Lashings

Lashing is a way of using rope to securely join spars. Lashings, like knots, have been a part of human knowledge for thousands of years. In fact, the lashings formed today are practically identical to those made by Scouts since Scouting's earliest days.

Scouts who have earned First Class rank will be familiar with using square, shear, and diagonal lashings to join two or more poles or staves together.

The Language of Lashings

The following terms will help you understand how to make lashings.

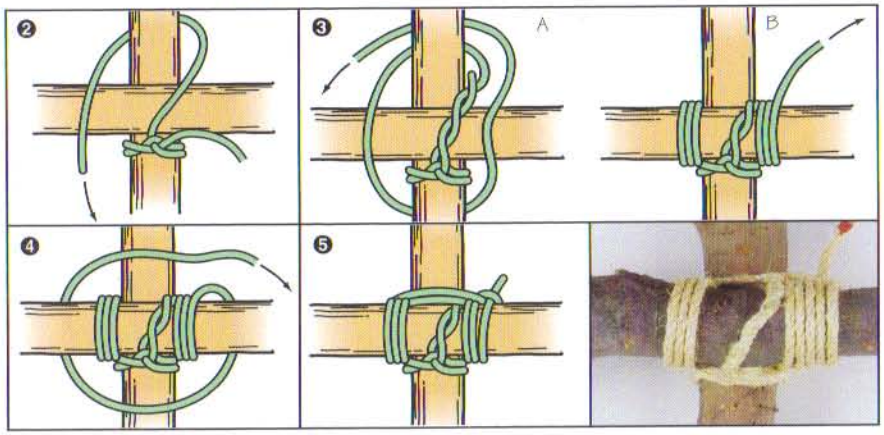
wrap. A wrap is a turn made *around* the two spars to hold the spars tightly together. Usually three wraps are made to form a square lashing. Other lashings might require more wraps.

frap. A frap is a turn made *between* the spars. It goes around the wraps to pull the wraps tighter. Usually two frapping turns are made on a lashing.

spar. A spar is a pole or staff, usually made of wood. Spars are used as the structural members of pioneering projects.

Square Lashing

Use a square lashing for binding together two spars that are at, or close to, right angles with each other. The spars are *square* with each other; thus the name for the lashing.



Step 1—Place the spars in position.

Step 2—Tie a clove hitch around the bottom spar near the crosspiece.

Step 3—Make three tight *wraps* around both spars, securing the end of the clove hitch as you would a timber hitch. As you form the wraps, lay the rope on the *outside* of each previous turn around the top spar, and on the *inside* of each previous turn around the bottom spar.

Step 4—Make two *fraps* around the wraps, pulling the rope very tight.

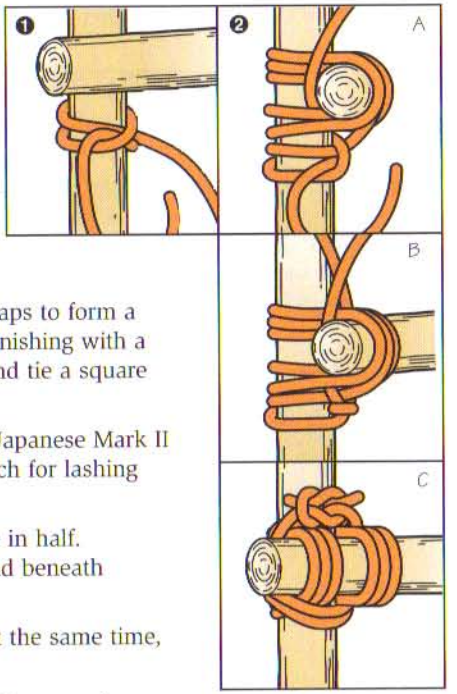
Step 5—Finish with a clove hitch around the top spar.

Rope for Lashing

In most cases, ¼-inch-diameter manila rope is fine for lashing together two spars when the combined diameter of both spars is 6 inches or less. When the combined diameter exceeds 6 inches, use rope that is ⅜ inch in diameter. To ensure the full strength of a lashing, use enough rope to make the required number of wraps and fraps. Dress the lashing after completing it by wrapping any extra rope around a spar and securing it with an additional clove hitch.

VARIATIONS OF THE SQUARE LASHING

Here are two variations on the basic square lashing.



Modified Square Lashing. Tying a clove hitch to complete a square lashing can be difficult. The modified square lashing eliminates the ending clove hitch.

Step 1—Begin with a clove hitch, but leave a tail of about 12 inches and let it hang free.

Step 2—Complete three wraps and two fraps to form a traditional square lashing, but instead of finishing with a clove hitch, bring up the tail of the rope and tie a square knot in the standing part of the rope.

Japanese Mark II Square Lashing. The Japanese Mark II square lashing is a straightforward approach for lashing two spars together.

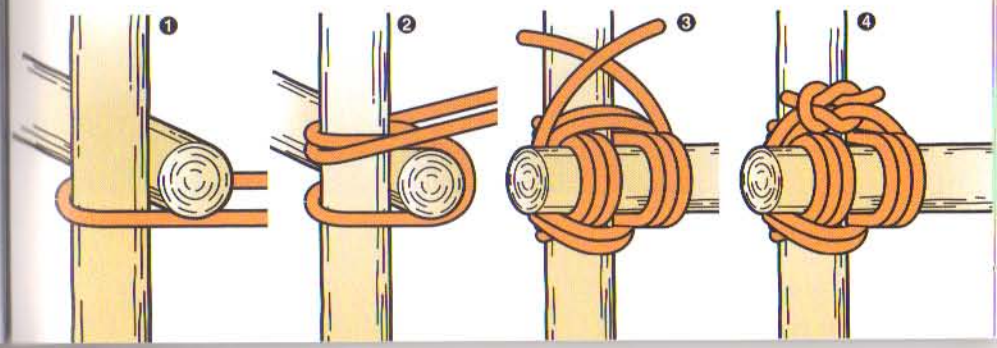
Step 1—Begin by folding the lashing rope in half. Place the bend around the vertical spar and beneath the horizontal spar.

Step 2—Working both ends of the rope at the same time, make three wraps around the spars.

Step 3—Bring the rope ends up between the spars in opposite directions to make the frapping turns around the wraps.

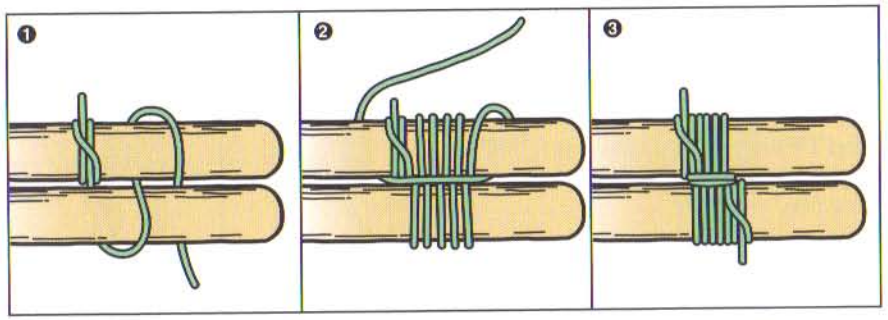
Step 4—Pull the frapping turns tight, and complete the lashing by tying the two ends with a square knot.

The advantage of this variation is that you work both ends of the rope at the same time. That can make forming the lashing quicker since each hand has less rope to pull through. The drawback is that it can be more difficult to keep both rope ends pulled tightly than when lashing with a single rope end.



Shear Lashing

Spars secured with a shear lashing can be raised as an A-frame.



Step 1—Lay two spars side by side and tie a clove hitch to one of them.

Step 2—Make three or four loose wraps around the spars, and then put two loose fraps between them.

Step 3—Finish with a clove hitch around the other spar, then spread the ends of the spars to form the shape you need. Redo the lashing if it is too tight or too loose.

Diagonal Lashing

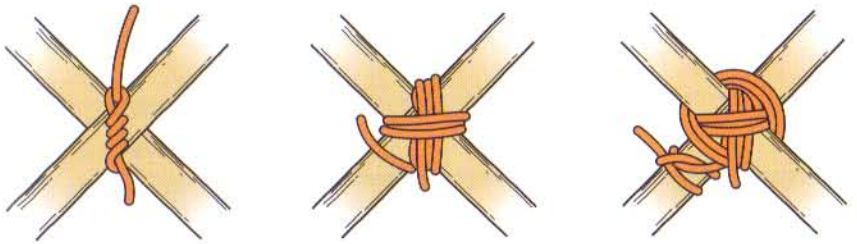
To bind spars at an angle other than a right angle, use a diagonal lashing.

Step 1—Tie a timber hitch around both spars and pull it snug.

Step 2—Make three tight vertical wraps around the spars, laying the wraps neatly alongside the timber hitch, then make three horizontal wraps across the spars.

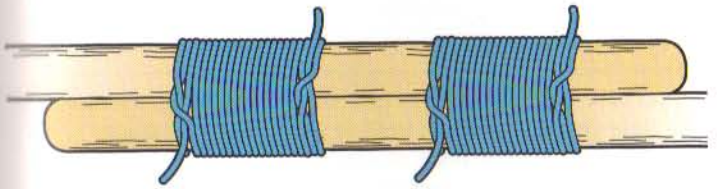
Step 3—Cinch down the wraps with two fraps around the lashing, pulling the rope tight.

Step 4—Tie off the rope with a clove hitch.



Round Lashing

Round lashings bind two spars side by side.



Step 1—Position the spars alongside each other and tie them together with a clove hitch.

Step 2—Make seven or eight very tight, neat wraps around the spars.

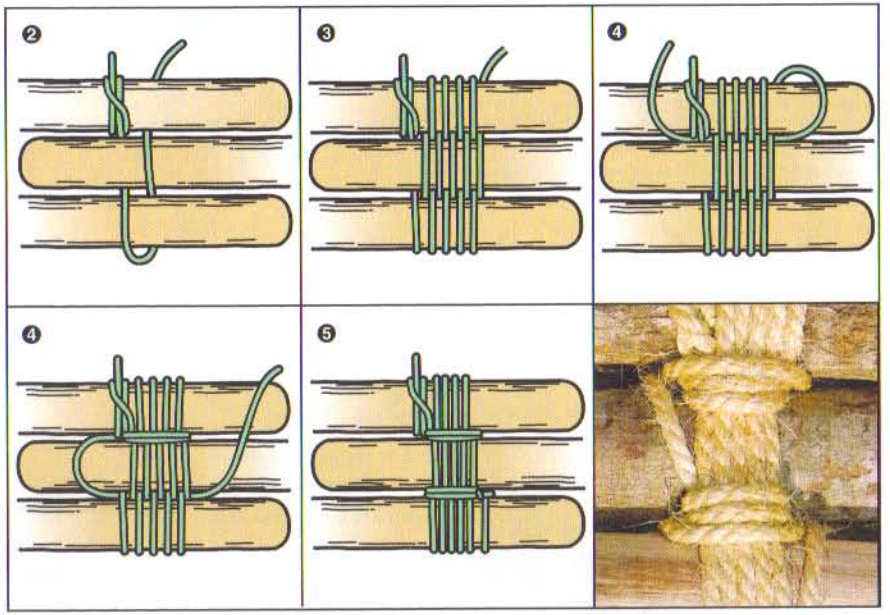
Step 3—Finish the lashing with another clove hitch around both spars.

A round lashing has no fraps. The wraps must do all the work, so pull them as tight as you can. Make a second round lashing farther along the spars to keep them from twisting out of line.

When very smooth synthetic rope or very smooth spars are used, the round lashing can be made more secure by adding several additional half hitches to each of the clove hitches.

Other Lashings

A few additional lashings will allow you to build special structures or put the finishing touches on a table, tower, or other project.



Tripod Lashing. A close relative of the shear lashing, the tripod lashing is the one to use for making a tripod or for joining together the first three poles of a tepee.

Step 1—Lay three poles alongside each other with the top of the center pole pointing the direction opposite that of the outside poles.

Step 2—Tie a clove hitch around one outside pole.

Step 3—Loosely wrap the poles five or six times, laying the turns of rope neatly alongside one another.

Step 4—Make two loose fraps on both sides of the center pole.

Step 5—End with a clove hitch around an outside pole. Spread the legs of the tripod into position. If you have made the wraps or fraps too tight, you may need to start over.

Floor Lashing. The floor lashing will secure the top of a table, the deck of a raft, the floor of a signal tower, or the walkway of a bridge.

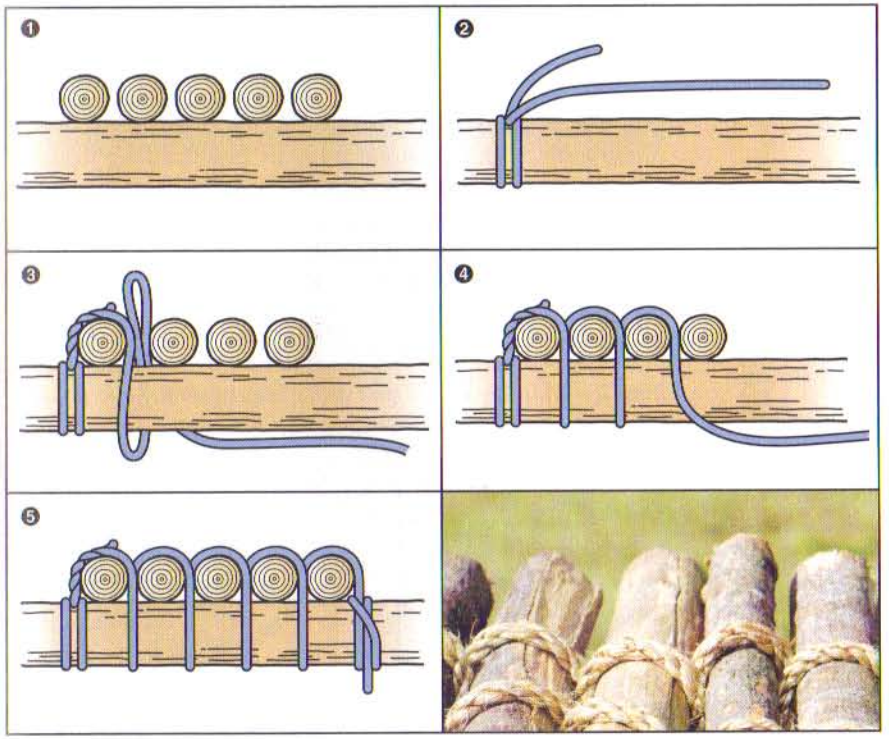
Step 1—Lay the poles side by side on top of the *stringers*—the logs or poles on which your platform will rest.

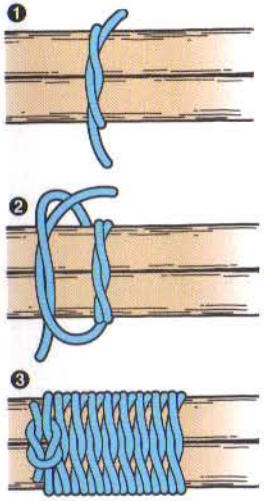
Step 2—Tie a clove hitch around one stringer.

Step 3—Bend the standing part of the rope over the first pole. Pull the bend of rope under the stringer and cast it over the second pole. You may need to lift the end of the pole to get the rope over it.

Step 4—Pull the rope tight, then bend it over the third pole. Continue until all the poles are bound to the stringer.

Step 5—Finish with a clove hitch, then repeat the procedure to lash the other ends of the poles to the other stringer.





West Country Shear Lashing. Use this lashing in pairs to hold together two spars. The steps for forming it are similar to those for a West Country whipping. The primary difference is that the whipping is used to prevent a rope end from unraveling, while the lashing is used to hold spars together.

Step 1—Lay the spars side by side. Tie the midpoint of the lashing rope around the spars with an overhand knot.

Step 2—Take the two ends of the lashing rope behind the spars and tie another overhand knot.

Step 3—Continue to tie overhand knots, alternating them between the front and back of the spars, until the lashing has been formed.

Always tie each overhand knot the same way ("right over left" or "left over right") so the knots lie together neatly. Finish the West Country shear lashing with a tight square knot.

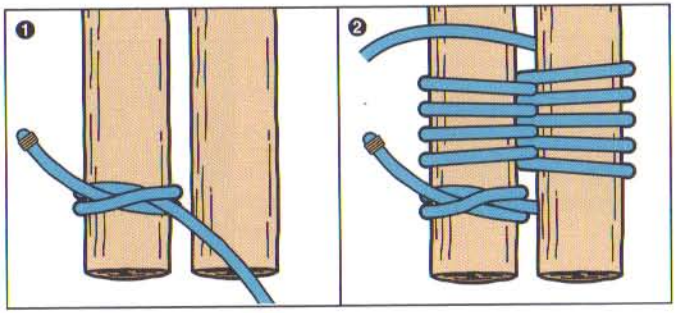
If the spars will stay side by side, keep them from twisting out of position by making a second two-spar shear lashing further along the spars.

Two-Spar Shear Lashing. You can use the two-spar shear lashing to extend the length of one spar by lashing another spar to it. This is also a good lashing to use when spar legs will be spread apart to form an A-frame trestle. (See "Lashing Together a Trestle," later in this section.)

To extend a spar, make two lashings where the spars overlap. The diameter and length of the spars determine the amount of overlap. Place the lashings as far apart as possible to maintain the strength needed.

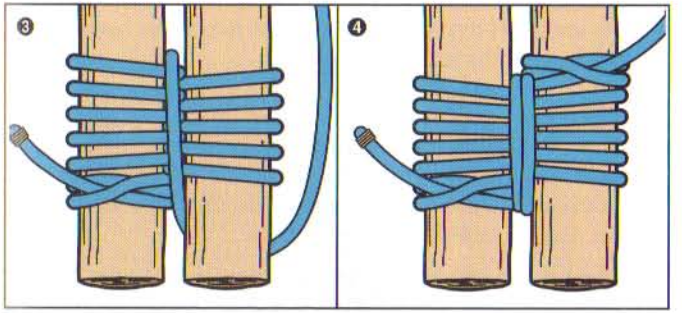
Step 1—Start with a clove hitch on one spar.

Step 2—Wrap the excess part of the short running end around the standing part of the rope.



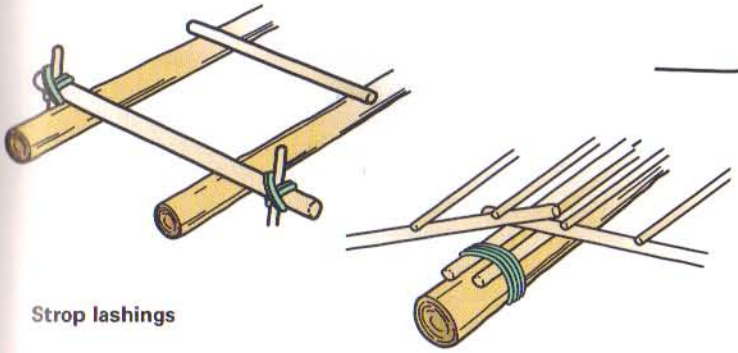
Step 3—Make eight to 10 loose wraps around the spars, then tighten the wraps with two frapping turns between the spars.

Step 4—Finish the lashing by tying a clove hitch on the other spar.

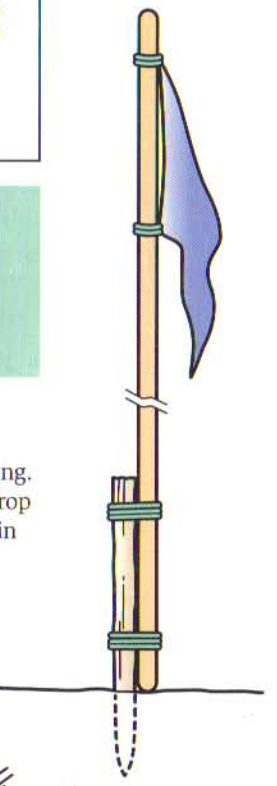


To make an A-frame trestle, place the spars next to each other and form a loose two-spar shear lashing about a foot from the top ends of the spars. Spread apart the other ends to form the A-frame, and tighten the lashing. See "A-Trestle," later in this section.

Strop Lashing. Sometimes all you need to hold two small spars together are a few wraps with a rope or cord. Finish with a square knot or clove hitch and you have a strop lashing. Essentially it is a shear lashing formed without any fraps. Strop lashings can be used to secure a short stave to a stake, to join walkway sections to a rustic bridge, or to lash the ends of bridge walkways to stakes.



Strop lashings



Lashing Together a Trestle

A *trestle* is the main supporting framework for building a rustic tower, bridge, or other pioneering structure. It is made with spars as the primary weight-bearing legs, and braces (including horizontal *ledgers* and *transoms)* providing stability. Three trestle designs are the H-trestle, X-trestle, and A-trestle, each named for the shape of the letter it resembles.

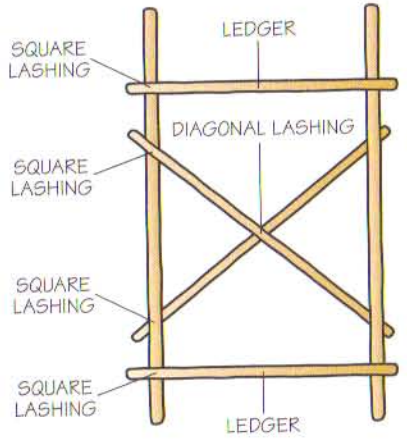
H-Trestle

H-trestles are used in tower designs and for certain bridges. All of the lashings on an H-trestle are square lashings except for the diagonal lashing used to secure the cross braces to one another. Here is how to build an H-trestle.

Step 1—Lay the two legs on the ground with the butt ends (the larger-diameter ends) of the spars at the same end and even with one another. Secure the horizontal ledgers in place with square lashings.

Step 2—Add the cross braces. The cross braces (spars usually 2 inches in diameter) are lashed to the legs in a particular sequence.

- Position one cross brace so that it is on the side of the spars opposite the ledgers. (It might help to flip the trestle over.) Lash the cross brace to the spars with square lashings.
- Position the second cross brace so that one end is on the same side of the spars as the ledgers, but the other end is on the opposite side. Lash the second cross brace to the spars with square lashings. There will be a slight gap between the cross braces where they cross one another.



Step 3—Stand the trestle up. Make sure the legs, ledgers, and cross braces are all properly positioned and secure. If everything looks good, use a diagonal lashing to pull together the two cross braces where they are closest to each other. That will add tremendous stability to the trestle and complete the structure. If adjustments must be made, lay the trestle down and get everything in order before making the diagonal lashing.

The triangle shapes formed by lashing together spars and braces are among the most basic ways to keep a structure from wobbling.

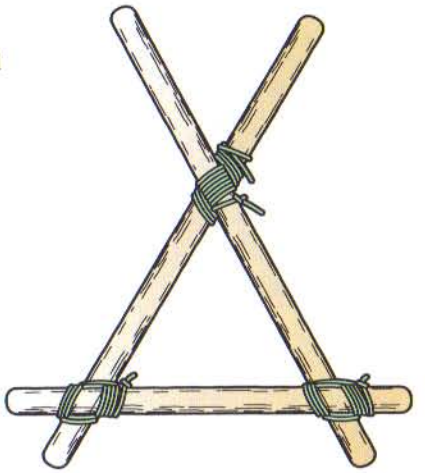
X-Trestle

Two X-trestles provide the standards at each end of a monkey bridge. Here is how to build an X-trestle.

Step 1—Lay the two legs on the ground side by side with the butt ends (the larger-diameter ends) of the spars at the same end and even with one another. With a loose shear lashing, secure them at the halfway point of their length.

Step 2—Form the X by spreading apart the butt ends of the spars.

Step 3—Create stability by lashing a horizontal ledger in place with square lashings.



A-Trestle

This design forms an A-shaped trestle that can be used for a variety of bridge plans. Here is how to build an A-trestle.

Step 1—Lay the two legs on the ground side by side with the butt ends (the larger-diameter ends) of the spars at the same end and even with one another. Form a loose shear lashing a foot from the narrower ends of the spars.

Step 2—Spread apart the butt ends of the spars to form the A shape.

Step 3—Use square lashings to add two ledgers (bottom ledger and top transom) to the legs.