

## Lashing 3. Sheer Lashing

**Use:** For tying two poles together in parallel.

If you are tying the poles together to make a longer pole, you would do more wraps and frapping turns than shown here, to make sure the result is strong and stable. On the other hand, you can make an A-frame using this lashing, by tying a few turns (about as many as shown) and not pulling the lashing completely tight. This way, once you have finished tying the lashing, you can open the "legs" of the frame, which will also tighten the lashing itself.

1. Tie a clove hitch (surprise!) around both of the poles. Lay the standing end between the poles as shown. Note that I've kept the standing end long to show where it goes - you should have a shorter standing end.



2. Wrap the working end around both poles, keeping tension on the clove hitch. More wraps will mean a stronger lashing, less likely to bend. If you need an A-frame, you want it to bend, so fewer wraps would be in order.

3. When you have enough wraps, pass the working end between the poles, over the top of your wraps.



4. Wrap the working end around the lashing wraps to make frapping turns. Make sure they are as tight as you need them to be - very, for extending a pole; tight enough for the poles to still be able to open, for an A-frame.

5. Tie the lashing off with - yes, again - a clove hitch.



## A Little Book of Knots and Lashings



For your **Pioneer Activity Badge**, and **Outdoor Challenge Award**, you are expected to be able to tie a number of knots and lashings. The Pioneer Activity Badge requires six knots and three lashings.

This little booklet will show you how to tie a number of useful knots - useful not only within Scouting, but in everyday life.

### Knot 1. Reef Knot

**Use:** For tying two ends of the same rope together, usually around an object.

The easiest way to remember how to tie a reef knot is by the mnemonic "Right Over Left Left Over Right".

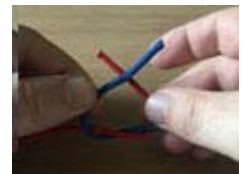
1. Holding one end of the rope in each hand, cross the right end (blue) over the left ("Right Over Left").



2. Twist the right end (blue) over and around the left end. You'll see the right end (now on the left, in blue) comes up over the left (now on the right, in red).



3. For the next bit, you are going to perform exactly the same twist again, in the opposite direction. The rope on top of the twist goes on top and around again (in this case, the blue goes over and around the red - "Left Over Right").



4. The two twists together should form a nice pair of interlocking loops. If they don't, the chances are you've put the wrong end over the top in Step 3 - and are on your way to tying the dreaded Granny Knot!

5. Pull tight! You should have all ends nice and level.

If you pull the standing parts of the rope (not the ends you've been working with), you might see the knot starting to slip. This is why a reef knot is not a good knot for tying two ropes together, or where the knot must take strain.



## Knot 2. Sheet Bend

**Use:** For tying two ropes together, even if they are of different thickness.

1. Make a loop in one of the ropes, so that the ends of the loop are parallel and do not cross. In rope terminology, this is known as a "bight".

Note that if you are tying ropes of different thickness together, make the bight in the thicker rope.



2. Pass the end of the second rope (the thinner rope, if the ropes are of different thickness) up through the bight.



3. Bring the end out over one edge of the bight, and then underneath the whole bight.



4. Bring the end up, and pass it underneath itself, across the top of the bight.



5. Pull tight! If you pull on the standing ends now, you'll see that it doesn't slip, and feels a lot stronger than the reef knot.



You can make a sheet bend stronger still by looping the end through more than once before pulling tight. This is especially useful when the difference in thickness of the two ropes is large.

If one rope is thicker than the other, consider tying a double sheet bend, as shown left, as a matter of course. For greater thickness difference, you can tie a triple, quadruple, or any number of extra turns you think you need!

A good point to remember, however, is that while additional turns make the knot itself stronger, tying knots in a rope make the rope's overall strength weaker. So don't go overboard with your turns - just enough to give the sheet bend the strength it needs will be perfect!



## Lashing 2. Diagonal Lashing

**Use:** For tying two poles together that cross at 45 through to 90 degrees.

1. Tie a timber hitch around the poles where they cross. The timber hitch isn't a strong knot in itself, but as long as we keep our lashing turns tight (as usual!), the knot will stay under tension.



2. Wrap the working end around the timber hitch three or four times...

3. ...and then change direction, bringing the working end around the poles to cross over the first wraps diagonally.



4. After three or four wraps in that direction, pull tight and bring the working end down parallel with the uppermost pole.



5. In a similar way to the square lashing, wrap the working end around the lashing with frapping turns. Remember to keep everything tight!



5. Once you've done three or four frapping turns, finish the lashing off with... You guessed it... A clove hitch!



## Lashing 1. Square Lashing

**Use:** For tying two poles together that cross at 90 degrees.

1. Tie a clove hitch around the vertical pole, below where the horizontal pole crosses it.

For the steps that follow, remember to pull each loop and turn you make **tight**. A loose lashing is no lashing at all!



2. Working anti-clockwise from the clove hitch, pass the working end under the horizontal pole, then up and over the vertical, then down and under the horizontal, then up and over... When you come up to where you started, pass the rope down the pole



3. Keep going until you have three or four complete turns around the poles. When you are in the position to come up to the clove hitch again after this, **stop!**



4. Bring the rope up over the horizontal, and around the back of the vertical, in a clockwise manner. You will be making **frapping turns** around the lashing loops you have already tied. Make sure each frapping turn is tight, as this will tighten and hold the lashing together.



5. Keep making frapping turns. About three or four turns is good, but remember to leave enough rope to tie the lashing off with!



5. Finish the lashing by making sure everything is nice and tight, then tying another clove hitch on the vertical, below the original clove hitch and the lashing turns below it.

## Knot 3. Bowline

**Use:** For tying a standing (non-slip) loop in a rope.

This is useful whenever you need a large or small loop, from tying a rescue rope around someone to securing a line, or simply because you need a loop. There are plenty of slip knots that form loops which close - but a standing loop is often more useful. You **NEVER** want to tie a slip knot around someone - if you're attempting to rescue them, the last thing you want to do is strangle or crush them in the folds of a slip knot!!

1. Loop your rope to the desired size, and then make a crossing loop in one side. The rope leading to your working end must be on top of the crossing loop.

If you imagine the standing rope to be a "tree", the crossing loop to be a "rabbit hole", and your working end to be a "rabbit", this knot becomes very easy to memorise. To remember which rope needs to go underneath for the crossing loop, think of nice, solid tree roots going **UNDER** the ground!



2. Pass the working end up through the crossing loop ("the rabbit comes out of his hole").

3. Pass the working end behind the standing rope ("the rabbit goes behind the tree").



4. Pass the working end back down through the crossing loop, parallel to itself ("the rabbit goes back down his hole").

5. Pull tight! You can put a lot of strain on the standing end, and the main loop will not close up.



There are lots of variations for a bowline. One of the simplest is to have the "rabbit" run in front of the "tree" before going around the back and down its "hole", (see left). The effect of this variant is to have the working end be outside the final loop instead of inside, where it might dig in or chafe.

## Knot 4. Sheep Shank

**Use:** To shorten a rope, or relieve a damaged section of rope.

### 1. Make a loop in the rope.

This knot is usually tied in the middle, or at least away from the ends, of a rope - don't make your loop too close to an end!



### 2. Make two more loops to the right of your first loop.

Note that all the loops go the same way. That is, the strand running to the left is underneath the strand running right.

### 3. Put the right hand loop under the centre loop, so that the right edge of the centre loop cuts through the centre of the right hand loop, and pull that edge through the right loop.



Repeat this step for the left hand loop, except this time the left hand loop goes on top of the centre loop's left edge.



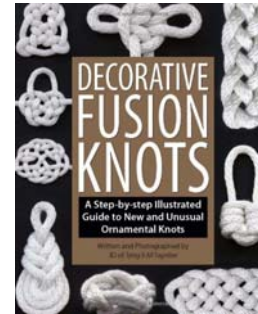
### 4. Pull tight! As you can see, the right and left hand loops close up on the centre loop.

This knot is all about the centre loop. It is easier to tie if the centre loop is larger than the two side ones.

When using a sheep shank to shorten a rope, adjust the size of the centre loop according to how much you need the rope shortened by. The bigger the loop, the more the rope will be shortened by. Because the knot is only tight under tension, it is relatively easy to feed rope into or out of the knot to adjust it to the exact length required.

When using the knot to relieve a damaged section of rope, the idea is to put the damaged section at the top of the centre loop. When the knot tightens, the strain is taken by the left and right sections, with the amount running through the centre section significantly reduced.

**NEVER** use a damaged rope to support someone's weight, as a safety line, or any other situation that is safety-critical. Even though you can relieve tension on a damaged section with a sheep shank, **the rope is still damaged** and cannot be relied upon!



**Decorative Fusion Knots.** If you want to get pretty with knots, this book guides you through some very nice decorative knots. All of the previously mentioned sources go some way into pretty knots (Turk's Head, Monkey Fist, and so on), but this book is all about looking nice. Some knots, especially the sinnets, have a use beyond decoration. It is off the beaten path, with a number of knots that are unique to the book.



**The Web.** We've already touched on the Scouts' website, but the Web has many pages dedicated to knots, lashings, and pioneering.

**Remember to keep yourself safe when you are using the Internet.** If you are in any doubt, ask a parent or other responsible adult for assistance.



**YouTube.** Another Internet resource, YouTube has many tutorial videos on knots, lashings, and pioneering projects. Again - **remember to keep yourself safe!**

## Knotty Terms

**Bend.** A knot used to join two ropes.

**Bight.** A loop in the rope that does not cross itself.

**Dressing.** Arranging and tightening a knot after tying it, to make it look neat and make sure it is functional.

**Frapping Turns.** Turns made around a lashing to pull the loops of the lashing tightly together.

**Hitch.** A knot that attaches a rope to an object.

**Lashing.** A sequence of knots, loops, turns, etc. to bind two or more objects together.

**Loop.** A loop in the rope that does cross itself (aka, crossing loop).

**Splice.** A method of joining two ropes together by untwisting their strands.

**Standing End.** The end of the rope you're not working with when tying a knot.

**Whipping.** A binding around the end of a rope to stop it fraying.

**Working End.** The end of the rope you are working with when tying a knot.

## Resources

Before we get onto lashings, here are some useful resources you can use to find out more about knots and lashings and their usage. Everything from the simple knots we're talking about in this booklet, to amazing complex decorative knots can be found - a knot for every occasion!

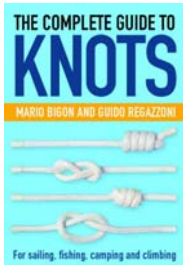
Note that none of these are needed to meet the requirements of the Pioneer Activity Badge or the Outdoor Challenge Badge - they are just listed here for anyone that has been bitten by a knot bug they want to feed.



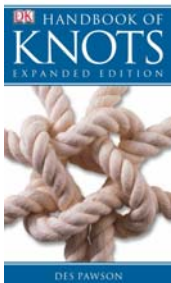
**Scouting Website.** The Scouting website ([members.scouts.org.uk](http://members.scouts.org.uk)) has a lot of resources for just about everything Scouting - including Activity Badges, Challenge Awards, and downloads to help you work



**Knots And Their Uses Cards.** Available through the Scout Shop ([shop.scouts.org.uk](http://shop.scouts.org.uk)), this pack of 50 cards covers a lot of knots, each card colour-coded by a general usage category. The cards are very nicely done, but unfortunately the pack omits lashings. Dropping some of the more esoteric knots in favour of some of the basic lashings would have made this pack perfect for a Scout.



**The Complete Guide to Knots.** A relatively old book now, I find this still to be one of the most complete guides. No lashings, but plenty of information on all manner of knots, splices, and whippings. It is probably a bit too in-depth for a Scout, but it is an interesting book with a lot to say (a whole section on bowline variations!! Knot-geek city!)



**Handbook of Knots (Expanded Edition).** This is the perfect pocket reference for all of the knots anyone that is not a specialist might need. Very clear, very informative, with a good selection of knots, splices, whippings - and lashings! The Complete Guide might be more in-depth and... complete when it comes to knots, but this little book has the casual knot user covered.

## Knot 5. Clove Hitch

**Use:** To secure a rope to a pole or similar object.

This is an important one to learn, as it forms the base for starting and ending most lashings!

1. Pass the working end of the rope over then under the pole.



2. Bring the working end around, and pass it underneath itself. This forms a half-hitch.

3. Bring the working end under the pole again. We're going to do exactly the same as we did in Step 2, because...



4. ...two half-hitches make a whole hitch!

5. Pull tight! You should have that nice, neat slanting "H" shape.



If you pull either end of your rope, you'll see that while the clove hitch grips, it isn't that tight. You shouldn't use it to take strain. This is why it is good to start and end lashings, but not good as a lashing itself.



A variant on the clove hitch is the **constrictor knot** (see left). To tie this knot, simply tuck the working end around and under the loop of the first hitch. Under strain, the constrictor knot will tighten itself (hence the name), and won't slip like a normal clove hitch does.



Constrictor knots are not used often in lashings because they become harder to untie as more strain is put through them. You'll end up having to cut your lashings loose, instead of untying them neatly!

A variant of the constrictor is the **boa knot**. Essentially, this is a constrictor knot with the loops of the hitches doubled, adding strength.

## Knot 6. Timber Hitch

**Use:** For tying a rope to a cylindrical object, the knot being easy to untie even after being under strain. It's ideal for dragging logs etc., and also is the knot that starts the diagonal lashing.



1. Bring the working end of the rope underneath the pole and around.

2. Pass the working end underneath the standing end, then back up.



3. Twist the working end underneath itself (left). You can add more twists for a more secure hitch (right) - but don't go too wild!



The timber hitch works under tension, as the standing end is pulled "up" the pole, making the hitch bite into itself at an angle. When tension is dropped, the knot is easily untied, as it doesn't tighten under strain - no tension, loose knot.

The knot is also loose under tension in virtually every direction except along the object it is tied to. Because of this, a half-hitch is often added in front of the timber hitch. The half-hitch keeps the standing end to the timber hitch aligned



When used to start a diagonal lashing, the timber hitch is pulled tight and held in place by the turns of the lashing. It makes tying a diagonal lashing a lot easier if you understand how a timber hitch works, as described above.

If you take your lashing rope the wrong way around the initial timber hitch, you'll find it a lot harder to start. But, more on this later!

## Simple Stopper Knots

**Use:** For stopping a rope passing through a loop or hole; for stopping the end of a rope from fraying; for providing handholds on a rope; for adding bulk to the end of a rope...



**Overhand Knot.** Make a crossing loop in the rope, and twist the working end through it. Pull tight!

This is the basic knot that everyone knows. It's also known as the thumb knot. You can double or treble it, too.



**Figure of Eight.** Start by making a crossing loop as with an overhand knot, but instead of twisting the working end through take the working end under the whole loop, back up, and then through. The figure of eight knot has more bulk than an overhand knot, is stronger, and, let's face it - a lot prettier.



**Fisherman's Knot.** If you want to attach two relatively thin lines or ropes of equal thickness together, you can do this quickly and easily using the fisherman's knot.

I've put this knot here with the stopper knots because a fisherman's knot is simply two overhand knots tied to stop each other passing through.



1. Lay the lines to be tied parallel.

2. Tie an overhand knot in one of the lines, so that the loop of the knot passes around the other line.



3. Do exactly the same with the other line.

4. Pull both lines. The two overhand knots will slide along the lines until they meet, at which point they will stop each other going any further.



Stopper knots in action!