

# **Advanced Knot Tying Lashing It Together**

(2 Hours)

**Synopsis:** In this two-hour period of instruction the student will learn how to complete the five basic types of lashing (round, shear, tripod, square, and diagonal), will learn what each type is used for. As part of a team, the student will construct a piece of camp equipment using materials furnished for the purpose.

**Prerequisites:** Students must know how to tie the square knot, clove hitch, and timber hitch.

## **Lesson Outline:**

### **I. Introduction**

Instructor introduces himself and welcomes students to course.

### **II. Purpose and Main Ideas**

The purpose of this period of instruction is to familiarize you with the five basic types of lashings, to provide you with an understanding of when and where each type should be used, and to provide you with an opportunity to practice what you have learned by constructing a useful piece of camp equipment.

I will do this by explaining the terminology of lashing, explaining how to determine the length of rope needed for a particular lashing, demonstrating and explaining the uses for each of the lashing types, and having you construct each lashing using materials furnished for the purpose.

After the five types of lashings have been demonstrated and explained, the class will be divided into two groups and be provided the materials for and a model of a piece of camp equipment, which will then be constructed using what has been learned.

### **III. Body**

#### **A. Terminology:**

1. Spar: A wooden pole, normally 6 or more feet in length.
2. Rung, Brace, Cross-Piece: Pieces of wood shorter than a spar.
3. Wrap: A wrap is a turn made around two spars. The minimum number of wraps is three.
4. Frap: A frap is a turn made between the spars to pull the wraps tighter. Usually only two or three frapping turns are needed.

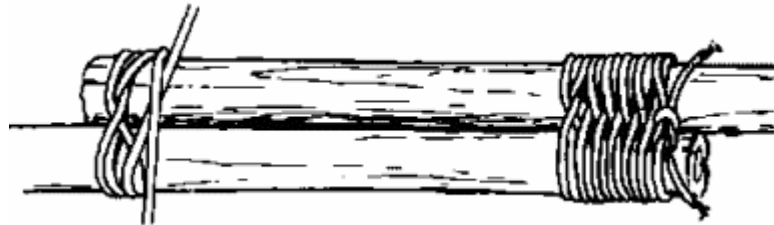
**B. Determining Rope Length:** To determine how much rope is needed for any particular lashing, add the diameters of the spars to be lashed together and multiply the result by three feet. For example, to lash two spars together, each of which is 2-inches in diameter, would require 12 feet of rope ( $2 + 2 \times 3 = 12$ ). To lash three spars together would require 18 feet of rope ( $(2 + 2 + 2) \times 3 = 18$ ).

**C. Types of Lashings:**

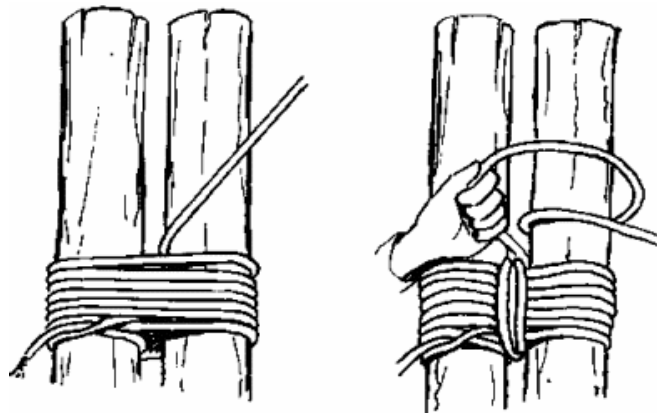
**1. Round Lashing:** The round lashing is used to bind two spars together to make a longer spar, such as for a flagpole. The round lashing has no fraps. It begins and ends with a clove hitch. To add extra strength to the lashing, drive wedges (called wigs) between the spars after the lashing has been applied.



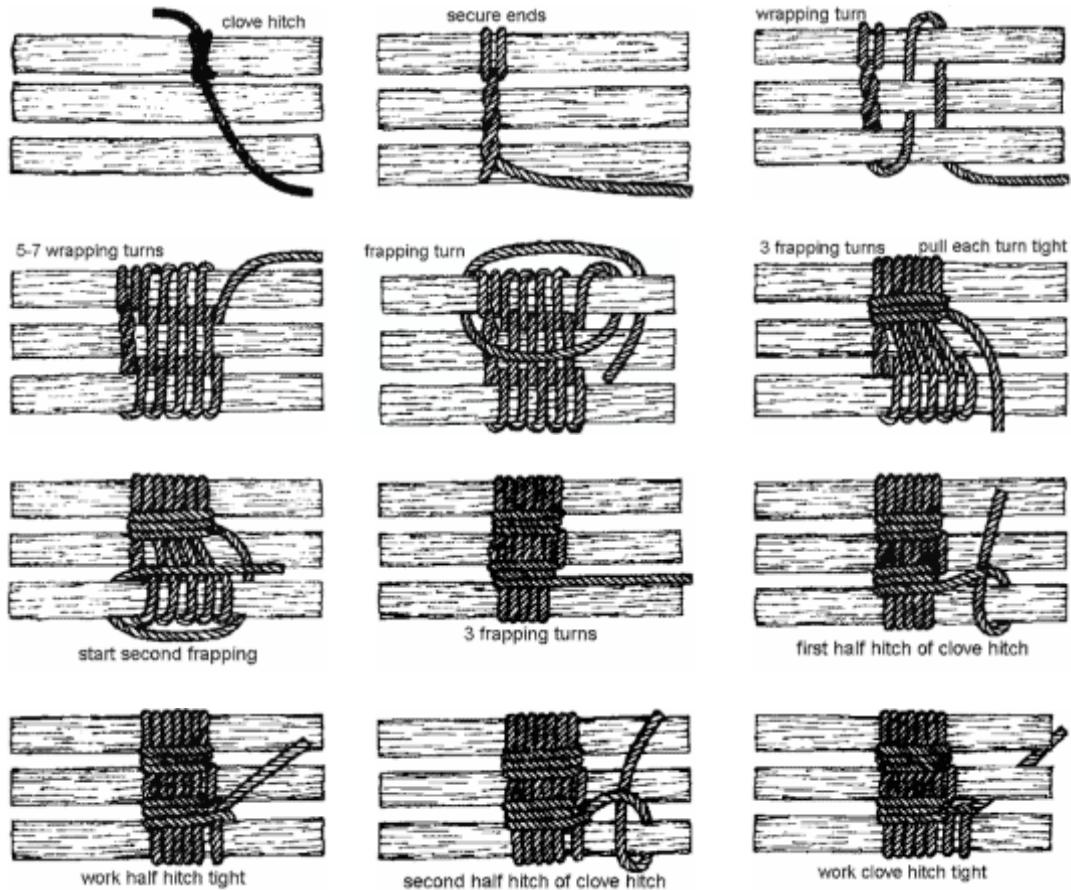
A variation of the round lashing is the so-called *West Country* method in which a series of overhand knots are tied around the spars in place of the normal wraps. It is finished with a square knot in place of the final clove hitch.



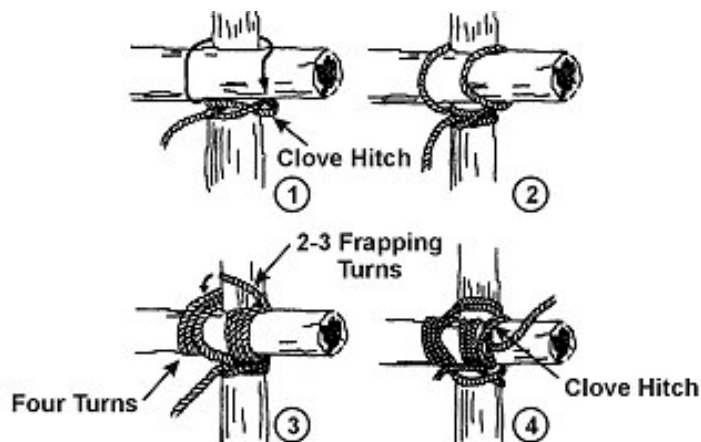
**2. Shear Lashing:** The shear lashing is similar to the round lashing, but uses frapping turns. It is used to bind two spars together that will cross each other to form a shear, such as for an A-frame.



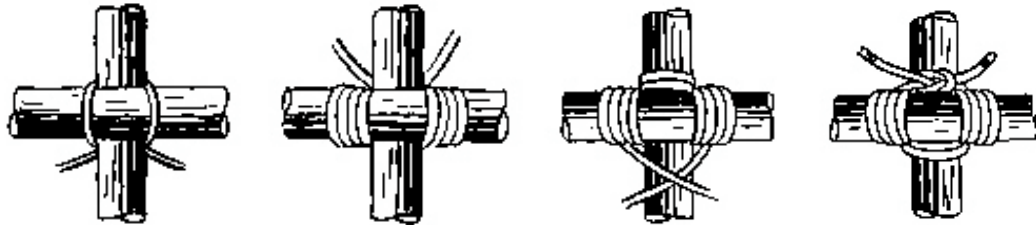
3. **Tripod Lashing:** The tripod lashing is similar to the shear lashing, but is used to bind three or four spars together to make a three- or four-legged support (tripod or pyramid). It begins and ends with a clove hitch. It differs from the shear lashing in that, rather than wrapping the rope around all three spars, the rope is woven between the spars. Frapping turns are taken between each set of spars.



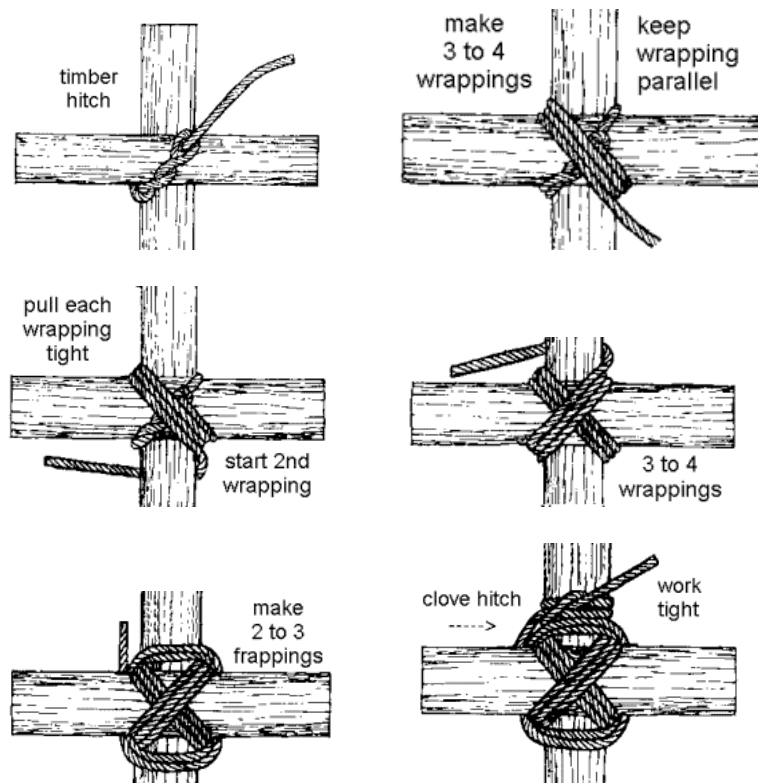
4. **Square Lashing:** The square lashing is used to bind two spars together that touch and cross each other at an angle of 45 to 90 degrees, such as for cross-braces in a table. The traditional square lashing begins and ends with a clove hitch.



A variation of the square lashing is the modified Japanese square lashing, shown below. To make this lashing, loop the rope around one of the spars and wrap both ends of the rope simultaneously as in the traditional square lashing. After taking three or four wraps, make frapping turns running the ends of the rope in opposite directions. Finish by tying the ends together with a square knot.



- Diagonal Lashing:** The diagonal lashing is used to bind two spars together that do not touch but cross each other at an angle of 45 to 90 degrees, such as for diagonal-braces in a tower. This lashing begins with a timber hitch around both spars and ends with a clove hitch.



#### IV. Practical Application

Divide the class into two groups.

Provide one group with the materials for and a sketch of a wash basin rack, which they are to construct.

Provide the other group with the materials for and a sketch of a camp table with seats, which they are to construct.

#### **V. Review and Questions and Answers**

The instructor shall monitor progress of each project, reviewing techniques as required and responding to questions from the class.

#### **VI. Summary and Closing**

As time permits, the instructor will summarize what has been learned and critique the projects constructed by the class.

## Materials Required

### For Classroom Instruction:

- 1 roll 3/16-inch nylon cord
- 3 19-inch lengths broom handle or similar material for each student

### For Wash Rack Project:

- 7 six-foot X 2-inch spars
- 2 two-foot X 1-inch rods
- 2 square plastic pans
- 2 towels, 2 bars of soap, 2 mirrors
- 1 5-gallon container of water
- 1 model

### For Camp Table with Seats Project:

- 4 eight-foot X 2-inch spars
- 6 six-foot X 2-inch spars
- 2 four-foot X 2-inch spars
- 2 five-foot X 1.25-inch spars
- 1 two-foot X four-foot X ½-inch plywood board
- 1 model

### Cumulative:

- 4 eight-foot X 2-inch spars
- 15 six-foot X 2-inch spars
- 2 four-foot X 2-inch spars
- 2 five-foot X 1.25-inch spars
- 2 two-foot X 1-inch rods
- 1 two-foot X four-foot X ½-inch plywood board
- 20 five-foot X 1-inch rods (cut into 19-inch lengths for a total of 60 pieces)
- 1 roll 3/16-inch nylon cord
- 2 square plastic pans
- 2 towels, 2 bars of soap, 2 mirrors
- 1 model of wash rack
- 1 model of camp table with seats
- 1 5-gallon container of water
- 21 copies of this document