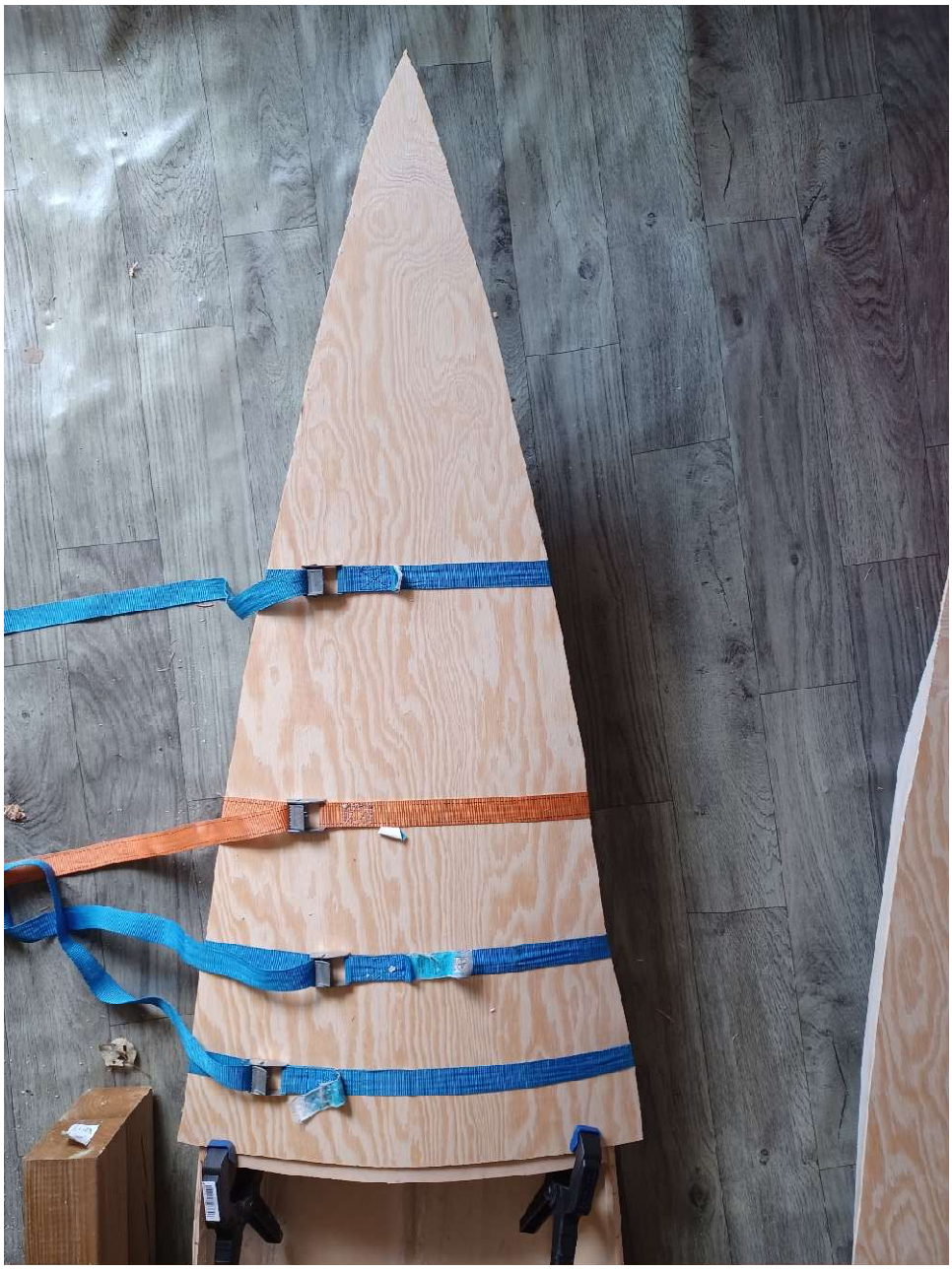
10. Cut and insert the back rest at the indicated position – exactly 142cm from the bow. This position is fixed (it preserves the center of gravity of the boat) therefore the back rest can be epoxy glued to the hull. The back rest length should result 43 cm long. This length can vary only a little if you want to adjust the beam of the boat, but beware of a too sharp taper of the sides (reclining the sides to much)
11. Cut and insert the masiq temporary batten at the indicated position – the average is 100 cm from the bow but the position may vary according to preferences, such as cockpit length, knee position or growth estimates. Its length is usually 44 cm but its length varies with the desired position (the longer if positioned closer to the center of the boat, the shorter towards the bow). Do NOT glue it. It is only temporary

12. Prepare the masiq by laminating it out of four 5cm wide ply strips in a jig. It's curvature should match the knees and the toes of the child. If you want the kayak to be used for longer, make these dimensions generous but don't exaggerate, even if the space in the cockpit will be too large at first. Just put the kid in the future cockpit and see where

everything falls in place. The curvature of the masiq will determine the space for the knees, the space for the toes, and the curvature of the foredeck

13. Since we are at laminating, fillet all the joints and glue the back rest in position. DO NOT glue the temporary masiq batten in place
14. When the epoxy is cured, remove the masiq from the temporary mold and polish it with sandpaper
15. Add the masiq in place. This time you can glue it
16. Roll 2-3 layers of clean epoxy over the entire interior

17. Start building the decks
18. Cut a plywood piece to match the length between the masiq and the bow. Have it temporary in place, then pencil from the underside to match the shape of the hull. Pay attention to the masiq area
19. Cut out the resulting shape
20. Laminate its interior face with 2-3 layers of epoxy, and before it cures glue it with thickened epoxy to the hull. Strap it in place until cured



21. Cut a similar piece for the rear deck. It may happen not to have a piece of ply of enough length to cover the rear. No trouble. Cut the deck as long as possible and cover the remaining gap with a new, shorter piece
22. Cut the cockpit hole. Establish your own shape and size. Make sure the shape of the cockpit hole doesn't go beyond the masiq and the back rest
23. Proceed as with the foredeck. Roll a couple of epoxy layers on the inside face, then glue it in place with thickened epoxy having a few improvised weights to hold it in place

24. Cut the cockpit coaming from the 9mm plywood. Use the plywood leftover piece that resulted from cutting the cockpit hole as a template
25. Glue it over the hole with thickened epoxy

26. When the deck-hull joint is cured, polish all the resulted rough surfaces
27. When done, clear the hull and prepare it for lamination
28. Roll a few coats of clear epoxy over the hull
29. When cured, sand it down with 200 grit sandpaper, clean it again then varnish or paint the hull.
30. Add the deck lines as you please

The paddle

What's a qajaq without a paddle? A car without wheels?

Fetch the stick you dedicated to the paddle. Measure the length o the shaft (or the loom). Ask your child to raise his hands at shoulder level and measure the distance between them. That will be the length of the loom. Cut the paddle out of you plank or stick. Make the ends 5cm wide. Plain them with a plainer and round them with a rasp. Oil or varnish the wood

Don't bother too much with it. It is expandable and you'll build many of them as the child grows.

Further references

Working with epoxy resin - https://www.youtube.com/watch?v=EAa6gLYvgqE

Stitch and glue boat building -

https://www.youtube.com/watch?v=eWxeNLIoric&list=PLKa8xVfKOkswXFEXc4sGJa80ZKktyBLZE

Or you can read the first part of the Iris dinghy building manual on the Tales Of Three Boats website