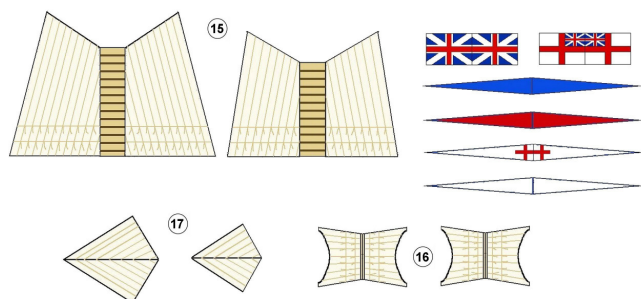


INSTRUCTIONS FOR MASTS AND SAILS

What follows are general instructions for the various types of masts and sails used in this series of models. The specific dimensions of the mast and spar parts are included with each model, but the procedures for assembling them are similar for all ships.

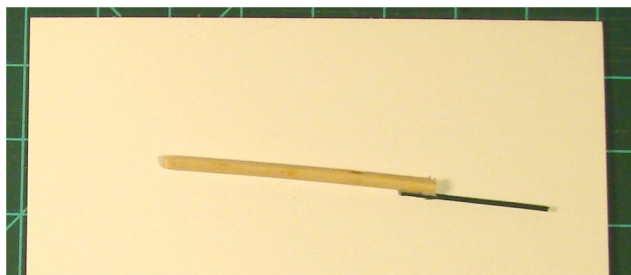


The sail sheet for the model should be printed out on ordinary paper. The set of sails includes the parts necessary to represent the ship under full sail; it is not necessary to use all of the sails, since not all the sails were in use all the time. For example, you may want to leave off the square sail of a topsail schooner. The sail sheet will also include flags and pennants which make the model more visual appealing, as well as being useful for identifying ships on the wargame table.

CONSTRUCTING A MAST

First, cut the pieces called for by the individual model's instructions. The lower masts will be cut from either toothpicks or bamboo skewers. Cut them at the lengths called for, using either a sharp hobby knife or wire cutter, and then sand the ends flat. Topmasts and yards will typically be heavy wire; 18 gauge works well.

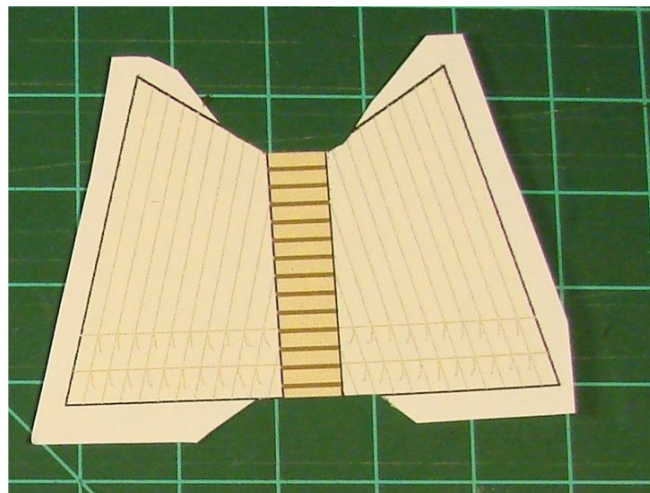
Glue them together as shown, overlapping each pair by about 5mm. While the glue dries, lay them on a surface to which the glue will not bond, like a piece of aluminum foil or waxed paper. When completely dry, paint the topmasts a tan color, similar to the color of the bare toothpicks. Alternatively, choose a color that looks like bare wood, and paint the entire mast.



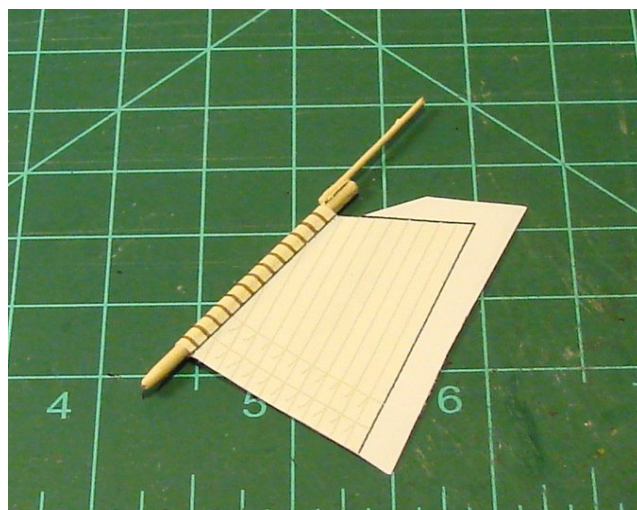
BUILDING A FORE-AND-AFT MAST

A sloop or schooner mast will typically have a large sail mounted to the mast, and sometimes a small square topsail mounted at right angles to the keel.

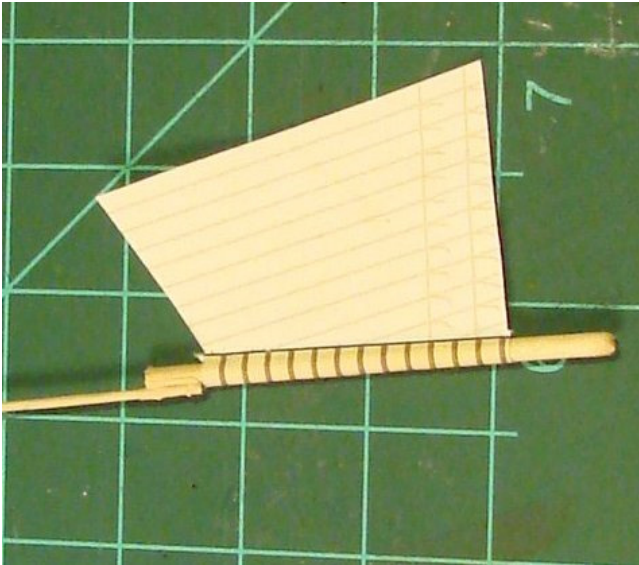
1. Cut out the large sail as shown, rough cutting most of the outline, but trimming the parts close to where they will be folded. A small, sharp scissors is very useful for this step.



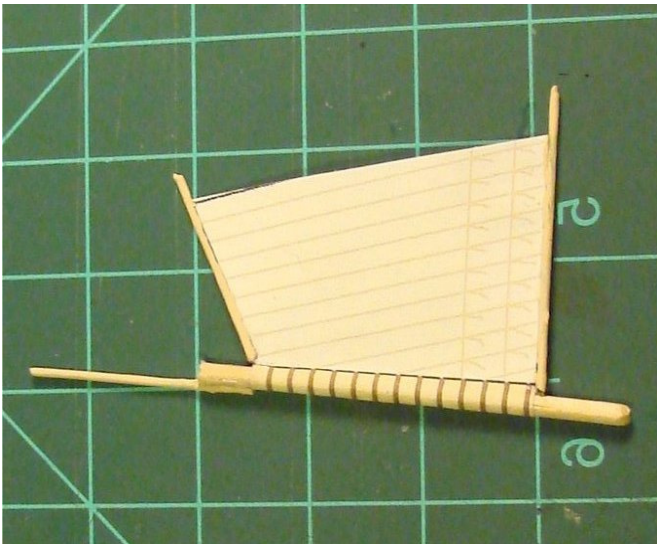
2. Spread glue on the back of one half of the sail, and wrap it around the lower mast. The top end of the sail should be flush with the bottom of the topmast where it meets the lower mast. Mate up the halves of the sail as well as possible; you may want to finish trimming one edge of the sail before folding, to use as a reference point.



3. When the glue is dry, finish trimming the sail, making sure to completely trim away any of the black outlines on both sides.



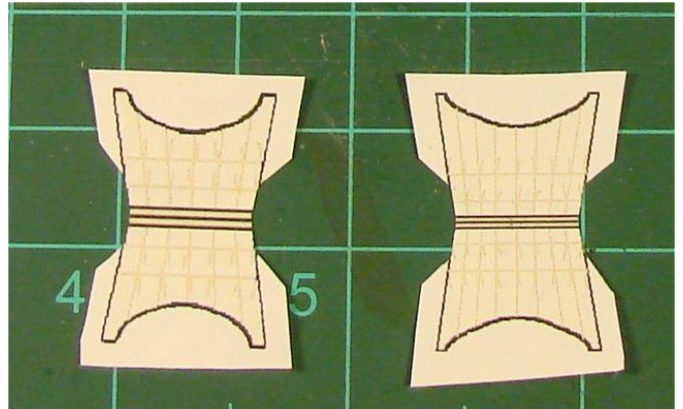
4. Cut pieces of wire just a little longer than the upper and lower edges for the gaff and boom. Glue them to the sail edges. Paint them wood-color or black (before gluing them in place, if you don't trust your hands to be steady enough to do it afterwards without getting paint on the sails).



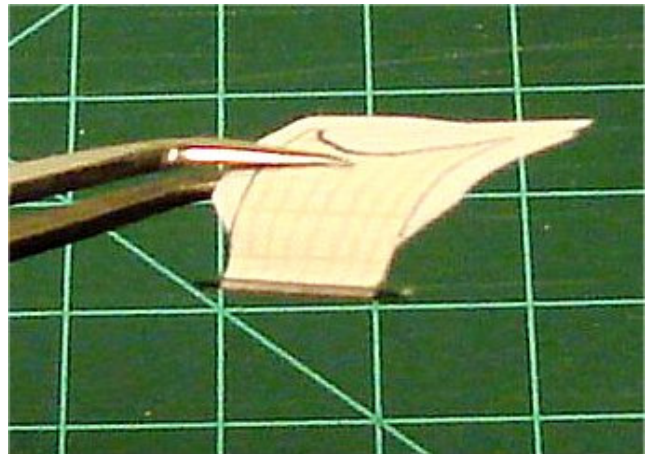
This same procedure can be used to mount a spanker on the mizzen mast of a ship-rigged vessel.

CONSTRUCTING AND MOUNTING A SQUARE SAIL

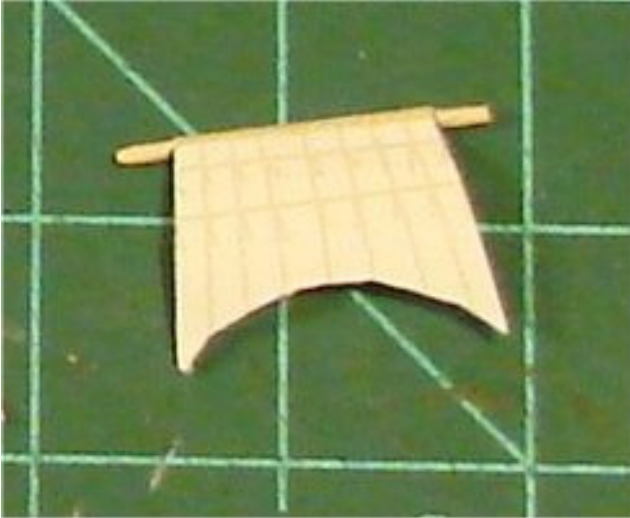
1. Cut out the sail as shown, rough cutting most of the outline, but trimming the parts close to where they will be folded. A small, sharp scissors is very useful for this step.



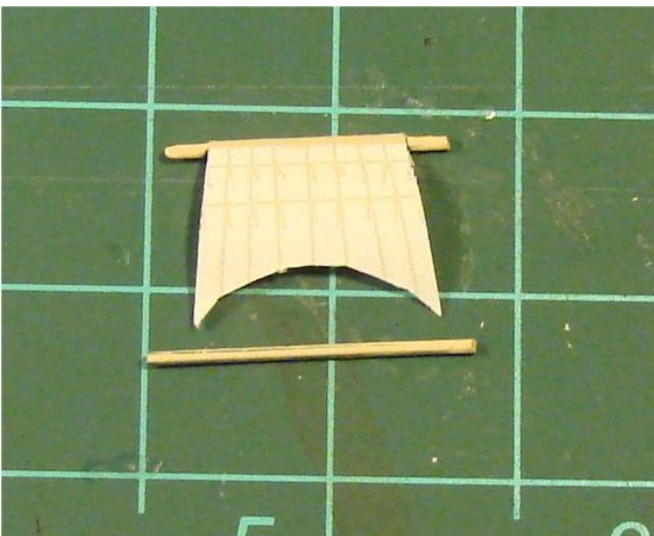
2. Cut a piece of wire for the yard, a little longer than the middle of the sail piece. Crease the sail along the centerline, spread a little glue on the back of one half of the sail, and fold it over the wire. Give the sail a little bit of curl so that when it is mounted to the mast, it will appear to be bellied out with the wind.



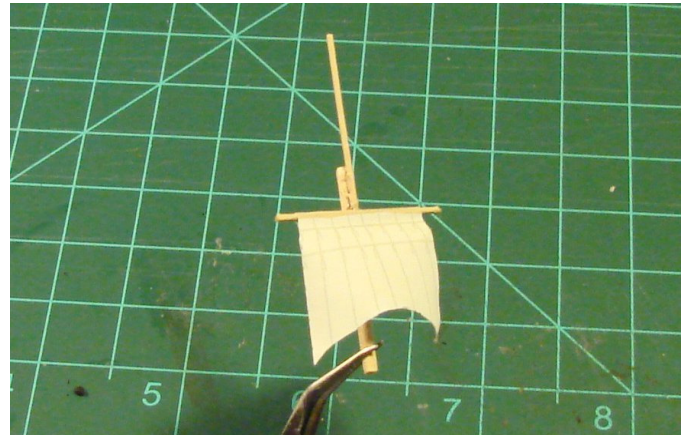
3. When the glue is completely dry, finish trimming the sail, making sure to completely cut away all of the black outline from both sides. Paint the yard either tan or black.



4. If the sail is a topsail, and no course will be mounted below it on the mast, you will need to cut a piece of wire to represent the lower yard to which the sail is attached. Cut the yard a little wider than the lower spread of the sail, and paint the entire yard either tan or black.



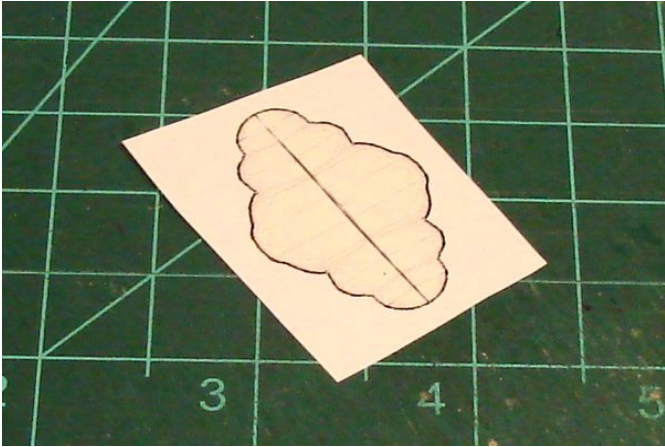
5. Glue the lower yard (or the course, if called for on the model) to the front of the mast, right at the bottom of the topmast. Superglue works well for this application since it sets quickly, holding the yards firmly in place after just a few seconds.



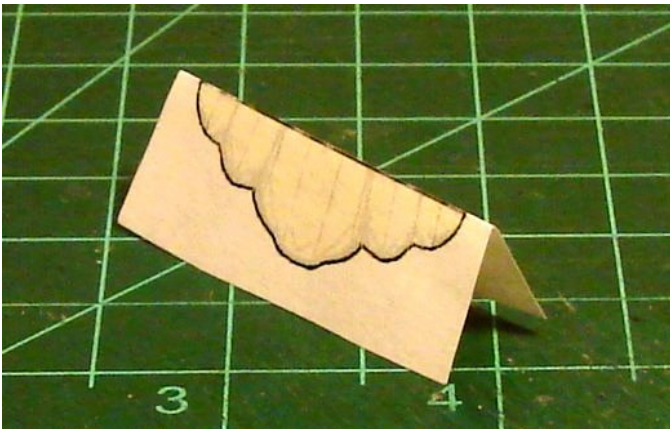
6. To add a topsail to the mast, put a small drop of superglue in the center of the topsail yard, and on the bottom points of the sail, and hold them in place above the yard already glued to the mast. Repeat the process if adding a topgallant.



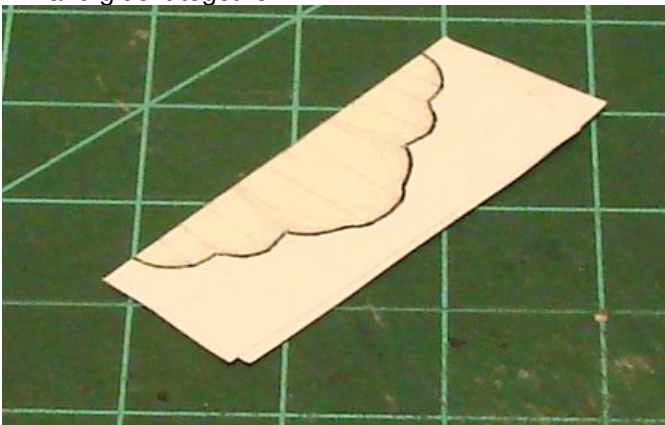
7. To show the courses brailed up (as was frequently the case when the ship cleared for action) rough cut one of the brailed course pieces, as shown below. It should be just slightly shorter than the yard to which it is to be attached.



8. Fold the course along the centerline . . .



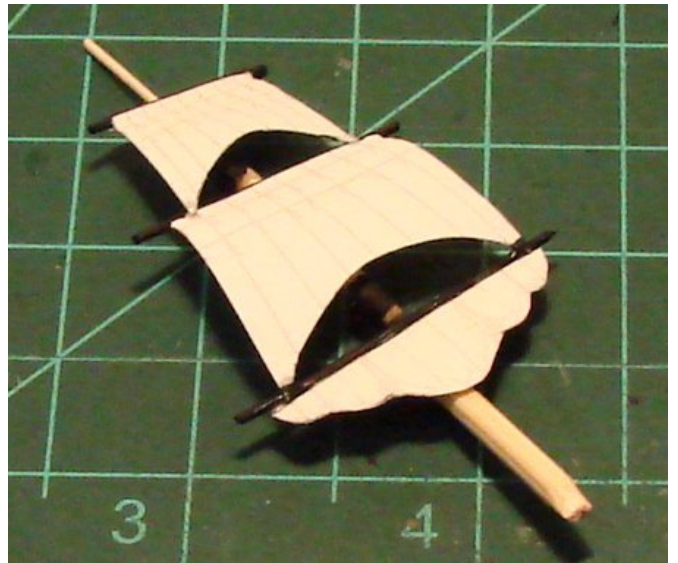
. . . and glue it together.



9. When the glue is dry, cut out the part and give it a little curl to make it look a little more three-dimensional.

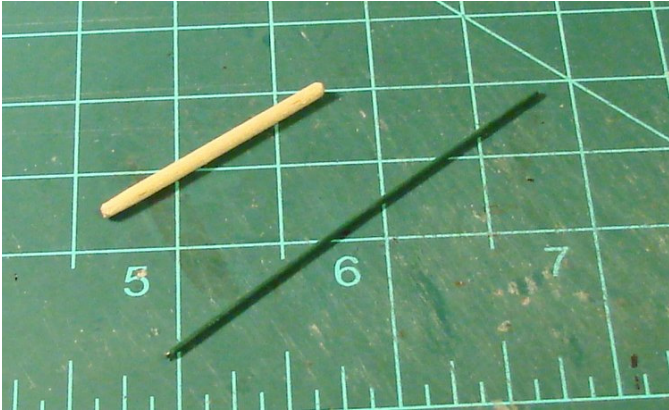


10. Glue the part to the lower yard of the mast.

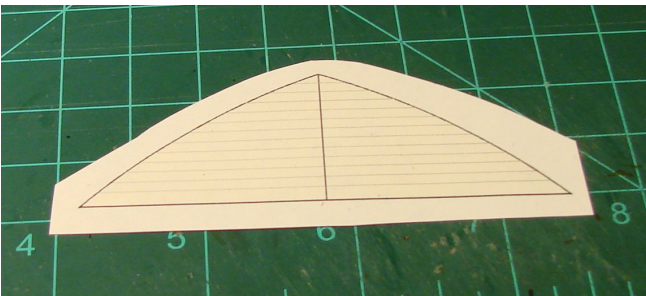


CONSTRUCTING AND MOUNTING A LATEEN SAIL

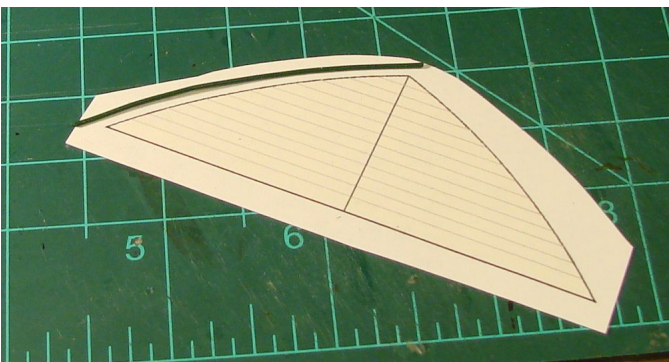
1. First, cut the mast (toothpick) and yard (18 gauge wire) to the dimensions specified in the instructions for your model.



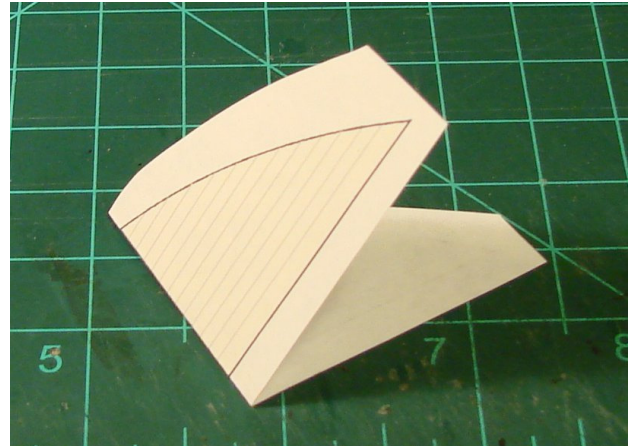
2. Rough-cut the lateen sail.



3. Gently bend the yard into a gentle curve that matches the curved edge of the sail as exactly as possible.



4. Fold the sail in half along the centerline. Spread glue thinly on one side and glue the folded sail together. When the glue is dry, trim the sail along the outline, making sure to cut away the black outline from both sides.



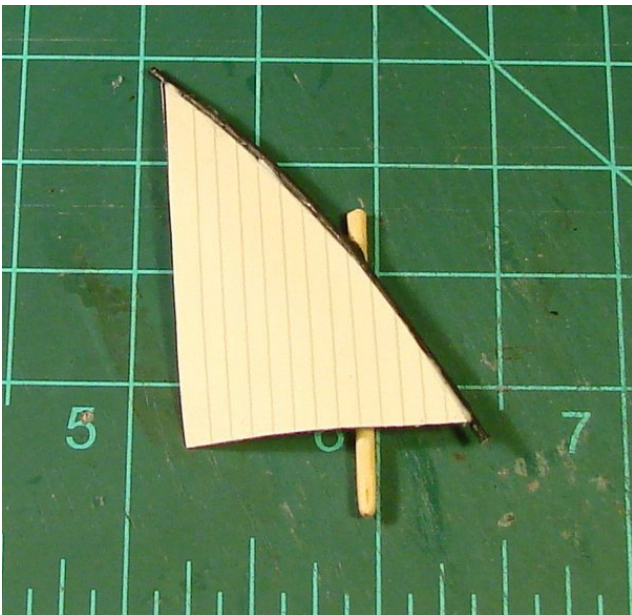
5. Glue the yard to the mast at a point about 5mm below the top, leaving about a third of the yard projecting forward of the mast, as shown. Adjust the angle of the yard so that when its curve is matched up to the curve of the sail, the lower edge of the sail will be horizontal, at right angles to the mast.



6. Paint the yard black or tan, and glue the sail to the yard.

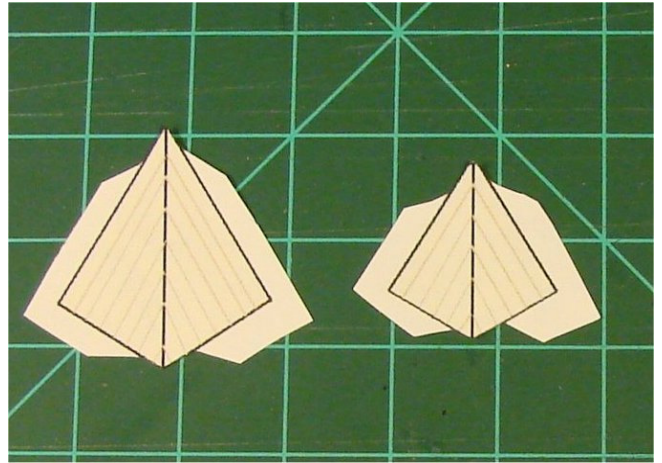


7. Finally, trim the ends of the yard with a wire cutter so that they project just a little past the edges of the sail, if necessary. Repaint the cut ends.

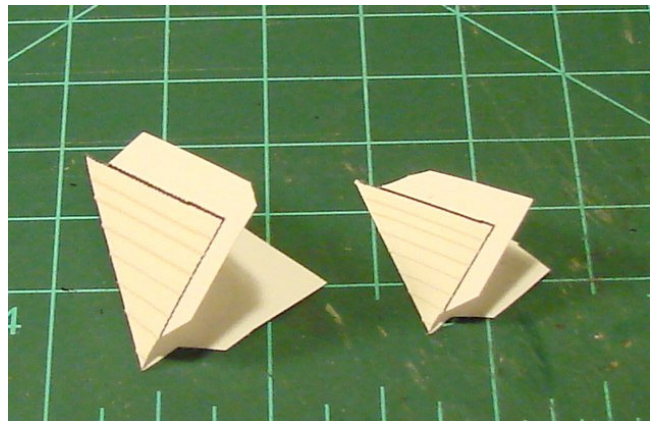


SETTING THE HEADSAILS

1. Cut out the headsails as shown, rough-cutting most of the outline, but trimming close to where the sails will be folded.



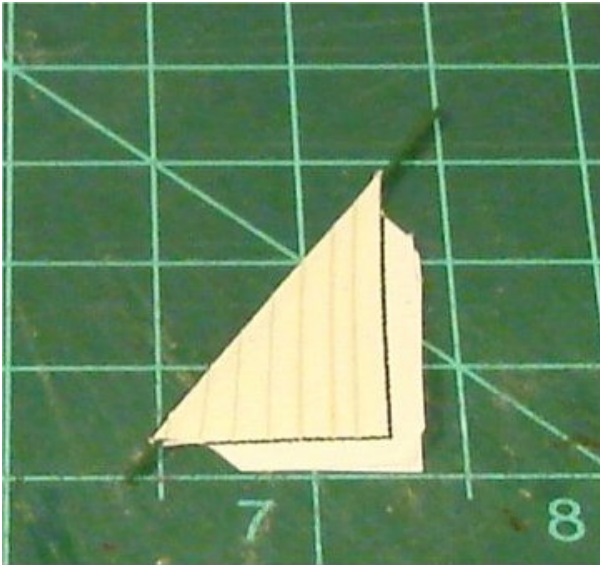
2. Fold the sails along the centerline.



3. Measure a length of thin (24 gauge) wire to fit where the sails will be set; refer to the specific sail plan for the model you are building.



4. Spread glue onto the back of one side of the folded sails, and wrap the sail around the wire, keeping the centerline fold straight along the wire. Allow to dry completely.



5. Finish trimming the sail. Give the sail a little curl, parallel to the wire, to show the effect of the wind (if the ship is a fore-and-aft rig, like a sloop or schooner, make sure the headsails are curled the same direction as the large sails). Paint the exposed ends of the wire black.



6. Glue the finished headsails into place.



RIGGING THE SHIP

Don't be daunted by the complicated appearance of a rigged model - it's not as hard as it looks.

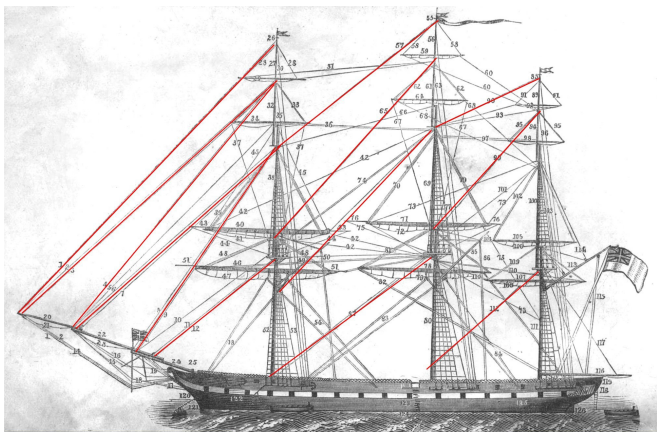
For wargame miniatures, it is not necessary to replicate every piece of rigging on a sailing ship in order to achieve a good looking model; just enough to give the right visual impression. A reduced number of shrouds or stays will still produce a convincing model.

To someone not accustomed to looking at it, a ship's rigging can appear to be an incomprehensible tangle. It makes a lot more sense if it is broken down into groups, by function. It also becomes easier to rig the model when each of these groups of rigging are applied one at a time, in the order in which they are presented here.

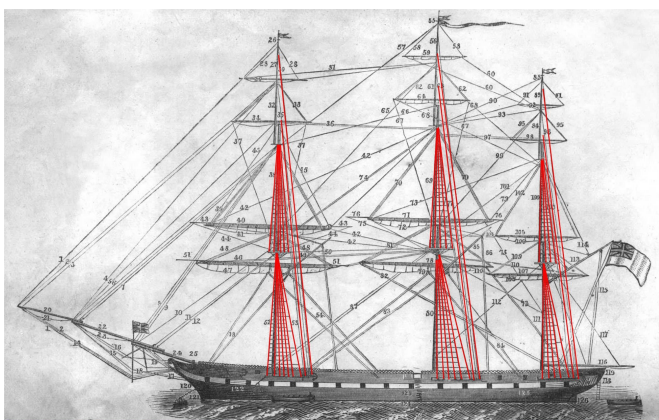
Each type of rigging is highlighted red in its illustration, to show its location on a typical ship-rigged vessel. Again, not every piece of rope in a rigging plan needs to be replicated on the model in order for it to be an effective and attractive representation on a wargame table. Take a close look at the illustrations of the rigged examples in your individual model's instructions, note how these reduced and simplified rigging plans still give the impression of a fully rigged ship and add strength to the model, without overcrowding the upper works or making the model a burden to build.

There are four groups of rigging that should be considered:

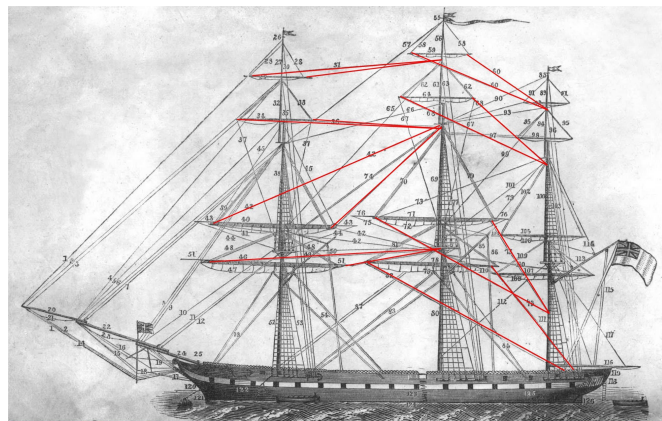
1. **STAYS:** These are part of the standing rigging, which holds the masts upright. They run from each mast, forward and down to the next mast, or to the deck. In the case of a foremast, they run to the bowsprit. Since they run along the centerline of the ship, it is easiest to add the stays first, before the other rigging groups, working from the inside out.



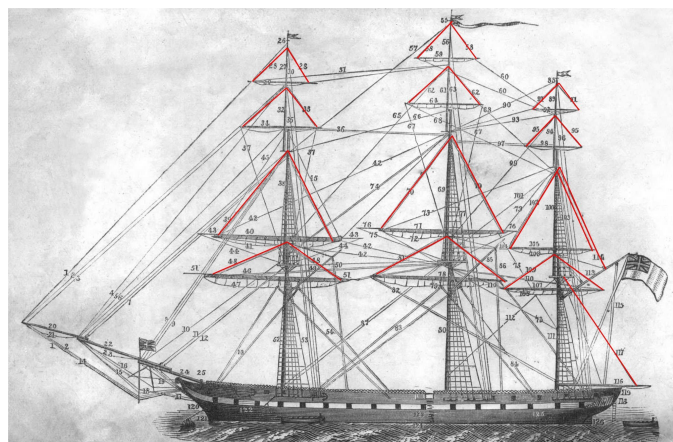
2. **SHROUDS and BACKSTAYS:** These run from the mastheads down to the channels; or, in the case of topmasts, down to the edges of the fighting tops. (There were small ropes, called ratlines, running horizontally across the shrouds to allow the crew to climb to the tops and yards; these are best ignored for our purposes, since they are difficult to replicate in this scale, and they were not clearly visible from any distance anyway.) They hold the masts up against the pressure of the wind against the sails. Staying with the principle of working from the inside out, it is easiest to add this rigging group second, since they run close to the masts.



3. **BRACES:** These run from the ends of the yards back to the next mast aft, or sometimes in the case of lower yards, to the deck or rails. Their purpose is to hold the yard at an angle to the keel which will allow its sail to make the most efficient use of the wind.



4. **LIFTS or HALYARDS:** These run from the mastheads down to the ends of the yards or booms. They are used to raise or lower the yards.

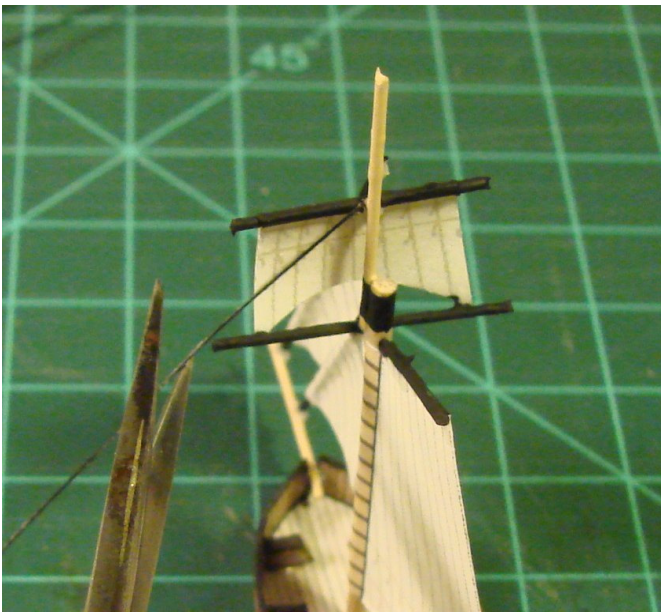


The first step is to make the material for rigging. All you need for this is some black cotton thread, glue, a place to hang the thread from, and something with which to weight the bottom to keep it straight while it dries.

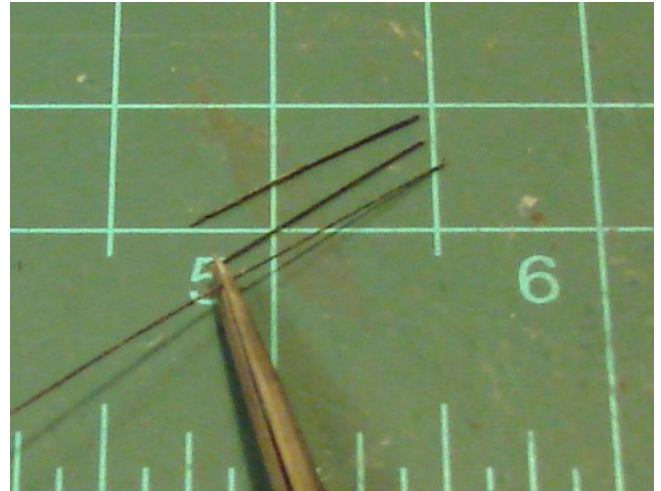
(Not all of the rigging on a ship was black; only the standing rigging would have been tarred, with the running rigging being brown or tan. From a distance, though, it all looked black.)

Hang a length of thread, and weight it at the bottom. Cotton thread works best, since the pva glue will soak into it; the glue will just strip off of synthetic thread when it is handled. Put a glob of glue on your index finger (use pva glue for this - trying it with cyanoacrylate will almost certainly not give the desired effect, and might have unpleasant side effects as well) and run the glue down the length of the thread with your index finger and thumb, making sure that the entire length is well coated. Allow to dry, and then cut it into convenient, workable lengths; about 8-10". Store the pieces flat until ready to use.

To apply the rigging to the model, only two tools will be needed: a small, sharp scissors (something like a seam ripper), and a tweezer (one with an angled end is best).



Hold one of the pieces of rigging in the place where it is needed on the model, with the end of the rigging at one of the points where it will eventually be attached. Cut it at the place where the other end will be attached. You should now have a short, stiff piece of black thread, exactly the right length to fit in that spot.



Many of the pieces of rigging you will be cutting will go onto the ship in pairs; the braces and lifts, for example. The shrouds for a particular mast will generally be 6 or 8 pieces of the same length. Instead of measuring each piece against the model, it is easier to use the first piece as a measure, and cut the subsequent pieces from that.



Put a small glob of glue on a scrap of cardboard. Pick up the piece of rigging with the tweezers, and dip each end into the glue.



Then drop it into place on the model. See? Easy!
Simply repeat this easy procedure for each piece of rigging you want on your model.

The rigging actually adds strength to your ship model, and a rigged ship is much more impressive looking on the wargame table.

Here are a couple examples of how a typical reduced rigging plan will look on your model:



For a more detailed explanation of the rigging technique, see the tutorial on the Workbench page at www.warartisan.com.