

PATHFINDER

LASHING HONOR

CLUB



1. Define Lashing and Explain Its Purposes.

A lashing is an arrangement of rope wire or webbing with linking device.

It is used to:

- secure and fasten two or more items together in a somewhat rigid manner.

Lashings are most commonly applied to timber poles

Commonly associated with cargo, containerisation, the Scouting movement, and sailing.

2. How can lashing be used in a camping or outdoors setting?

Lashing can be used to build useful items in a camp setting. If in an area where gathering timber is allowed, the camper with proper skills can build the needed items rather than pack them in.

Three categories of items that lend themselves to lash construction include:

- **Furniture**

Table, chair, and even beds.

- **Shelter**

Lean-to, super shelter, tree cot, baker's tent (frame), etc.

- **Tools & Utensils**

ladder, tripod for cooking, coat hangers, etc.

3. What materials are used in lashing?

a. List types of ropes that are preferred for lashing.

1. Polyester Twisted Rope

2. Manila rope

3. Nylon Double Braid Rope

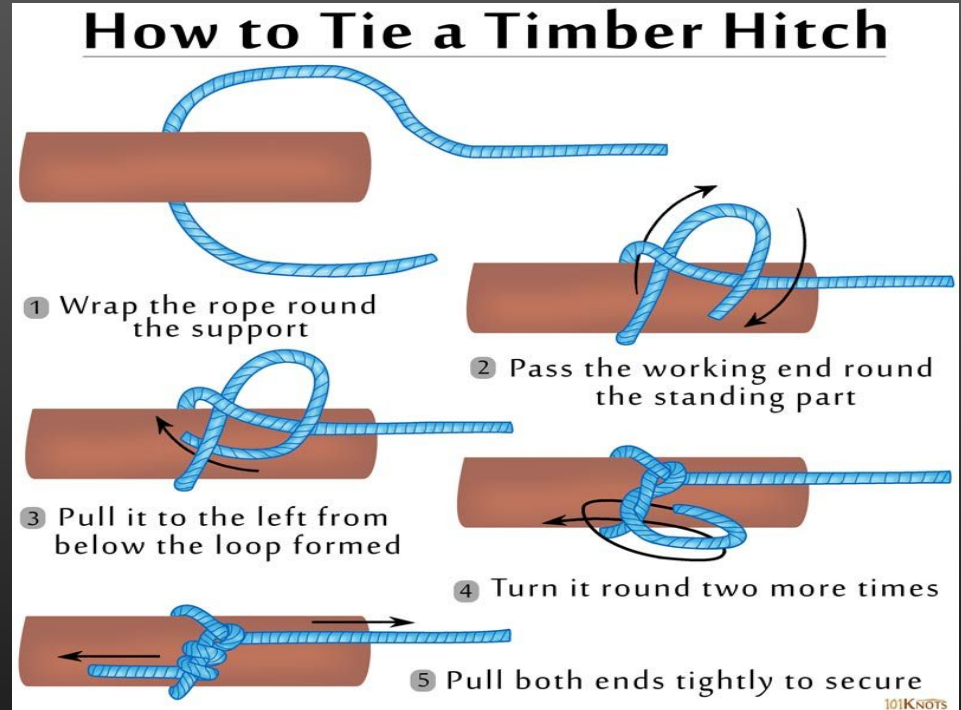
b. Give the advantages of natural materials over dimensional lumber.

The imperfections inherent in natural materials allows for greater amounts of friction to develop between the work pieces (spars and ropes). In contrast dimensional lumber pieces will require higher amounts of tension in wraps to achieve similar holding power.

4. Demonstrate the following beginning and ending knots:

a. Timber Hitch

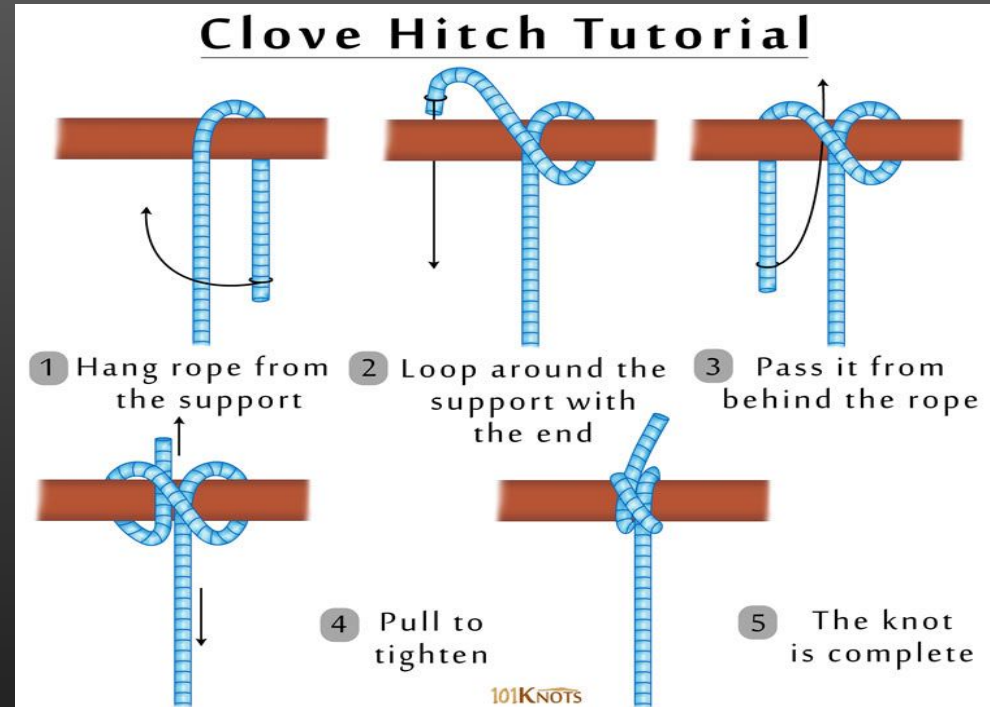
Use: The timber hitch is a knot used to attach a single length of rope to a piece of wood. This knot is easily undone after use.



4. Demonstrate the following beginning and ending knots:

B. Clove Hitch

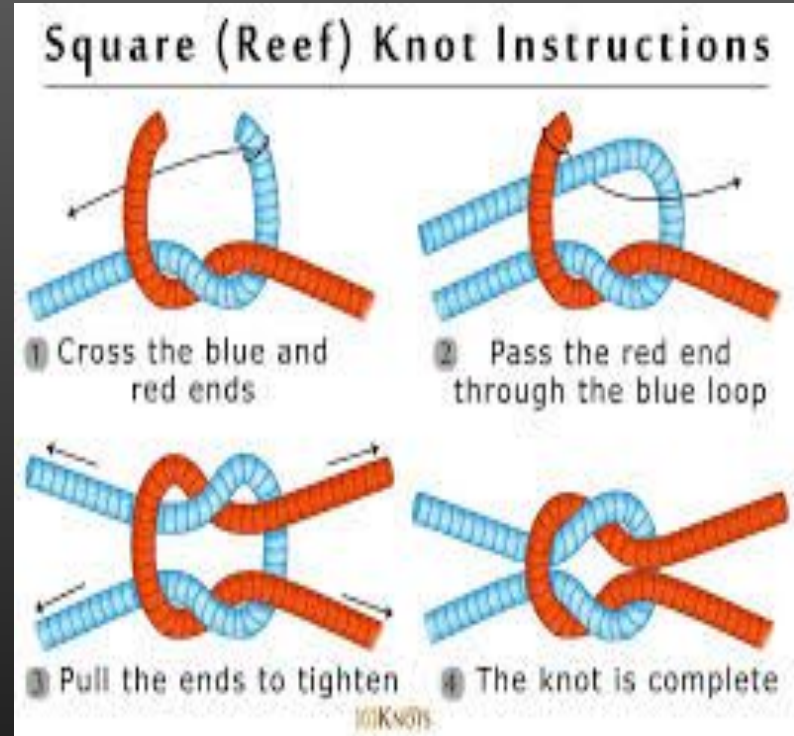
Use: This knot is the "general utility" hitch for when you need a quick, simple method of fastening a rope around a post, spar or stake.



C. Square Knot (Reef Knot)

Use: It is most commonly used to tie two lines together at the ends. This knot is used at sea in reefing and furling sails. It is used in first aid to tie off a bandage or a sling because the knot lies flat.

4. Demonstrate the following beginning and ending knots:



5. What beginning and ending knots are used in the following five types of lashing:

a. Square Lashing

Start with a timber hitch (can substitute clove hitch for smaller work pieces) and end with two half hitches backed by a clove hitch.

b. Shear Lashing

Start with a clove hitch and end with a clove hitch.

c. Tripod Lashing

Start with a clove hitch and end with a clove hitch

d. Diagonal Lashing

Start with a timber hitch and end with a clove hitch

6. Explain the differences between a frap and a wrap.

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. Some other lashings 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.

7. Demonstrate how to tie the following five lashings:

a. Square Lashing

Square lashing is a type of lashing knot used to bind poles together. Large structures can be built with a combination of square and diagonal lashing, with square lashing generally used on load bearing members and diagonal lashing usually applied to cross bracing. If any gap exists between the poles then diagonal lashing should be used.

1. Begin with a timber hitch on the vertical pole beneath the horizontal pole and tuck the loose end under the wrapping.
2. Wrap in a square fashion about three times around the poles.
3. Frap between the poles two or three times, pulling often to work the joint as tight as possible.
4. Tie two half hitches around the horizontal pole
5. Cinch the half hitches into a clove hitch, an additional clove hitch may be added if desired.



8. Demonstrate how to tie the following five lashings:

B. Shear Lashing

Shear

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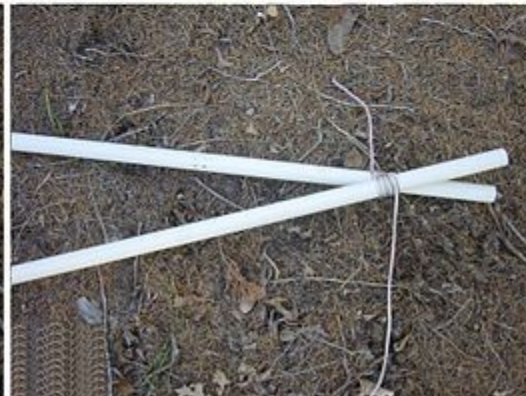
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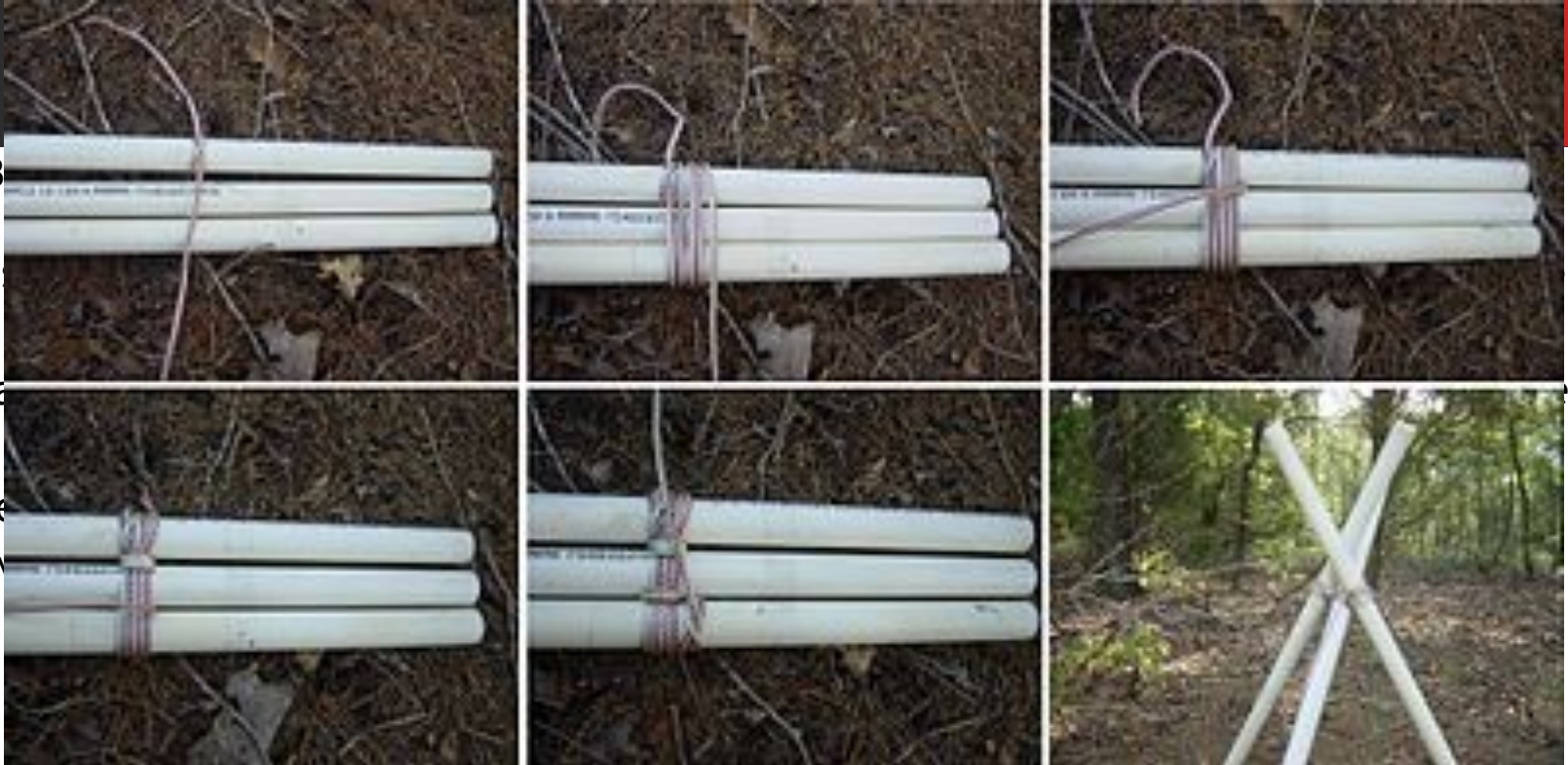
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8. Demonstrate how to tie the following five lashings:

C. 3 pole -Shear Lashing / Tripod Lashing

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8. Demonstrate how to tie the following five lashings:

D. Diagonal Lashing

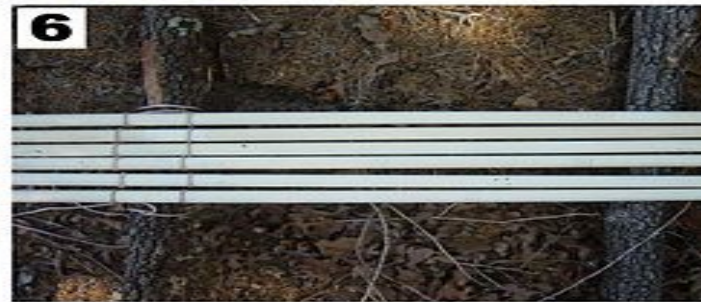
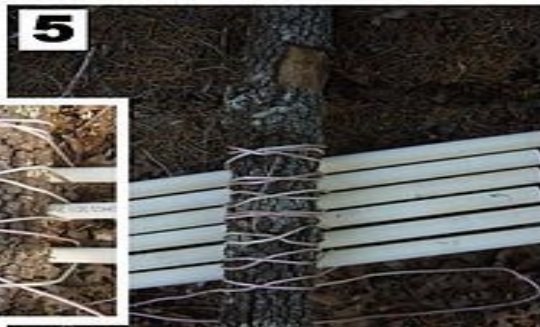
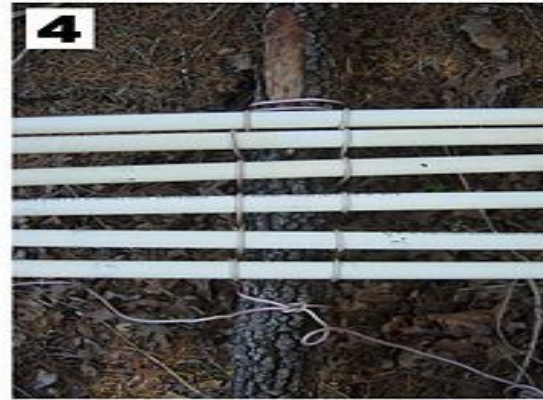
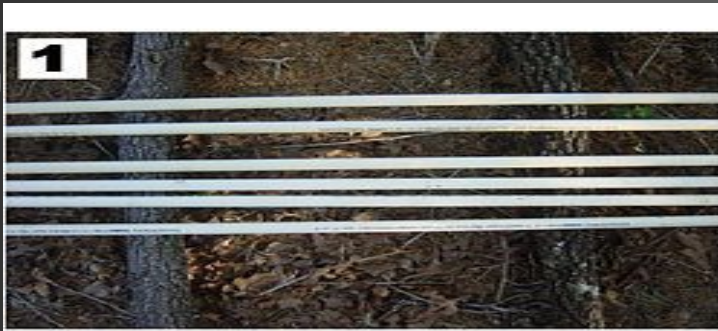
Diagonal lashing is a type of lashing used to bind spars or poles together, to prevent movement. It is often applied to cross-bracing where the poles do not initially touch, but may be used on poles that meet each other at a 45° to 90° angle. Large, semi permanent structures may be built with square lashing, which is stronger, and diagonal lashing.

Diagonal lashing steps (see image at right);

1. Begin with a timber hitch around the juncture of the two poles.
2. Make three turns in each direction - tightening steadily as you go.
3. Make two frapping turns, tightening the joint as much as possible.
4. To end, make two half hitches
5. Cinch the half hitches into a clove hitch



8. Demo



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6. View

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9. Discuss what types of weight loading. Discuss what types of weight loading each diameter of rope can handle depending on the nature of the material.

Natural Ropes

Manila

Made from the leaves of the *Musa textillis* tree in the Philippine Islands.

Sisal

Made from the leaves of the *Agave sisalaua* plant that is native to central America. Sisal and Manila are the strongest natural material ropes with a 10% stretch factor.

Hemp

Made from an annual herbaceous plant native to west and central Asia. Hemp is $\frac{2}{3}$ as strong as Manila and Sisal rope.

Cotton

Made from the white, downy, fibrous substance that covers the seeds of the cotton plant.

Coir

Made from coconut husks.

9. Discuss what types of weight loading. Discuss what types of weight loading each diameter of rope can handle depending on the nature of the material.

Synthetic ropes are all man-made from different types of plastics. They have unique names that reflect their different properties. The strength of the synthetic rope is at least twice that of Manila or Sisal rope. The main types of synthetic ropes are:

Polypropylene and polyethylene

These are plastic ropes which stay afloat and are not affected by water. They are designed for marine purposes; they are tough and have good abrasion resistance. However, they have low stretch and heat resistance.

Terylene or polyester

These ropes stay afloat and are not affected by water. They have high heat resistance, but have low stretch.

Nylon

These have a high level of strength, do not float and are affected by wet conditions. They have good stretch and moderate heat resistance. Nylon 6 is used in rock climbing and nylon 66 is used in abseiling. Nylon is resistant to abrasions, bacteria and most organic solvents. It is sensitive to strong acids, alkalinity and long exposure to sunlight.

10. Demonstrate ways to store ropes and wood for later use.

Rope should be Coiled up and hung up in a dry place, or put in a box or bucket.

- The box or bucket should have holes to let the rope breathe. This will help against rot and odors.

The wood should be bundled up and racked off the ground in a dry place, like on a wall or hung from the ceiling.

- If outside, the wood should be wrapped in a tarp or oiled canvas to keep out water.

11. Practical: Create at least three of the following items:

- a. Chair (must include seat and back)**
- b. Table (must be able to support 16 lbs. or 2 gallons of water)**
- c. Tripod for cooking fire**
- d. Flag pole (must have at least four spars)**
- e. Ladder (must include six rungs)**