

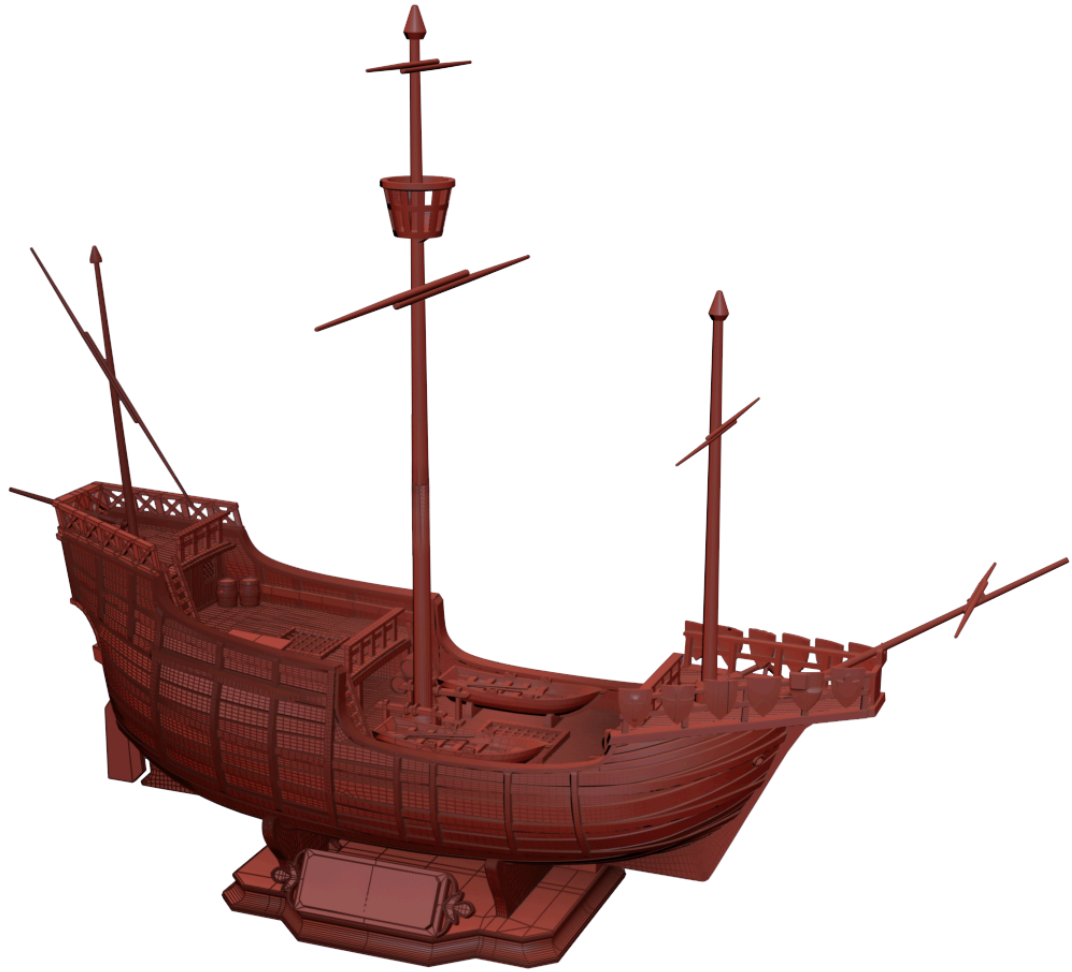
THE SANTA MARIA

3D Printable Scale Ship Model Instructions

by

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OVERVIEW

- The success of your assembled model depends heavily on postproduction, as opposed to getting your printer “dialed in”. That’s not to suggest print quality isn’t important, only that this model is relatively low poly so clean up, sanding, and a little fixing will produce great results.

TIPS

- Dry-fit all pieces before bonding with glue. Most parts (especially if printing in wood PLA), will need clean up like sanding, filing, etc to fit correctly.
- A quick flame from a lighter will quickly get rid of most stringy PLA.
- Print smaller pieces using higher detail settings, just use your best judgment.
- ‘**Loctite**’ super glue worked great for me. It’s more expensive but it lasts, less messy, and easier to work with. (just a few tiny drops in key places). Be patient and hold parts together long enough to bond (usually 10-30 seconds).
- www.SyrenShipModelCompany.com You find mini rope and other ship model fittings that are helpful if you decide to install and rig sails. You’ll find other miniatures to add fine detail to your scale model.
- **Sails:** I did not model or print sails. I cut pieces from cotton sheet, stained them, and hand sewed them onto the masts. I also glued hobby wire for sculpting and firmness.
- Shrouds; I built the shrouds by tying/gluing several vertical lines (ship model mini rope) from the deck up to the crow’s nest and back down to other side. Then I cut specific lengths of mini rope for the horizontal lines, and a simple drop of glue held them in place. (see detail images of printed scale model at end of this document)

Tools I use and recommend:

[Mini File Set](#) - \$15 (any set will do)

[Mini Hand Drill](#) - \$10-\$20 (great for making small holes in plastic)

[Loctite Glue](#) – high viscosity

[Loctite Glue \(liquid\)](#) – low viscosity

X-Acto Knife

STEP 1 - HULL ASSEMBLY

PARTS NEEDED

[hull_bow]

[hull_joiners]

[hull_stern]

*next 3 parts assemble into “main deck” piece

[main_deck_A]

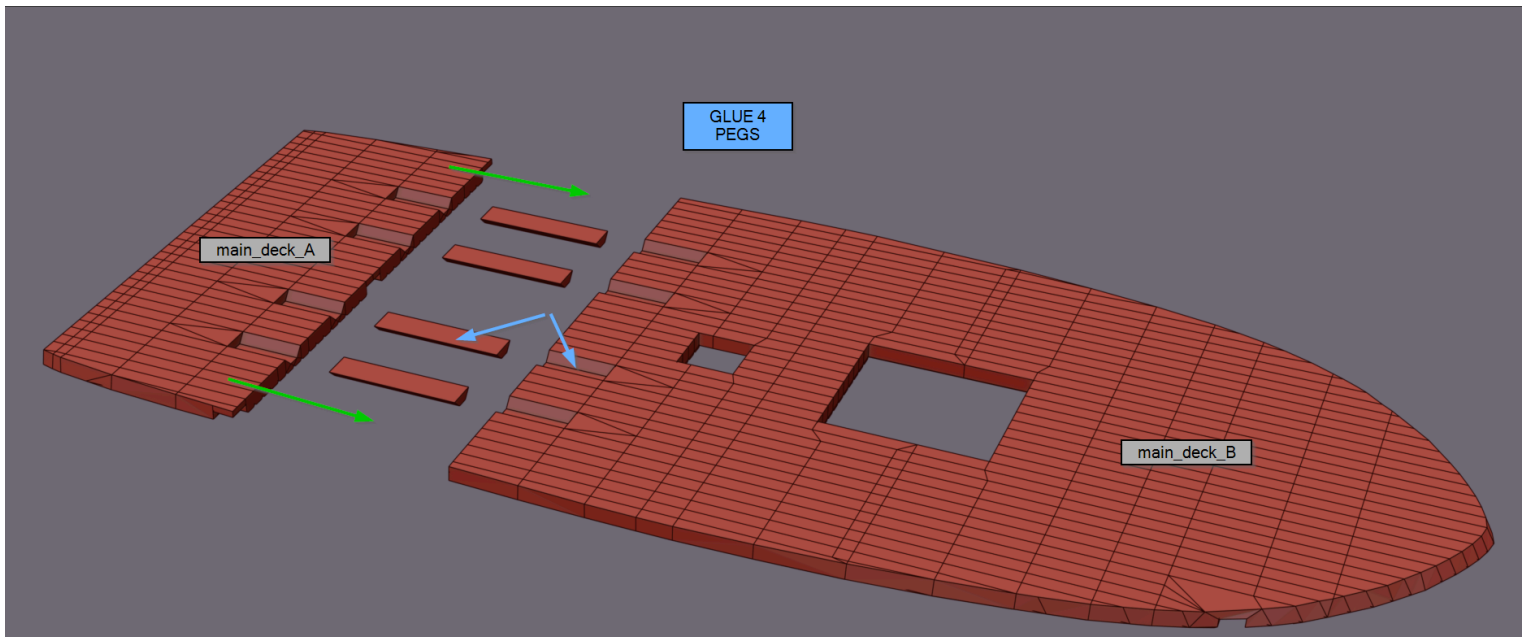
[main_deck_B]

[main_deck_pegs]

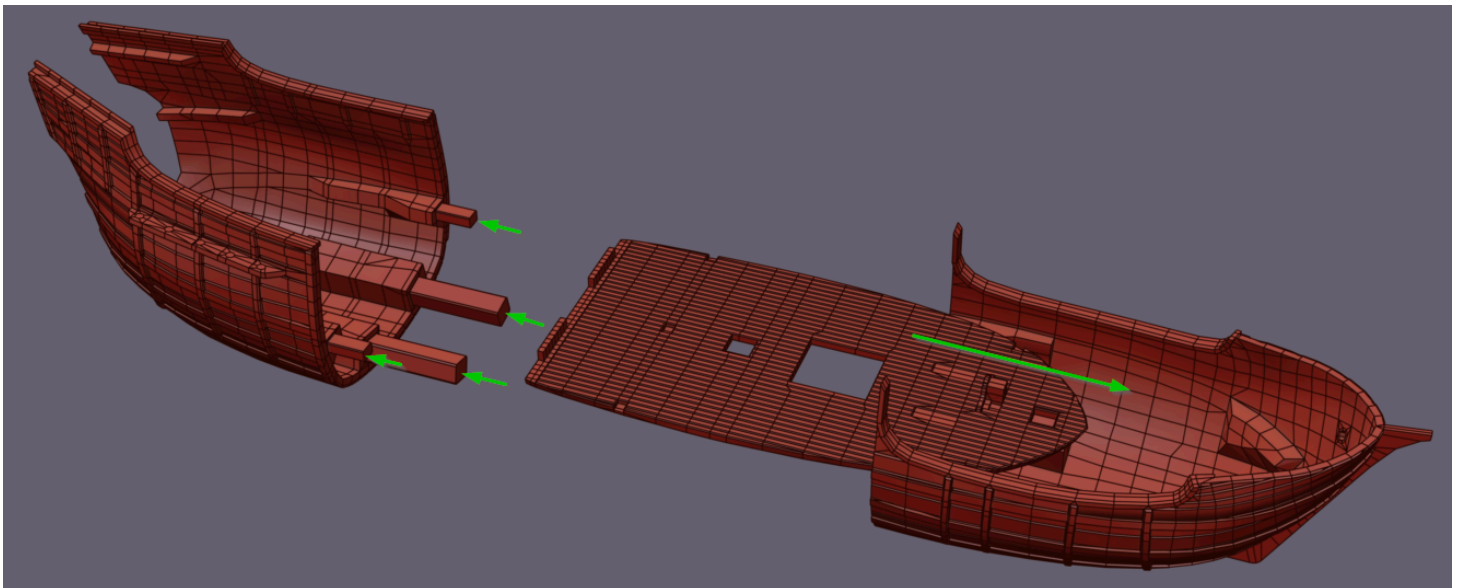
*If you have a large build plate (at least 230mm length) use:

[main_deck]

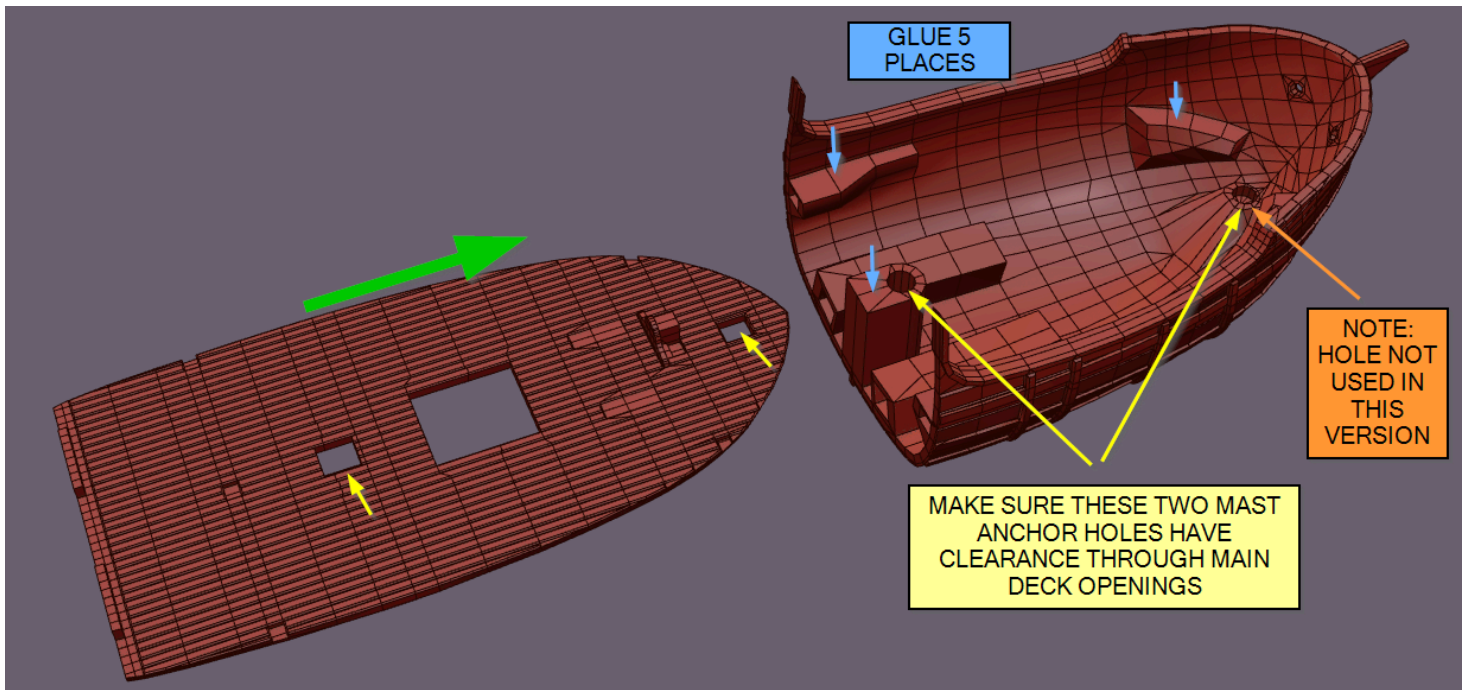
1.1 If your printing the main deck as 3 separate pieces, assemble these first. Be sure to let glue dry before dry-fitting onto hull pieces as this part can break easily. This does not have to be a strong bond, just strong enough to keep its shape until both hull pieces are assembled. (image below)



1.2 Insert 4 [hull_joiner] blocks and **dry-fit** [hull_bow], [hull_stern], and [main_deck]. Sand/smooth until you're satisfied that all 7 pieces fit properly. (image below)



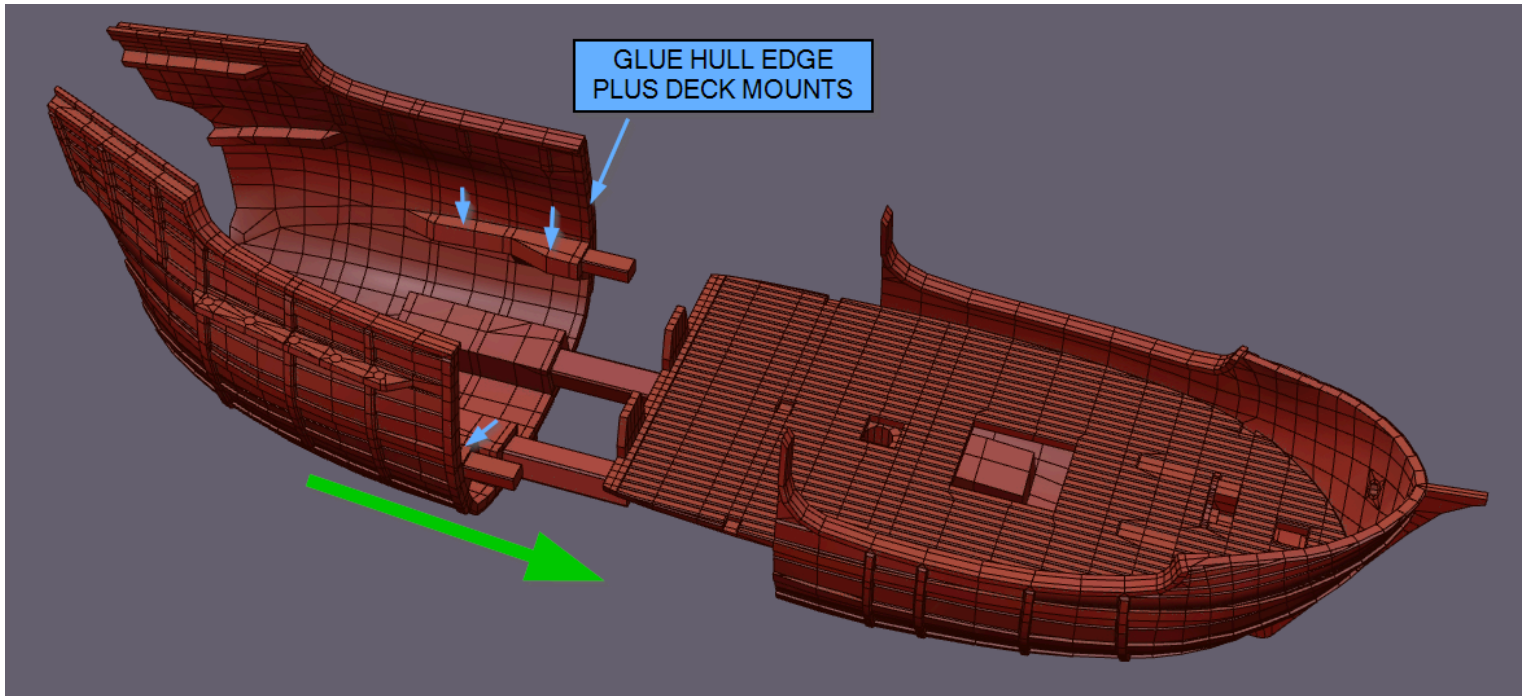
1.3 Add glue to 5 locations, slide *[main_deck]* fully forward and hold in place to cement. (image below)



1.4 Once again; dry-fit to make sure seams are as small as possible. (This is the most important seam to bind correctly because the hull will look awkward if not bound well).

1.4.1 Add glue to *[hull_joiners]* and attach to *[stern_hull]*.

1.4.2 Add glue to hull edge then slide *[stern_hull]* forward and hold tightly until glue sets. (image below)



****NOTE****

After main hull parts are joined, it might be easier to print and assemble the 'Model Stand' so you can 'sit' the model securely while finishing the rest of the model. (goto STEP 6)

STEP 2 - DECK ASSEMBLY

PARTS NEEDED

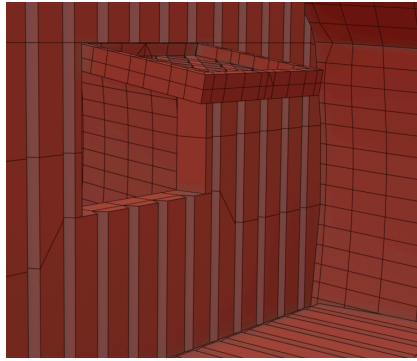
[deck_wall]
 [forecastle_deck]
 [forecastle_pillars]
 [poop_deck] *print supports
 [quarterdeck] *print supports
 [quarterdeck_pillars]
 [quarterdeck_wall]
 [quarterdeck_wall_sm] *just in case need a smaller width
 [rope_braces]

2.1 Assemble deck wall and support pillars.

2.2 Glue [deck_wall] into place on [main_deck].

2.2.1 Sand sides for a good fit.

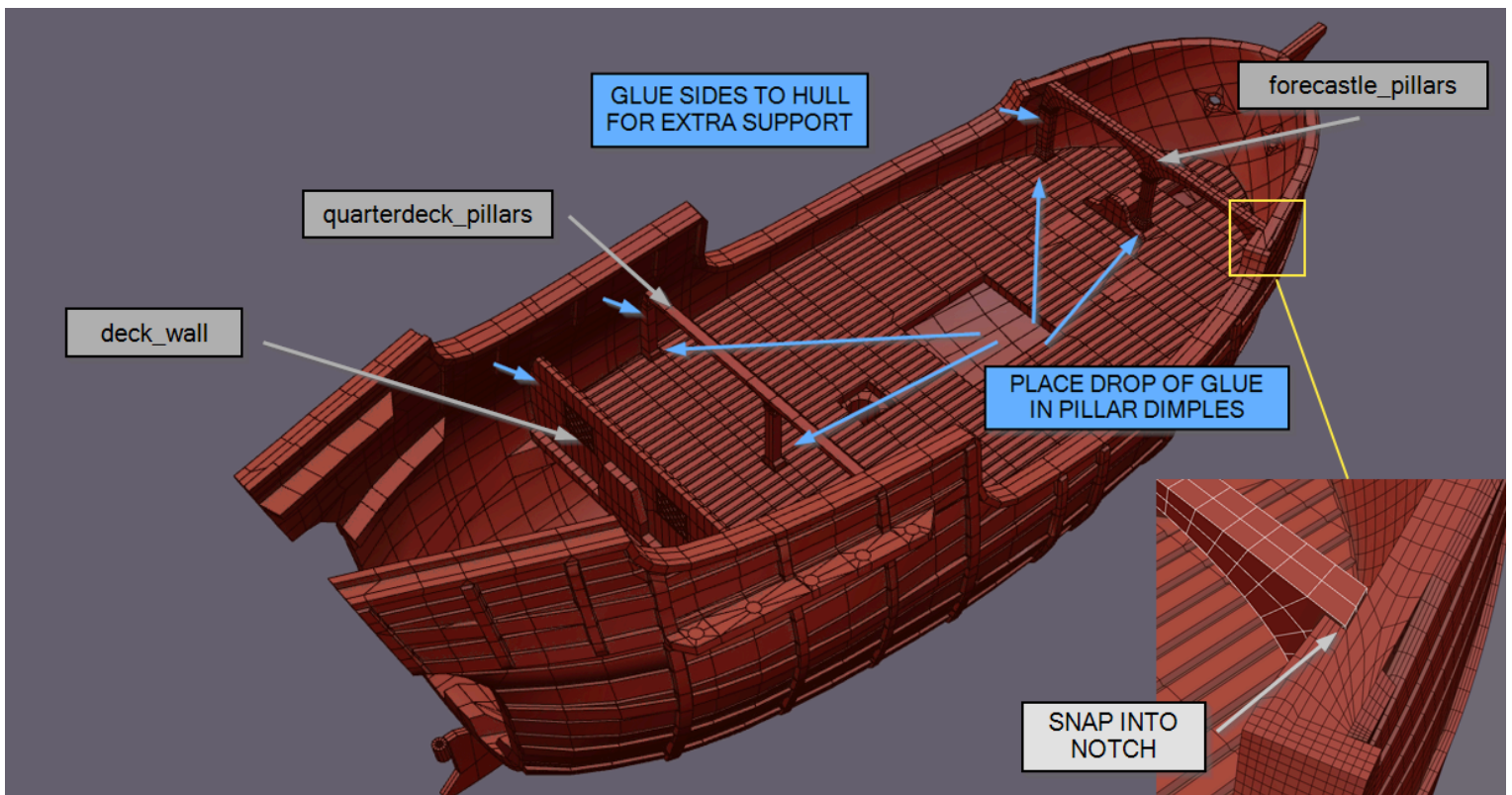
2.2.2 optional: windows can be removed and glued back as "tilted" outward, or left out completely if desired. They should "snap out" with even pressure. [\(image below\)](#)



2.3 Glue *[forecastle_pillars]* and *[quarterdeck_pillars]* onto deck as show (line up with 'divots' on deck).

2.3.1 Sand sides for a good fit.

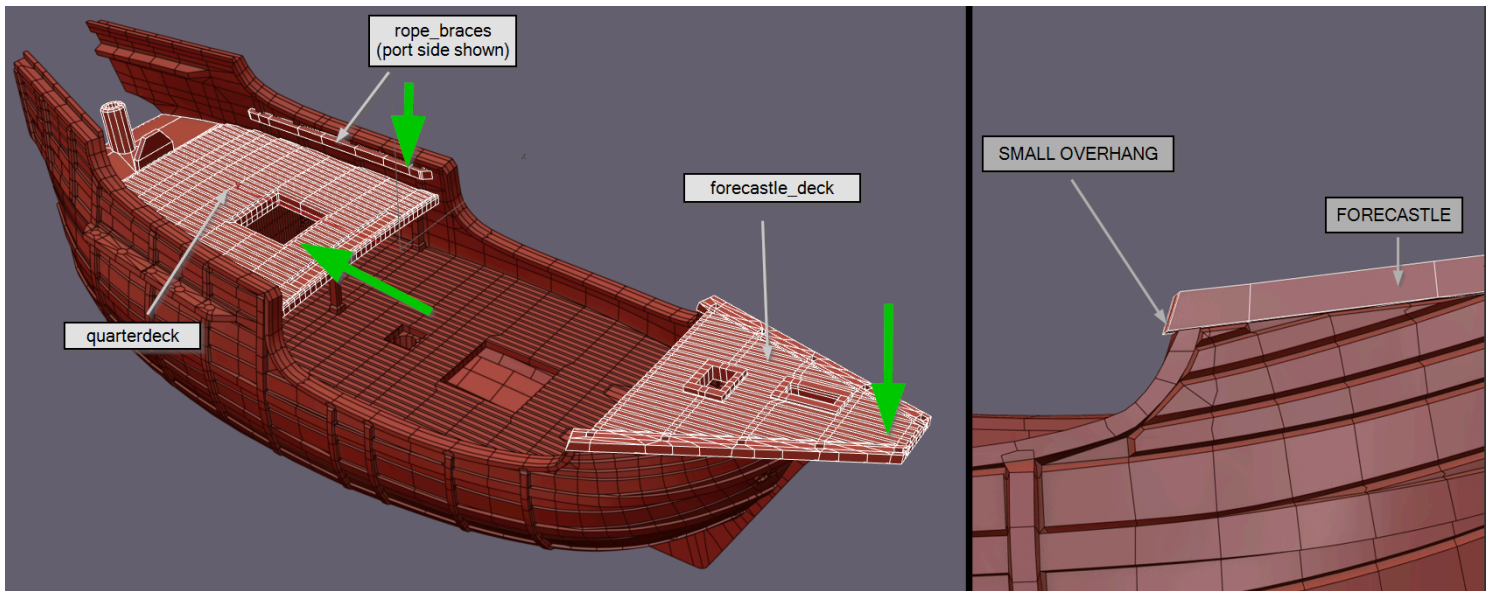
2.4 ***(important)*** These 3 parts are *support structures* and glue must set before continuing to step 5. (image below)



2.5 The *[quarterdeck]* is a bit tricky to put in place. Slide it from bow to stern and the two hull pieces should be able to bend enough to clear it. Sanding/filing the sides of the *[quarterdeck]* if needed.

2.6 Next add the *[rope_braces]*. Not critical where they are placed, but they are 'left' and 'right' so dry fit before gluing to make sure they look good.

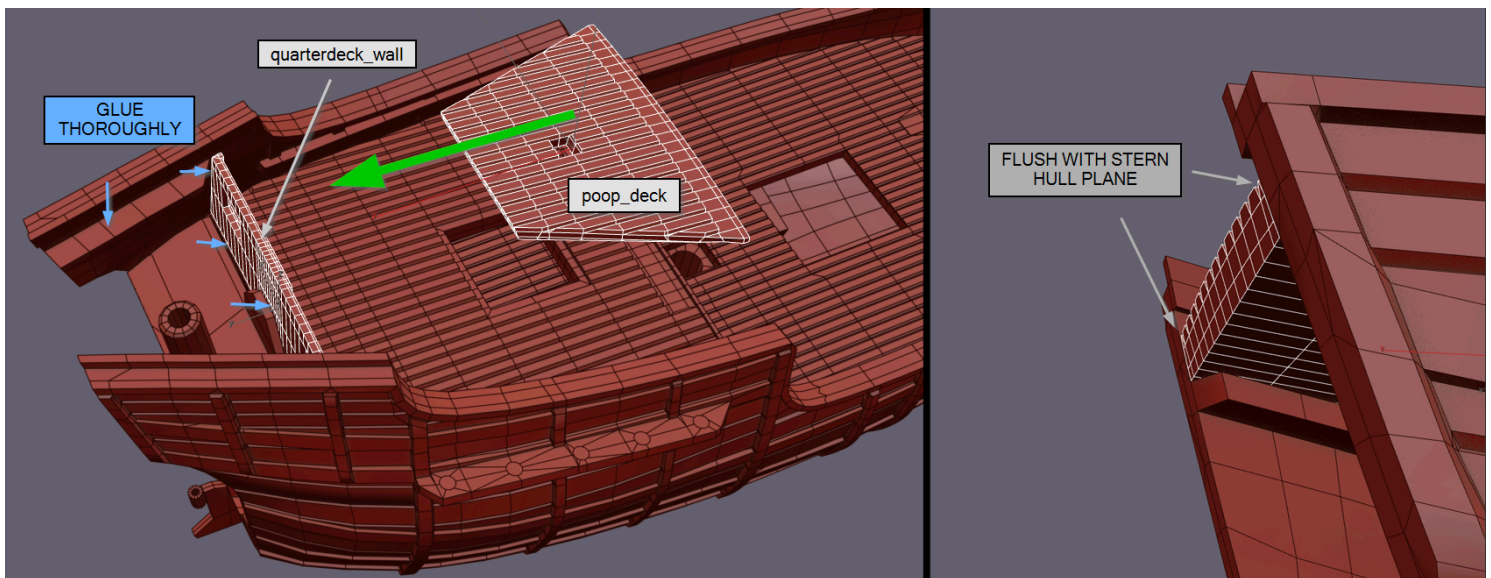
2.7 Place the *[forecastle_deck]* at the bow. Place the deck a bit "proud" of the hull rails so there's a small overhang which will hide the seam. (image below)



2.8 Place the *[quarterdeck_wall]* as shown. This is another support piece; make sure it's glued well and secure before adding *[poop_deck]* on top of it.

2.9 Place the *[poop_deck]* on top of the wall.

2.10 ***IMPORTANT*** Make sure the back end of the *[poop_deck]* is flush with the hull sides, and does not extend past them. You may also wait until the stern parts (next step, Part 3) are installed, then adding the *[poop_deck]*. (image below)



STEP 3 - STERN, RUDDER, AND RAILINGS

PARTS NEEDED

[stern_bot]
 [stern_top]
 [forecastle_railing]
 [forecastle_railing_fwd]
 [forecastle_railing_port]
 [forecastle_railing_starboard]
 [quarterdeck_railing]
 [poop_railing]
 [poop_railing_aft]
 [poop_railing_port]
 [poop_railing_starboard]
 [porthole] (x2)
 [rudder] *(v1 or v2 your choice)

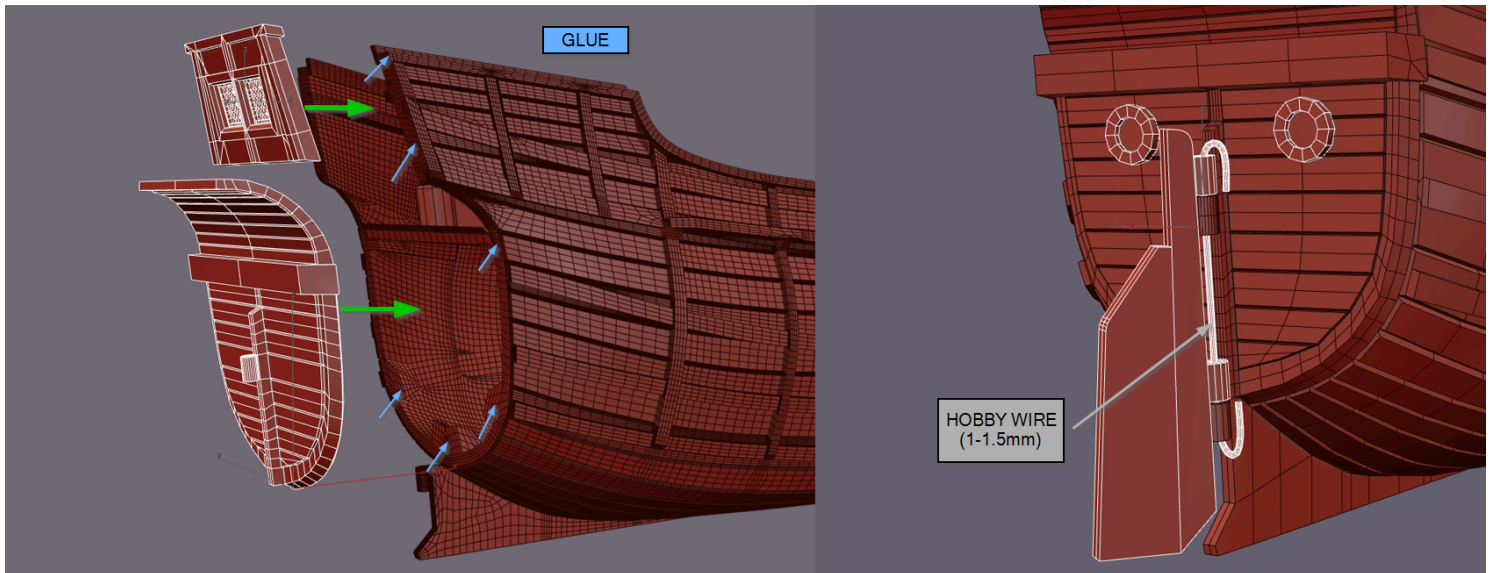
3.1 Dry-fit [stern_top] & [stern_bot], then glue in place.

3.2 Add [rudder]:

3.2.1 There are two options for adding the [rudder]. Glue in place, or use a piece of 1mm hobby wire (60-70mm length) to secure the [rudder] and leave it moveable. (a paper clip will also work)

3.2.2 I created two versions of the rudder; “v1” needs assembly and “v2” needs support. I think v1 looks better but you can decide for yourself.

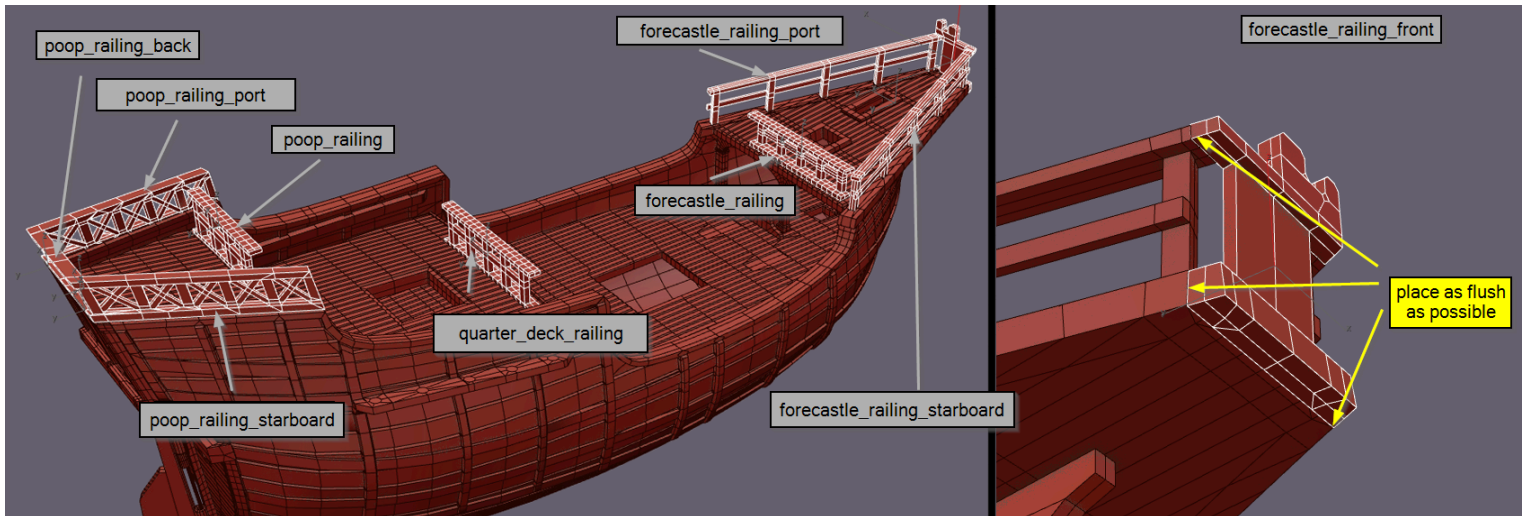
3.3 Glue a couple [porthole] pieces to the stern, or they can be added later with the rest of the small detailed parts. (image below)



3.4 Install all railings. Each have a specific spot. Make sure to trim and sand so they fit into their positions nicely.

3.5 Glue in place all railings as seen in image below.

3.6 *Important – sanding and dry-fitting is very important for the railings because they will look great if they’re ‘cleaned up’ and fitting together seamlessly.



STEP 4 – MASTS

PARTS NEEDED

[bowsprit]

[bowsprit_boom]

[foremast]

[foremast_boom]

[foremast_collar]

[foremast_cap]

[mainmast_top]

[mainmast_bot]

[mainmast_boom]

[mainmast_boom_top]

[mainmast_collar]

[mainmast_peg]

[mainmast_cap]

[crowsnest]

[mizzenmast]

[mizzenmast_boom]

[mizzenmast_cap]

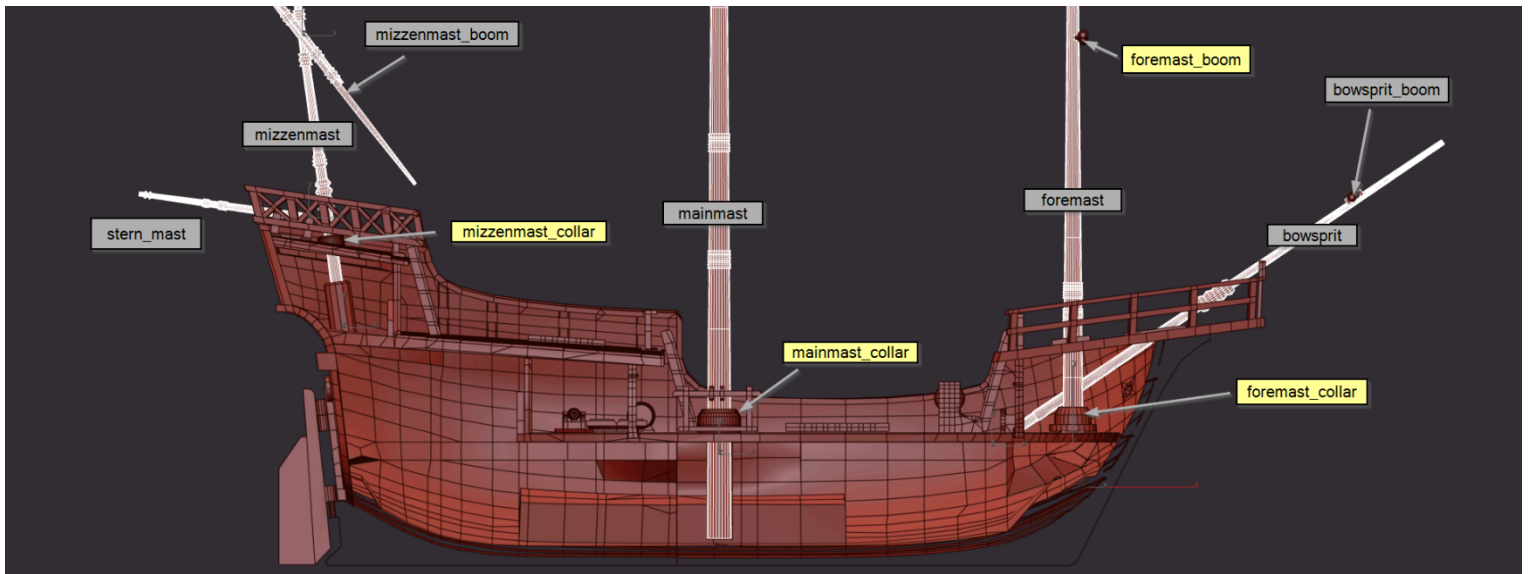
[mizzenmast_collar]

[stern_mast]

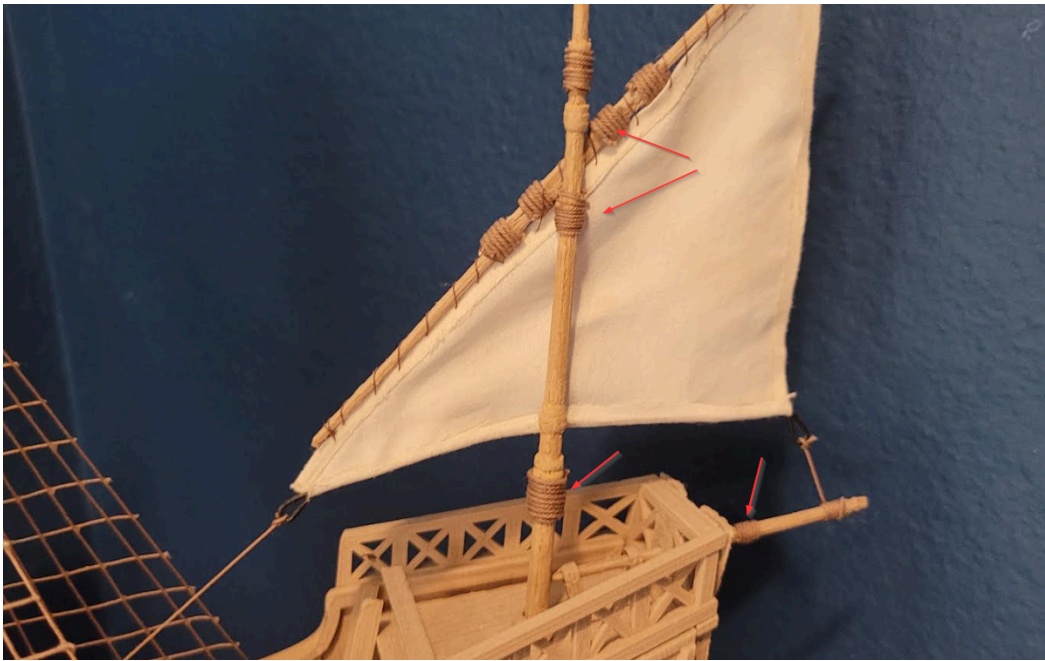
[stern_mast_brace]

4.1 Use the image below to find out which mast goes where. Be prepared to sand down the masts to get a nice fit, especially the mainmast. If it's very tight, might not need any glue at all. [\(image below\)](#)

4.1.1 Masts and Collars must be set in place before gluing 'Booms' to the masts.



Use miniature rope to add detail to each mast. Just a small amount of glue and wrap around. It's much easier to add rope to masts and booms before fitting and gluing. (image below)

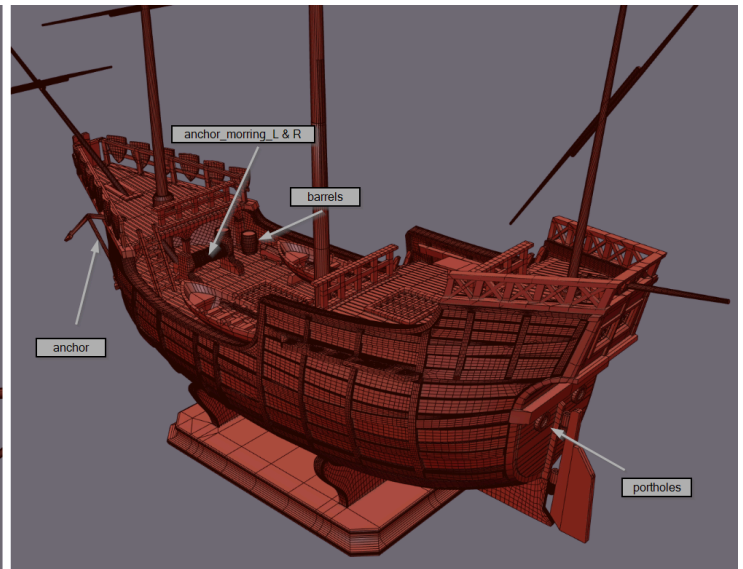
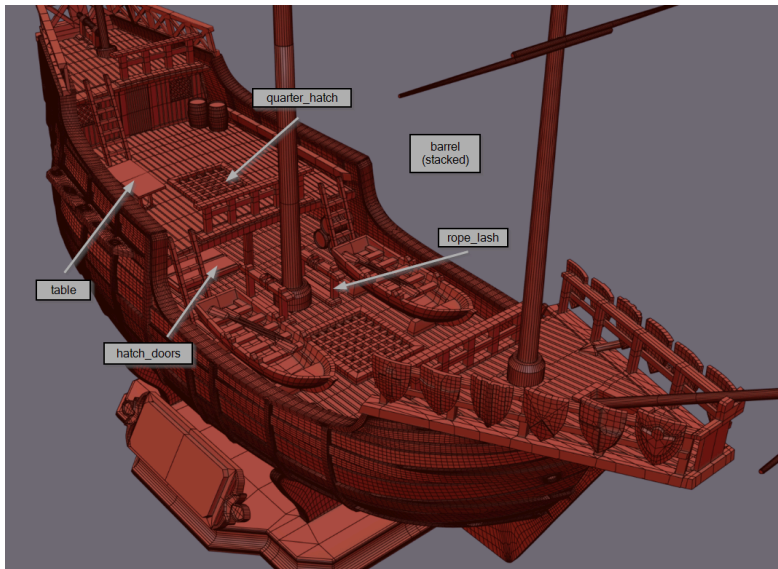


STEP 5 – DECK ITEMS

PARTS NEEDED

[anchor_mooring_L]
 [anchor_morring_R]
 [anchor] *print supports
 [barrel] (x?)
 [basket] (x?)
 [cannon]
 [dingy]
 [dingy_seats]
 [hatch_doors]
 [ladder] (x4)
 [main_hatch]
 [oar] (x?)
 [oar_pile] *optional
 [quarter_hatch]
 [rope_lash]
 [table]

- 5.1 Place both hatches [main_hatch & quarter_hatch] onto the decks.
- 5.2 Glue together both halves of the anchor mooring [anchor_mooring_L & anchor_mooring_R] and place onto main deck just forward of the [main_hatch]. There are two footprints to show where it should be placed.
- 5.3 Glue [dingy_seats] onto [dingy] and let dry thoroughly; then cut out “backbone” to create separate seats.
- 5.4 Basically, these parts can be printed and placed according to your tastes. (See image below for a few of my placement choices)



STEP 6 – MODEL STAND AND NAMEPLATE

PARTS NEEDED

[base]
[nameplate]
[nameplate_frame]
[nameplate_stand]
[stand_fwd]
[stand_rear]

6.1 The Model Stand is very simple to assemble.

6.2 First, glue [nameplate_stand] to the [nameplate_frame] (line up with “square” on the back of the [nameplate_frame]).
Then attach the assembly to the base.

6.2.1 See image below for instructions.

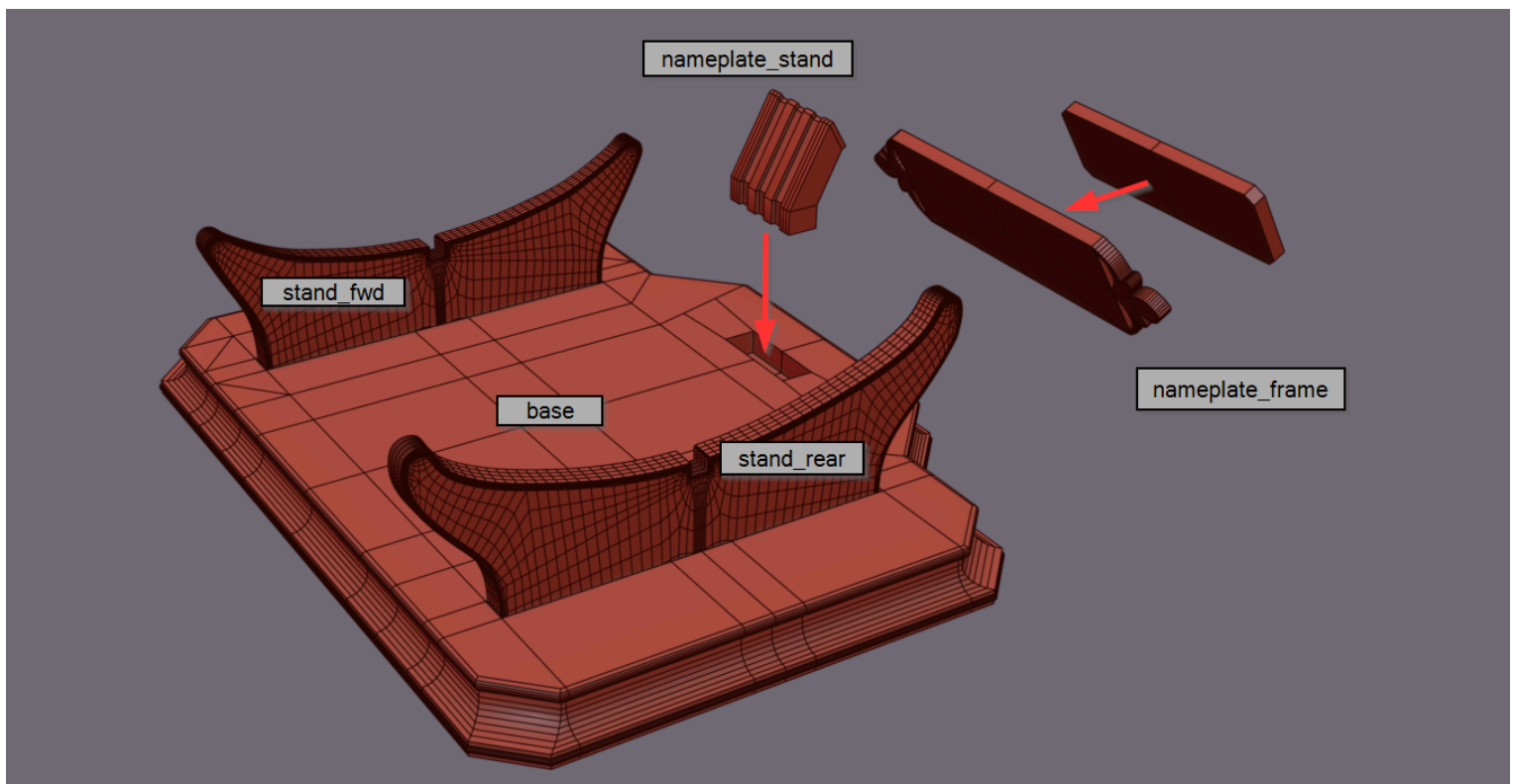
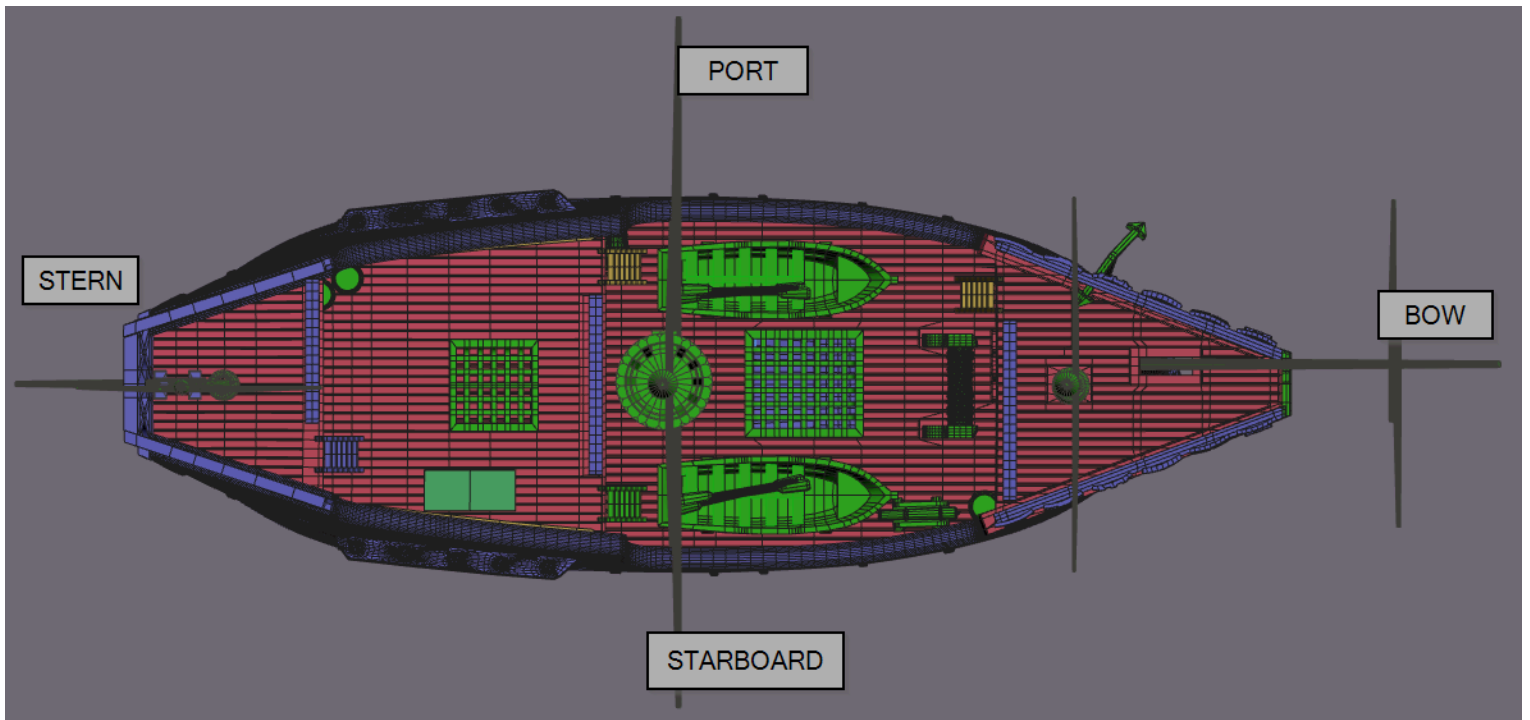
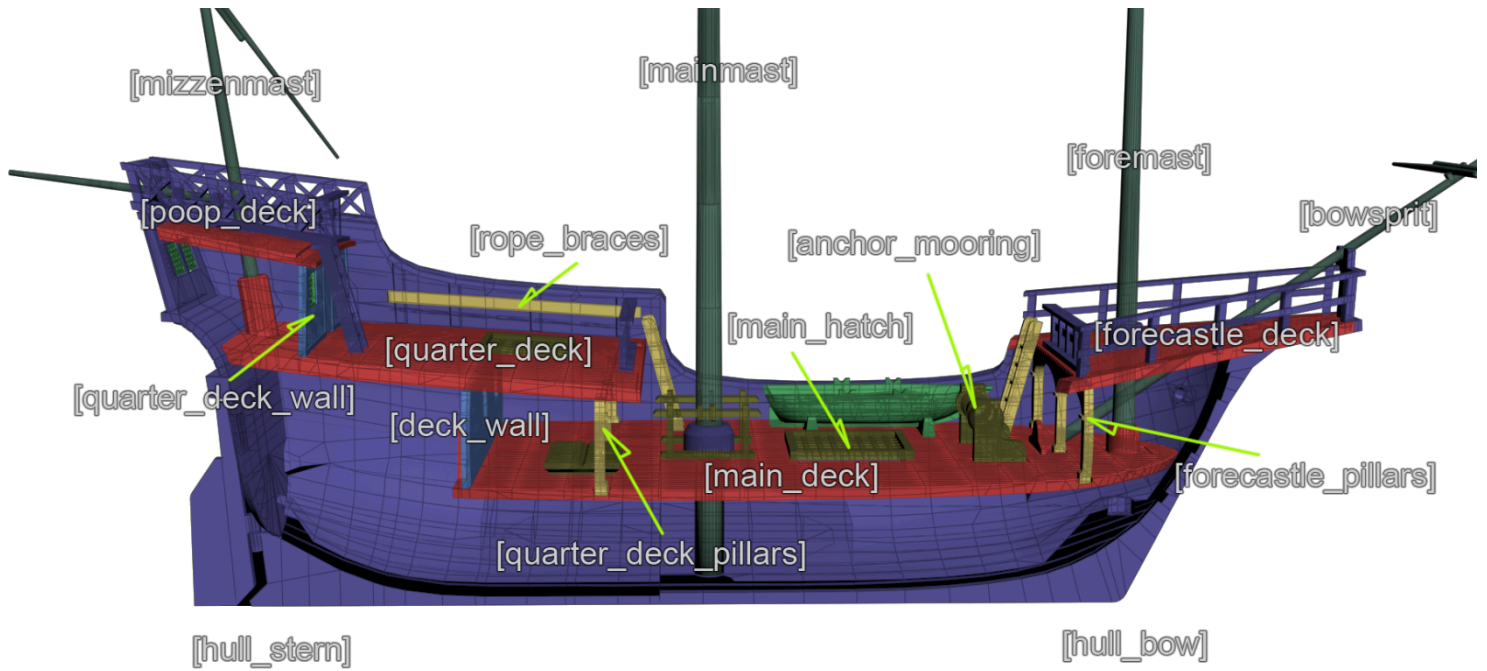


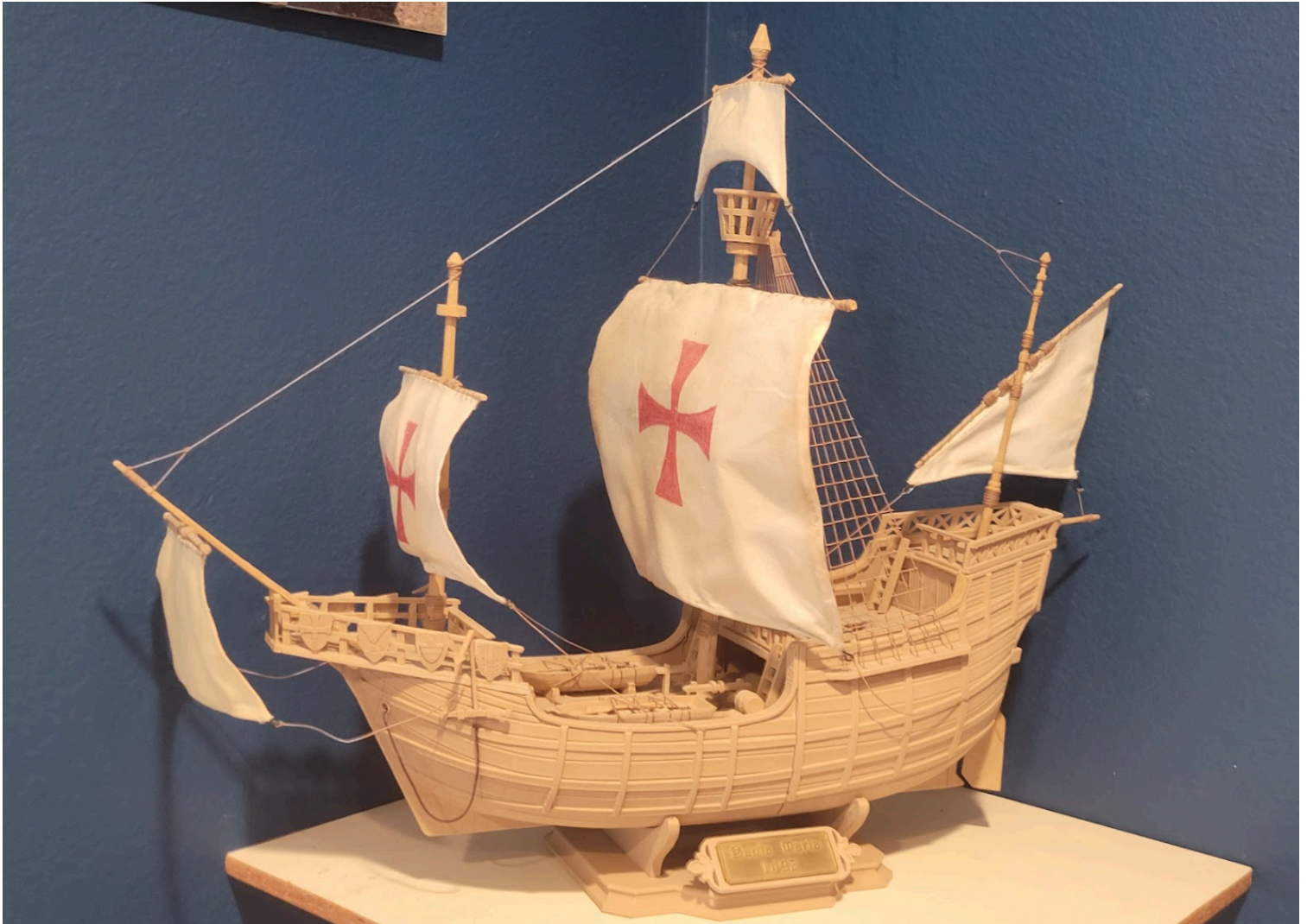
DIAGRAM – MAJOR PART NAMES

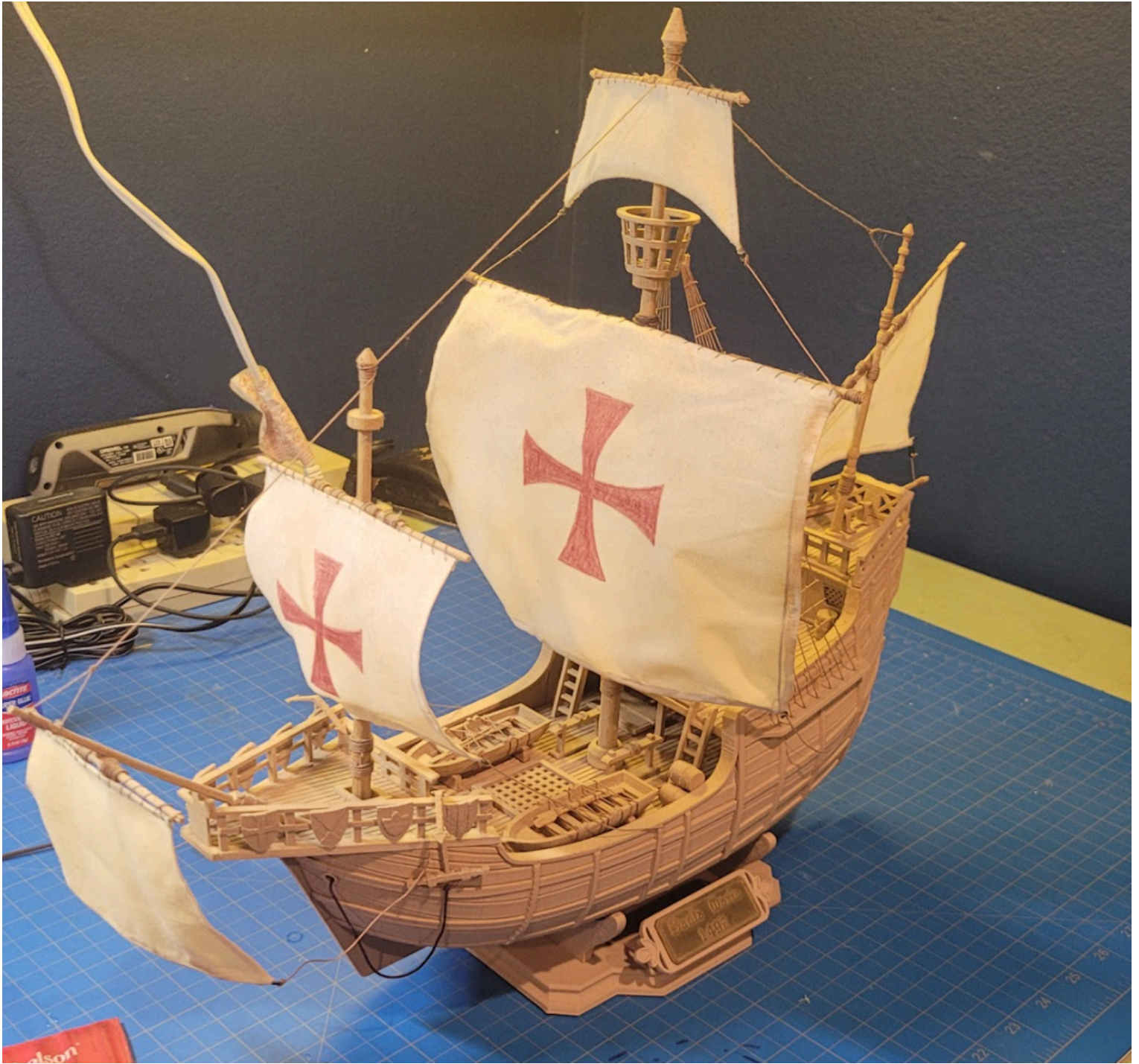


COMPLETED SCALE MODEL

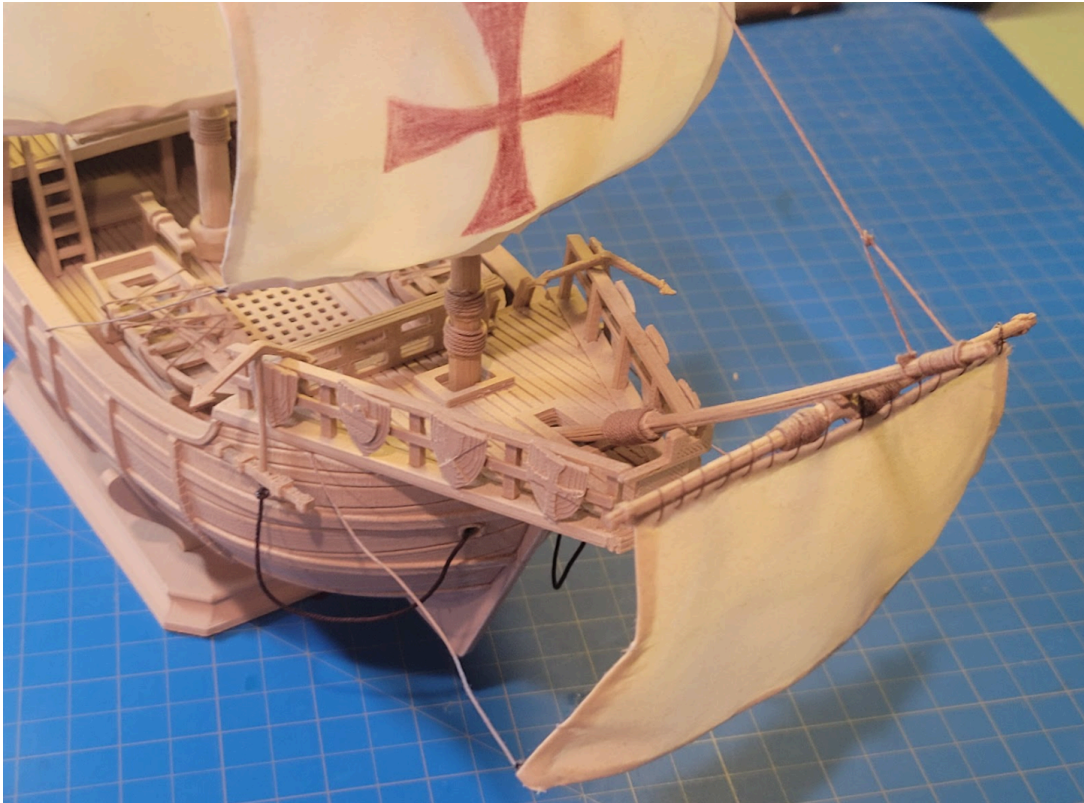
I completed this model in 2016 using a cheap \$150 prusa i3 kit, so if my old prusa i3 can do this... I'm sure whatever printer you have now could do just as good or better.

Here are some photos for reference as to my printing and assembly process, and the final result.

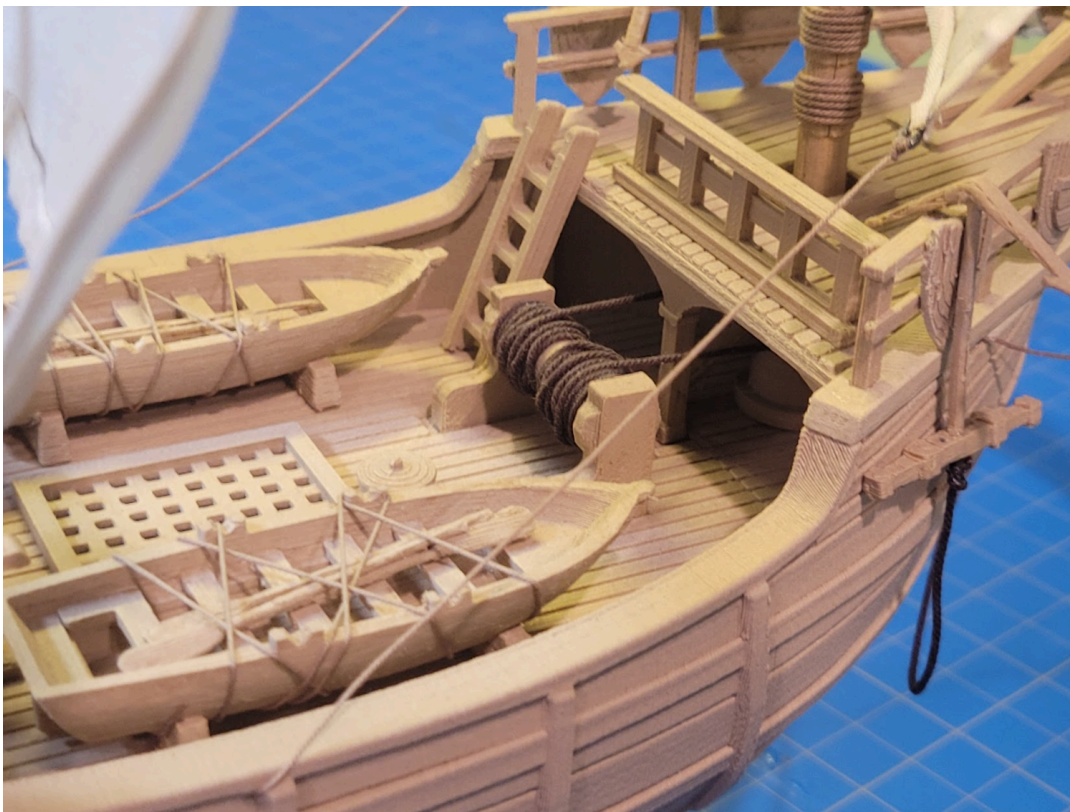




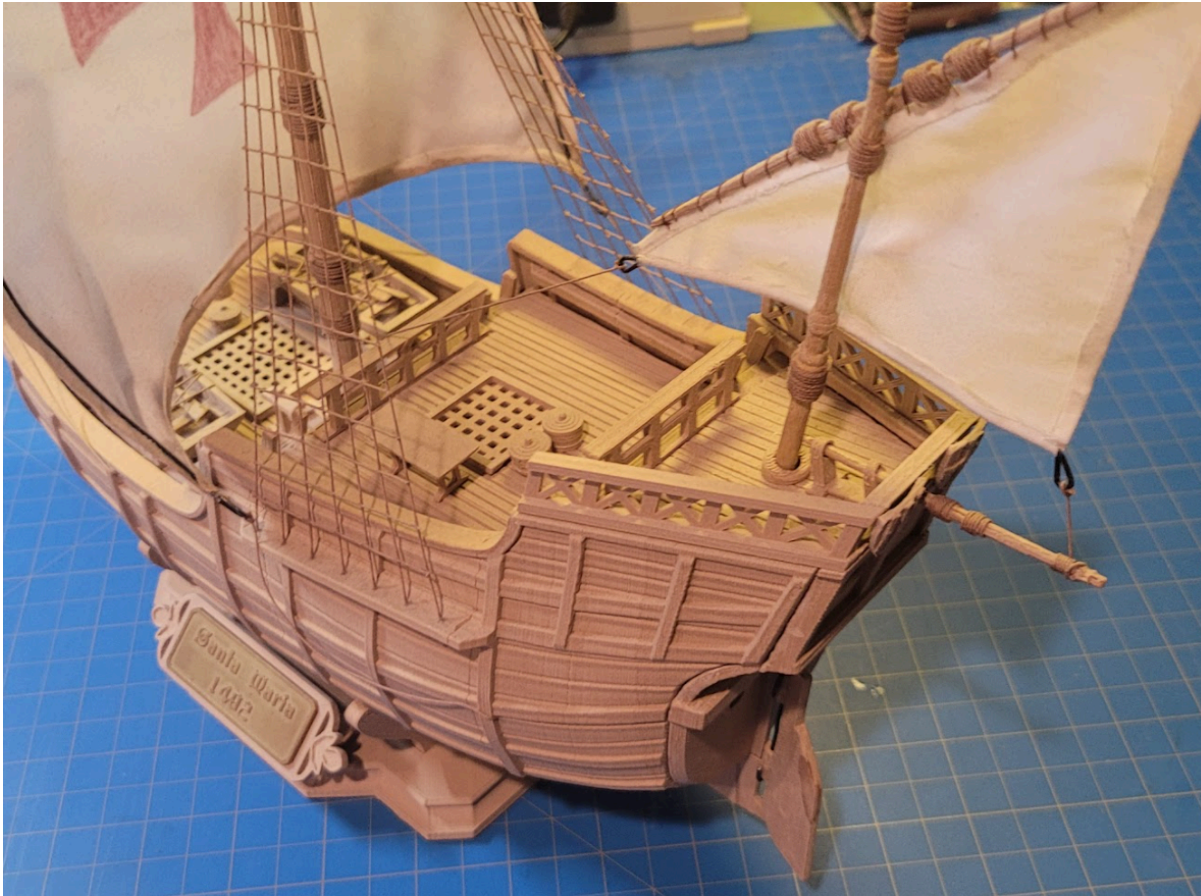
Forecastle detail



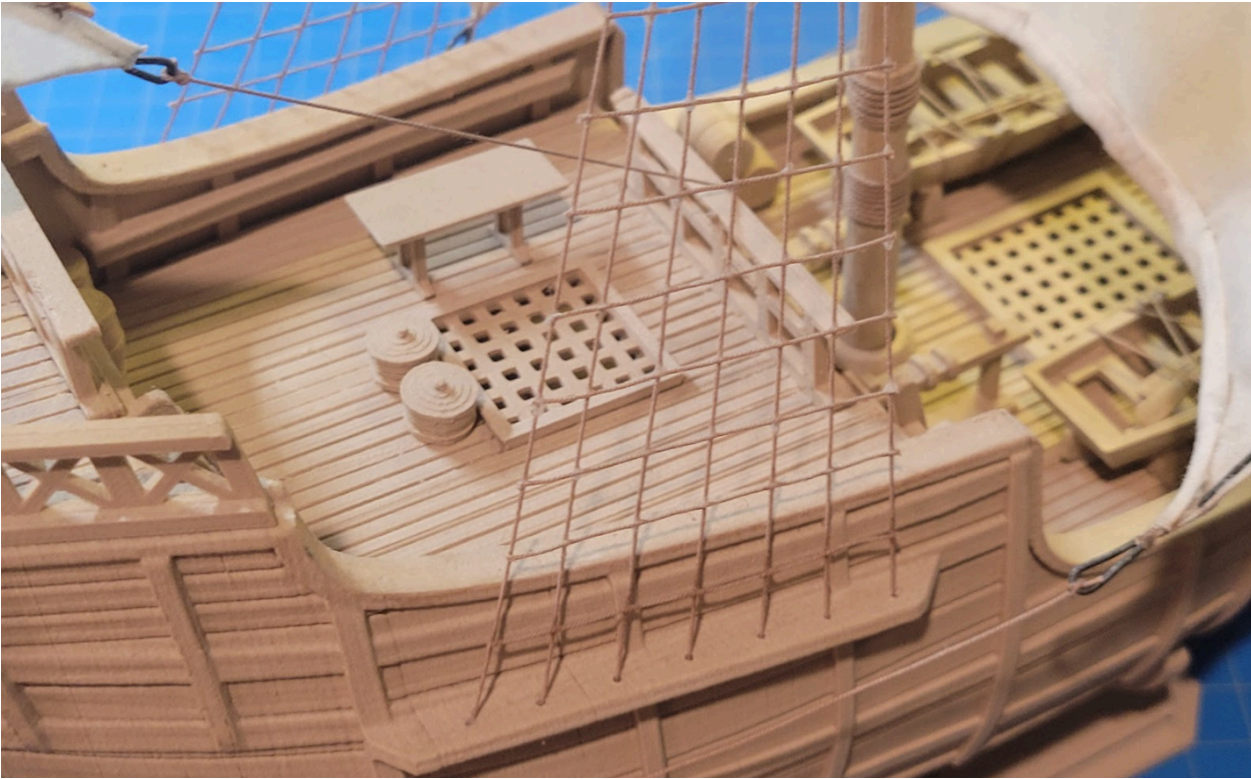
looking towards bow



bow area



shrouds



Main Deck detail (looking towards bow)



Mainmast sail detail (showing wire used for rigidity)

I used ship modeling rope for aesthetics and thread to secure cloth to boom.

