



Scout

“Knot Master”

Guide

Acknowledgment:

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BSA Troop 610
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“Knot Master” Program



Knots are a skill taught at every level of Scouting. The “Knot Master” program is designed to provide each Scout an opportunity to learn essential knots, as well as the fun knots that you can use to amaze your friends. The purpose of this program is to give Scouts an incentive to maintain their knot tying skills after they have had their skills checked for rank advancements. There are also several knots within the program that are not required for rank advancements but which are nonetheless useful.

As an aid to learning the knots, each Scout is awarded with a five foot piece of white rope. After completing Level One, the Scout is awarded with a “D-Ring” and taught the special method for tying the five-foot piece of rope to the D-Ring (the ‘carry’ knot). This now allows the Scout to carry the rope at all Scout functions, and displays his success in completing Level One. In addition, it provides one more element of “Be Prepared,” for there are countless uses for a five-foot piece of rope.

From here the Scout can continue to progress through the remaining levels of the program. Each rank introduces a new set of knots to be learned. In order to advance a level an individual must complete all of the knots he mastered in previous level advancements, plus the new knots required for the rope level that he is attempting to achieve. This means that if an individual is attempting to achieve the level of green rope, he would have to tie all of the knots required for the white, yellow, and green rope levels.

Level advancements will be offered at all campouts and the first meeting of each month. Only two tries will be allowed, at which point the Scout must wait until the next opportunity to try again. There must be two judges for advancement trials, and both must be at least one rope level higher than the Scout that is testing. The exception being that “Knot Master” can act alone as judge if he so chooses.

The highest level of Knot Master can only be earned upon reaching the rank of Eagle Scout. At that point the scout can wear the Red, White, and Blue rope.

Enjoy your knot tying adventure.

**BSA Troop 610
Thiếu Đoàn Lam Sơn**



Level One – White Rope

This level introduces four the eight basic knots of scouting. These knots are the most common used throughout scouting and for the rest of your life. In addition, these are the basis for future knots and lashings. Requirement: four knots in four minutes.

Square Knot



The Square Knot is a common and simple binding knot. It is used to connect two ropes of equal size. You can loosen the square knot easily by either pushing the ends toward the knot or by "upsetting" the knot by pulling back on one end and pulling the other through the loops.

Sheet Bend

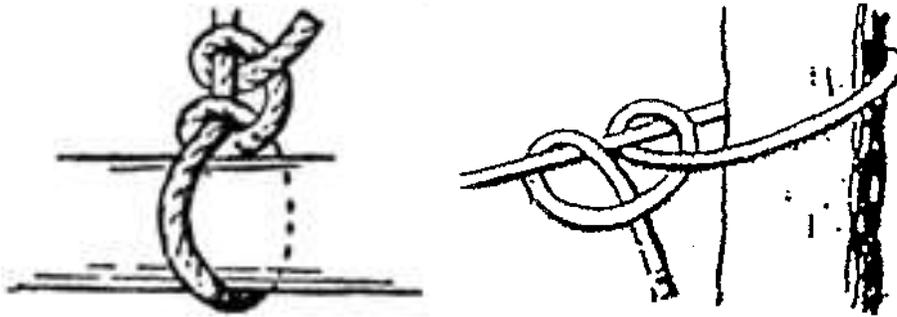


The sheet bend is the most important knot for joining two rope ends, especially if the ropes are of different sizes. Sailors named it in the days of sailing ships when they would "bend" (tie) the "sheets"(ropes attached to the clew of the sail).

Begin with a bight in the larger rope. Then weave the end of the smaller rope through the eye, around the bight, and back under itself. Snug it carefully before applying any strain to the knot.

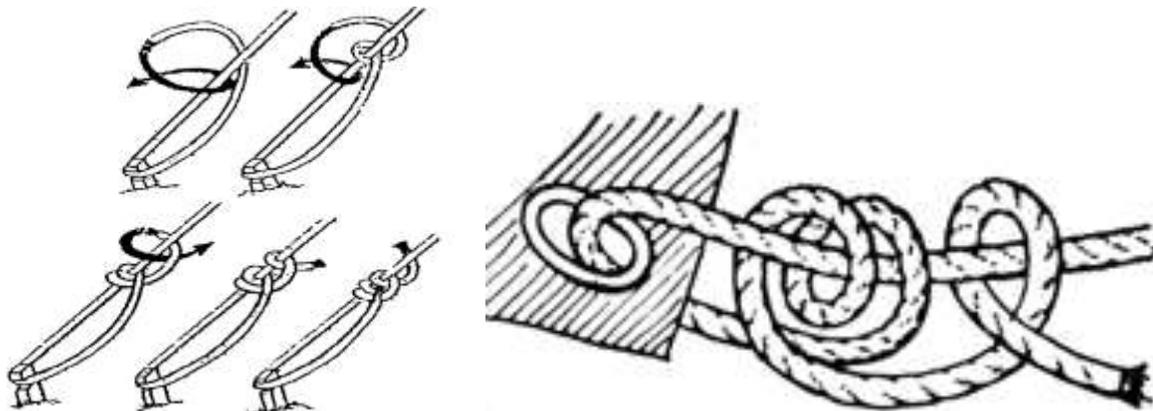


Two Half Hitches



This is a reliable and useful knot for attaching a rope to a pole or boat mooring. As its name suggests, it is two half hitches, one after the other. To finish, push them together and snug them by pulling on the standing part.

Taut-line Hitch



The Taut-line hitch is an adjustable loop knot for use on lines under tension. It is useful when the length of a line will need to be periodically adjusted in order to maintain tension. It is made by tying a Rolling hitch around the standing part after passing around an anchor object. Tension is maintained by sliding the hitch to adjust size of the loop, thus changing the effective length of the standing part without retying the knot. It is typically used for securing tent lines in outdoor activities involving camping.

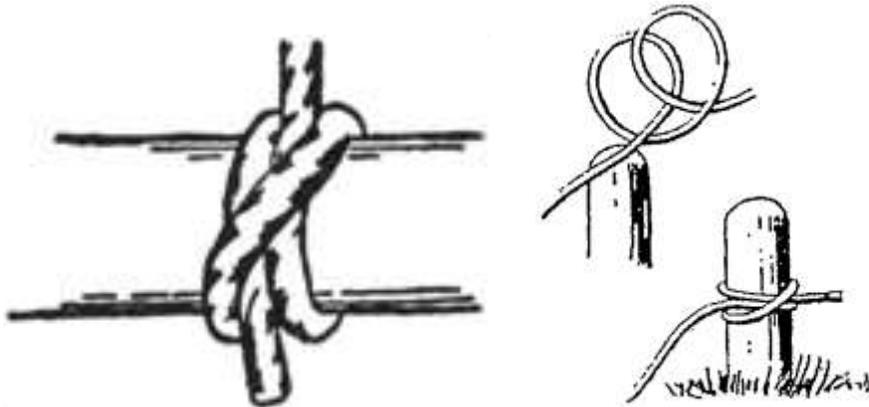
Pass rope around the peg. Then bring the end under and over the standing part and twice through the loop formed. Again, bring the rope end under, over, and through the loop formed. Tighten the hitch around the standing part.



Level Two – Yellow Rope

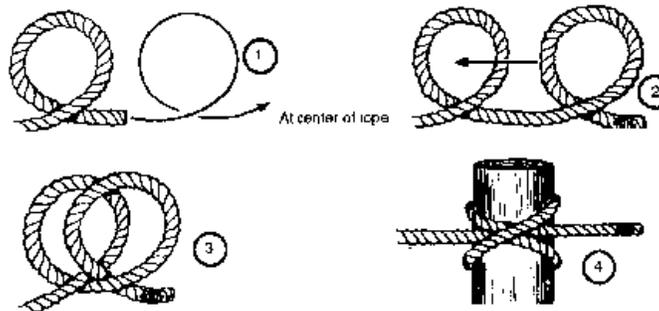
This level completes the eight basic knots of scouting. These knots are the most common used throughout scouting and for the rest of your life. In addition, these are the basis for future knots and lashings. Completion time seven (7) minutes.

Clove Hitch



The clove hitch, along with the bowline and the sheet bend, is often considered one of the most essential knots. It consists of two identical half hitches made successively around an object. It is most effectively used as a crossing knot. Although it can be used as a binding knot, it is not particularly secure in that role. Because it passes around an object in only one direction, it puts very little strain on the rope fibers.

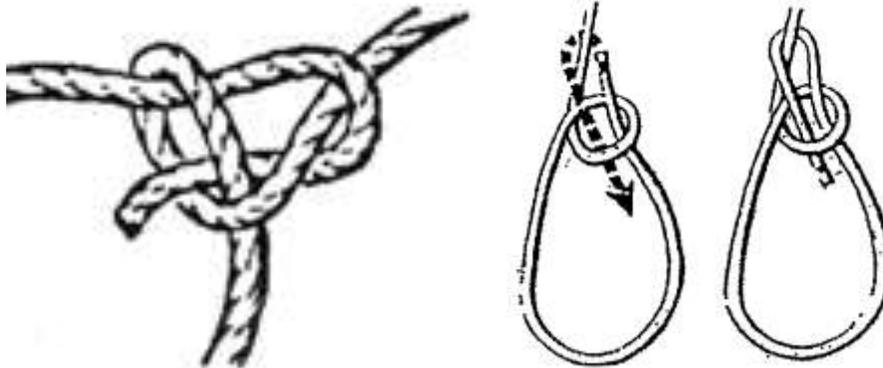
Clove Hitch on a Bight



Knots “on a bight” means without access to the ends of the rope. The nearest there is to a general utility hitch. It is easy to tie in a number of different ways and to untie. It has a wide variety of uses.

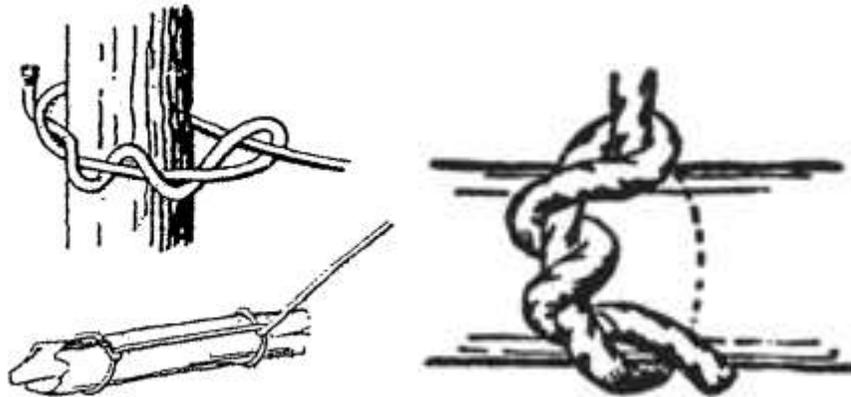


Bowline



The bowline has been called the king of knots. It will never slip or jam if properly made and, thus, is excellent for tying around a person in a rescue. Begin by forming an overhand loop in the standing part. Then take the free end up through the eye, around the standing part and back where it came from.

Timber Hitch



The timber hitch is a knot used to attach a single length of rope to a piece of wood. This is an important hitch, especially for dragging a heavy object like a log. It will hold firmly so long as there is a steady pull; slacking and jerking may loosen it. The timber hitch is also useful in pioneering when attaching two timbers together. When it is used for dragging, a simple hitch should be added near the front end of the object to guide it.

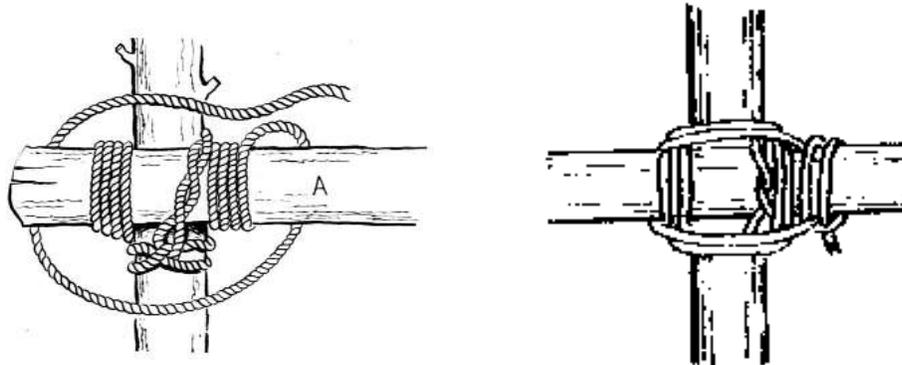
To make the knot, pass the rope completely around the wood. Pass the running end around the standing part, then through the loop that you have just formed. Make three turns around the loop then pull on the standing part to tighten. Take care that you double the rope back on itself before making the three turns, or it won't hold. Three are recommended for natural rope such as jute, whereas five turns are needed on synthetic rope like nylon.



Level Three – Green Rope

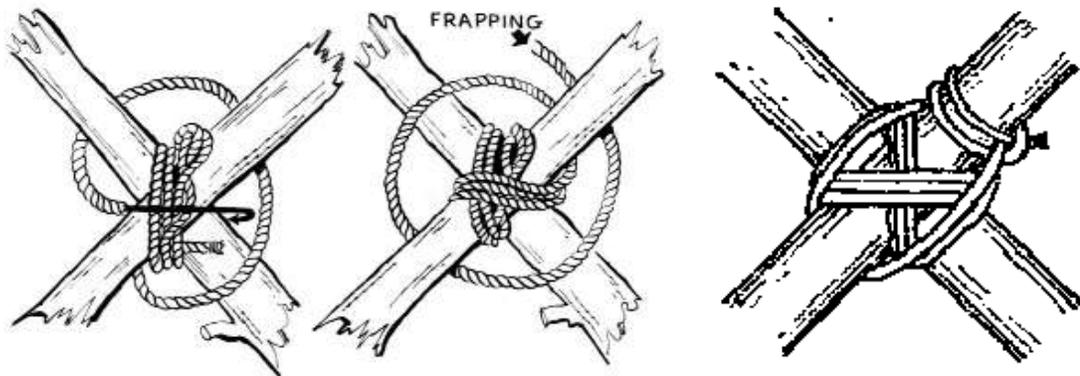
Level three consists of four lashings that start with a clove or timber hitch. The lashings are for pioneering activities like tripods, flag poles, towers, and bridges. Completion time twelve (12) minutes.

Square Lashing



A Square Lashing is used to hold two poles that cross each other (usually at a 90-degree angle although not necessarily).

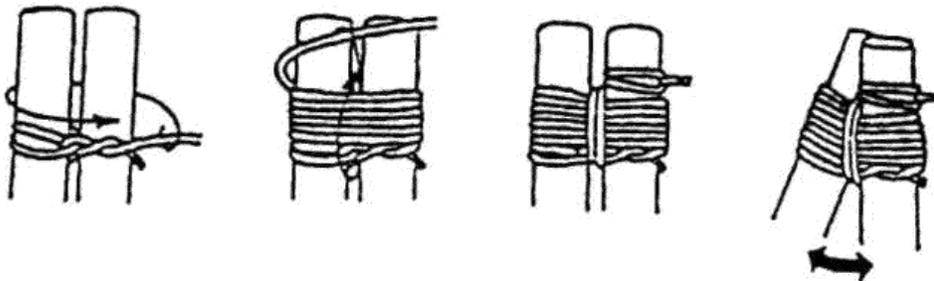
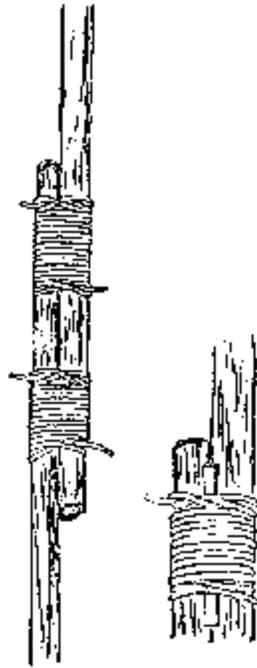
Diagonal Lashing



A Diagonal Lashing is used to bind two poles together that cross each other but do not touch (or are likely to be pulled apart) when their ends are lashed in place in a structure. Often used for securing diagonal braces used to hold a structure rigid.



Sheer Lashing

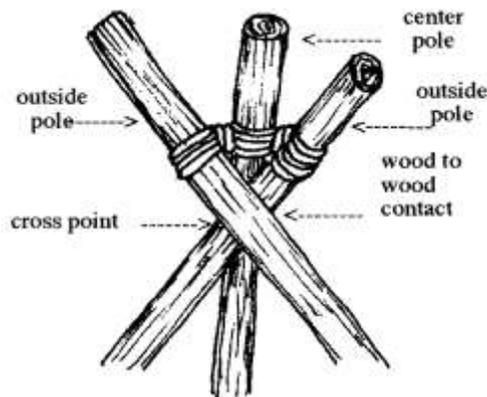


A sheer lashing is often used to bind adjacent poles together. It is also a good way to reinforce a broken or weak pole. The frapping turns are used to tighten the lashing.

A loose Sheer Lashing made around the ends of two poles will allow the poles to be opened out and used as an A-frame.



Tripod Lashing



The tripod lashing is a shear lashing that binds three poles together at the same point. The tripod lashing gets its name from the fact that its most common use is the construction of a tripod. The tripod lashing can be used just about anywhere in a structure that three poles cross each other at the same point and at the same time in the sequence of construction. Tripod lashing takes two main forms; with racked wrapping turns (the rope is woven between the poles) and with plain wrapping turns (the rope is wrapped around the poles without weaving the rope between the poles). When the lashing is made with racking turns the rope contacts each pole around its entire circumference; this contact makes the tripod lashing with racking turns the most secure form of tripod lashing; therefore tripod lashing with racking turns should be used when safety is important. However, for light structures where there would be no danger if the lashing slipped, the faster to tie tripod lashing with plain wrapping turns may be used.



Level Four – Blue Rope

Level four consists of a utility knots frequently used for climbing or rappelling. These knots are a bit more difficult and will prove to be useful in various situations. Completion time nineteen (19) minutes.

Figure Eight Knot



The figure-eight knot is very important in both sailing and rock climbing as a method of stopping ropes from running out of retaining devices.

Fisherman's Knot



The Fisherman's knot is a specialized bend. It consists of two overhand knots wrapped around each other. It requires little dexterity to tie, so is often used in stubborn materials. When tightened, it becomes fairly compact, and the free ends can be cropped very close to the knot. These qualities make it very useful for fishing line--it is less likely to jam a fishing rod, and is easier to tie with cold, wet hands.

To tie the fisherman's knot, lay the two ends to be tied alongside each other and facing opposite ways. Tie an overhand knot on the first rope and pass the second rope through the loop formed. Tighten the overhand knot, to prevent the line inside it from flopping around. Then tie another overhand knot on the second rope with the first rope passing through it.

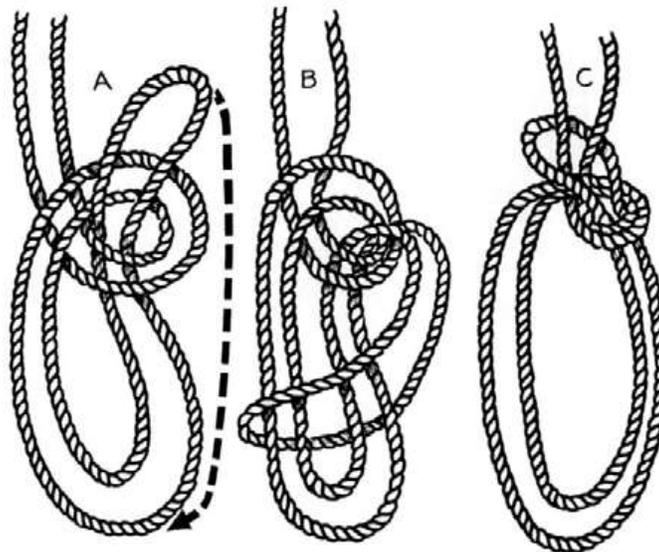


Water Knot



The water knot is arguably the strongest knot you can tie in webbing. It is useful for tying the ends of webbing together to make loops and slings. Tie an overhand knot in one end of the webbing. Retrace the knot in the opposite direction with the other end of the webbing. The ends should be left at least three (3) inches (7.6 cm) long and the knot should be "set" by tightening it with full body weight. Inspect water knots before each use.

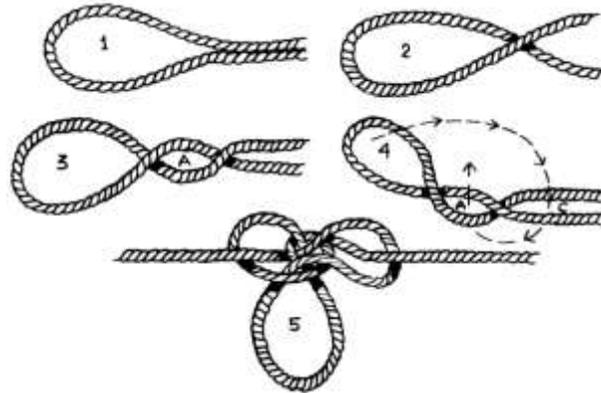
Bowline on a Bight



The bowline on a bight forms two loops, but they must be of the same size. Start by making a good-size bight and an overhand loop. Bring the end loop and bring it down and around the entire knot. Set the knot securely before putting weight on it.



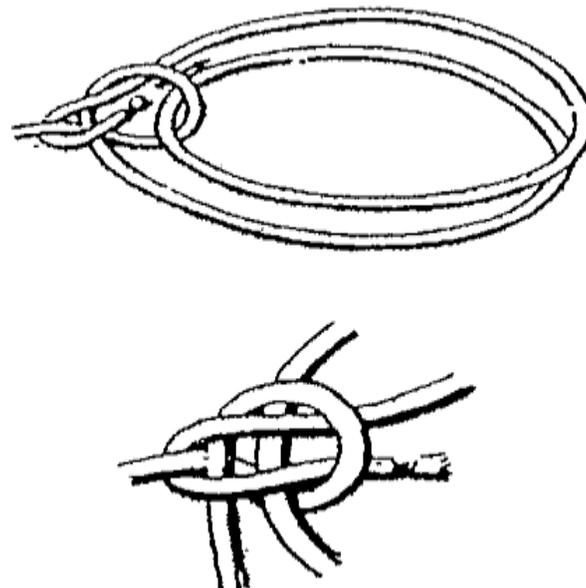
Alpine Butterfly



The Alpine Butterfly provides a secure loop in the middle of a piece of rope. Load can be safely applied: from the loop to either end of the rope; between the two ends with the loop hanging free; or, to the loop with the load spread between the two ends.

It is useful anytime a secure loop is required in the middle of a rope. A good example is when a line of hikers wish to hook on along the length of a shared rope.

French Bowline



This is a double bowline because it provides two non-slip loops (which can be of different sizes). With it a person can sit in one loop and have the second loop as a back support, leaving his hands free. It is excellent for rescue work or for seamen working over the side of a ship. Begin by making an overhand loop as in the regular bowline. But then pass the end through the “eye” twice before bringing it back around the standing part and through the original eye. (The bottom drawing shows details of the final knot.)



Level Five – Red Rope

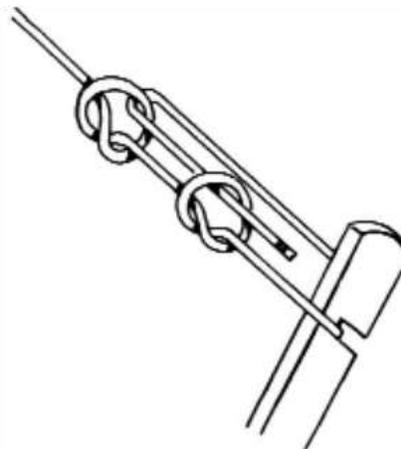
Level five utility knots can prove to be useful in various situations. The Bowtie knot is included to demonstrate an unique knot that has an interesting history.

Surgeons Knot



The surgeon's knot is a simple modification to the square knot. It adds an extra twist when tying the first throw, forming a double overhand knot, thus adding friction which makes the knot more secure. This knot is named for the fact that it is commonly used by surgeons in situations where it is important to maintain tension on a suture. Surgeon's knots are used in fly fishing as well as in tying packages.

Guy Line Hitch

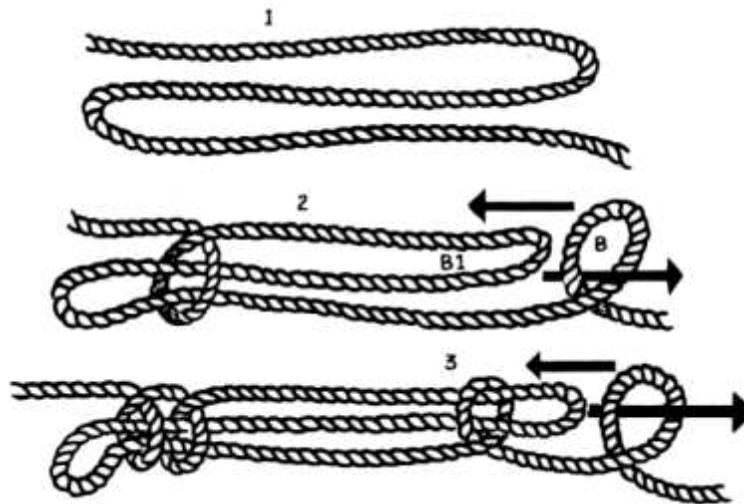


As its name suggests this knot is used in securing tent guy lines or guys for pioneering projects and larger gadgets. It is started by casting two overhand knots in the rope some distance apart, the running end is then passed around the peg, carried upward, then down through the two overhand knots. The knots are then pulled tight. The guy line is lengthened or shortened by loosening the two hooks and adjusting the running end.

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Sheepshank



This knot is used to shorten a rope that is fastened at both ends. Take up the slack, then make an underhand loop and slide it over the blight and pull tight. Do the same to the other end to complete the knot. The sheepshank is only a temporary knot as it stands (figure 2). But it can be made more permanent by adding a second half hitch to each end (figure 3).

Bowtie Knot

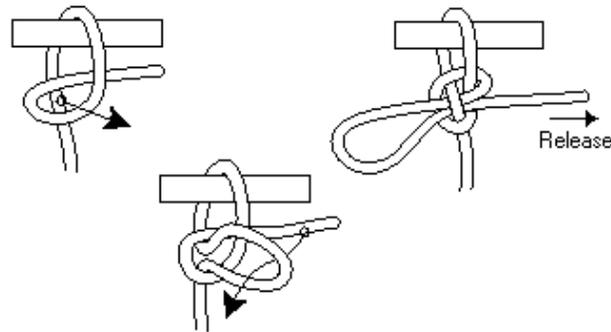


The Bowtie knots, also known as the "Tomfool Knot", is used as handcuffs and has become quite famous, owing to its having baffled a number of "Handcuff Kings" and other performers who readily escaped from common knots and manacles. It is made like the clove hitch on a bight, and then the loops are passed through the open so as to form a double loop or bow. If the hands or wrists are placed within these loops and the latter drawn taut, and the loose ends tied firmly around the central part, a pair of wonderfully secure handcuffs results.

The knot is also known as a *hobble knot* for similar reasons, from the idea that the knot was sometimes used on the legs of horses to limit the distance their riders had to walk in the morning to retrieve them.



Mooring Hitch



This is a good knot to moor a boat because it can be released quickly. It also holds fast. It is difficult to tie under tension. The mooring hitch is a slippery knot that gives a secure hitch.

Tiller's Hitch (SLIPPERY SHEET BEND)

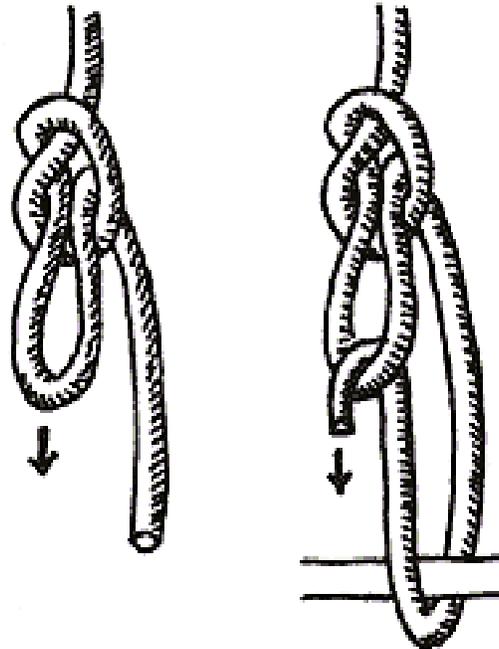


The slippery sheet bend is simply an ordinary sheet bend with a bight left in the smaller rope. This bight makes it "slippery" because it can be untied quickly, merely by a tug on the free end of the rope. It is a valuable knot for use when you expect to tie and untie it often.

A tiller is the "steering wheel" of a sailing vessel and is simply a long handle that's attached to the top of the boat's rudder (the piece in the water that causes the boat to change direction when it is moved). Sailor's want to have control over that tiller for it can mean disaster if it's not under control. However, not all things are perfect at sea (or life) and sometimes you have to make a "second-best" decision, like having to leave the tiller for a moment. You simply can't leave the tiller "loose" so the next best thing is to tie it down, hopefully in a position that will have the boat moving in the direction you want it to be going while you aren't holding the tiller for that short interval. So what kind of knot could you use that would be a good holding knot, yet immediately released when you get back to it.



Truckers Hitch

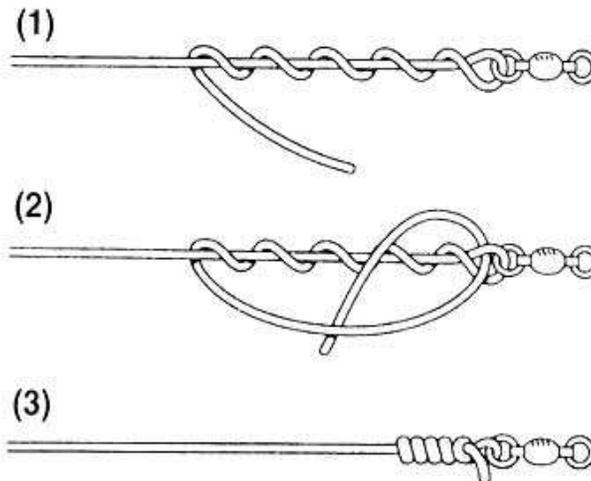


The Trucker's Hitch has the distinctive feature of providing a three to one mechanical advantage when being tightened. It is a valuable knot - particularly for securing loads or tarpaulins.

There are several variations of the knot, all of which use a loop in the standing part of the rope as a make-shift pulley in order to obtain a 3 to 1 mechanical advantage. The diagram above is widely used today. It is composed of three parts: a loop, a purchase, and two half hitches. An eye is formed by twisting the rope after which a loop is passed through the eye. The purchase is then created by passing the free end round the hook and then back through the loop. After tightening, the tail is used to tie two half hitches below the original loop.



Cinch Knot (Improved)



The Clinch knot provides one good method of securing fishing line to a hook, lure, or swivel. The "improved" version used here includes an extra tuck under the final turn. It is commonly used to fasten the leader to the fly. It is not recommended if you are using over 12lb test line.

1. Pass line through the eye of the hook, swivel, or lure. Double back and make five turns around the standing line.
2. Holding the coils in place, thread end of line around first loop above the eye, then through the big loop.
3. Hold tag end and standing line while pulling up coils. Make sure the coils are in a spiral, not lapping over each other. Slide tight against the eye.
4. Clip tag end.

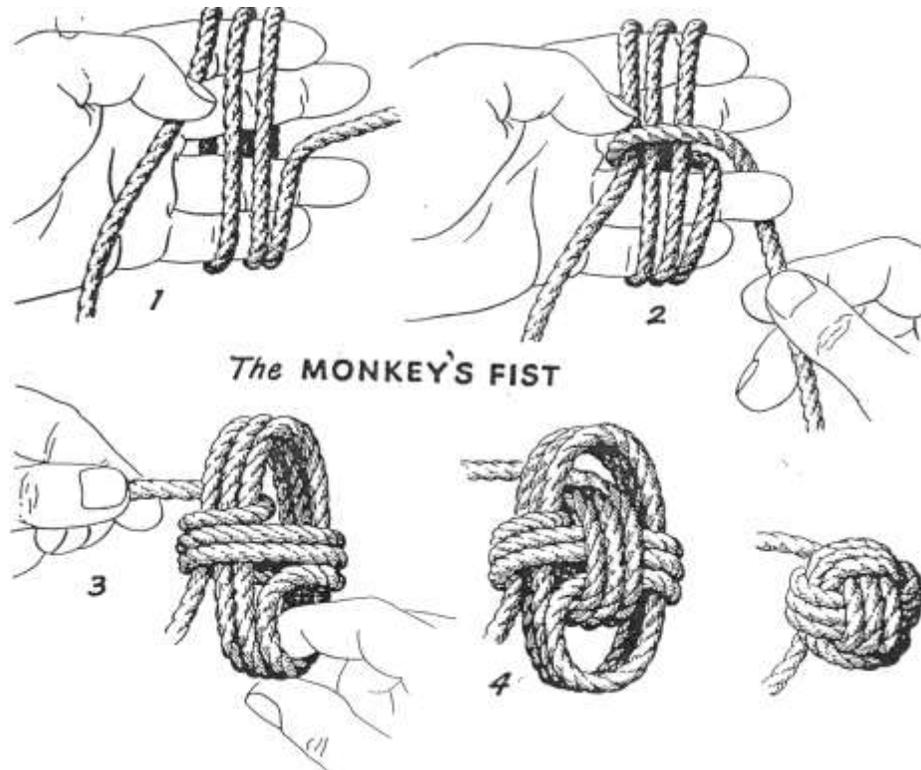
When tying it, it is important to wind the loops as a neat spiral round the standing line. Hold the loops under your fingers as you wind the line on.



Level Six – Brown Rope

Level six consists of a combination of decorative, and useful knots. These knots will challenge your knot tying capability and prepare you for the “Knot Master” level. The Turks Head, or “Woggle” is the most popular because of its use as a neckerchief slide.

Monkey’s Fist

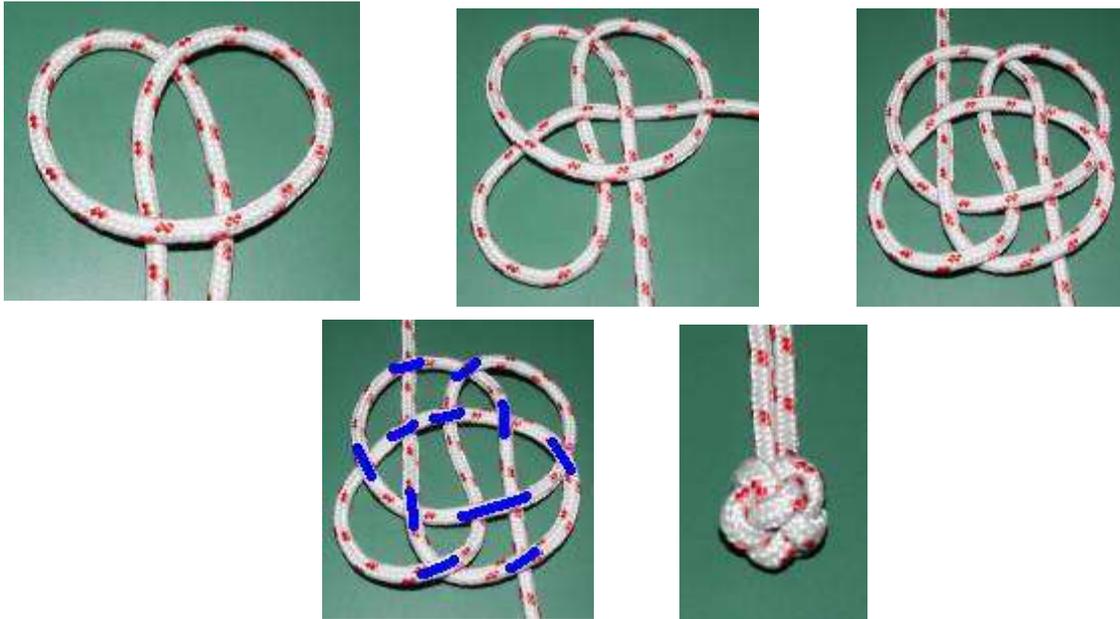


A monkey's fist is a type of knot, so named because it looks somewhat like a small bunched fist/paw. It also looks somewhat like a volleyball. It is tied at the end of a rope to serve as a weight, making it easier to throw the line, and also as an ornamental knot. This type of weighted rope can be used as an improvised weapon, called a slungshot by sailors.

The knot is usually tied around a small weight, such as a stone, marble, tight fold of paper, or a piece of wood. A thicker line will require a larger object in the center to hold the shape of the knot. Another variation of the monkey's fist knot omits the use of an external object as a weight and rather uses the spare end which gets tucked back into the knot. This results in a nicer looking knot of a lesser weight, minimizing the potential danger of hitting someone with the knot when hauling line.



Chinese Button

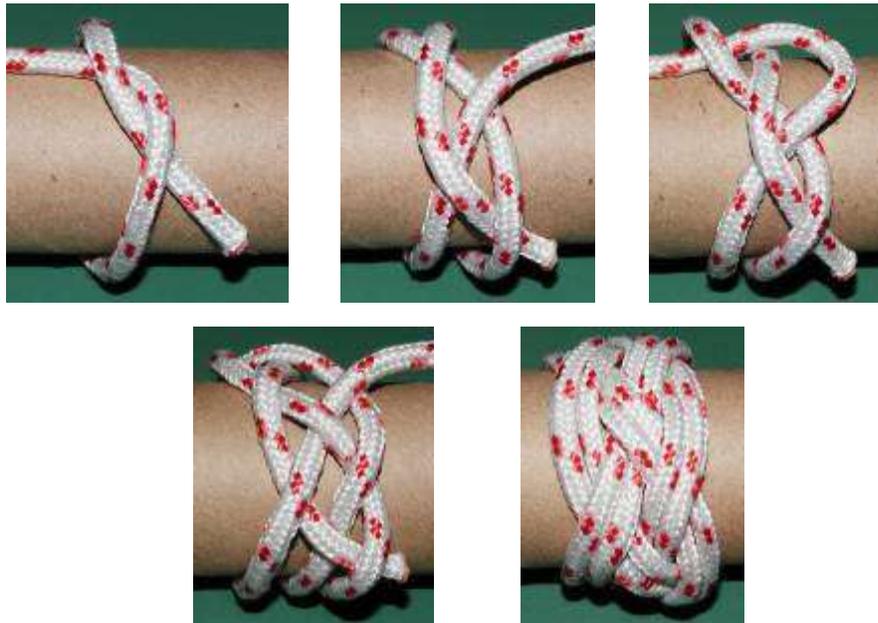


This was the knot which Chinese tailors traditionally used as buttons on jackets. To tie this knot, lay out the rope on a table and follow the over and under sequence exactly as in the pictures. It looks complicated, but just take it step by step. Picture 4 is identical to picture 3, but with blue lines to indicate more clearly which parts of the rope cross over other parts of the rope. After you tie the knot as in picture 3, slowly and carefully tighten the knot and work it into a button shape (picture 5).

A variation of this knot can be used as a lanyard knot.



Turks Head



Turk's Head knots are often tied around cylindrical objects. To tie a Turk's Head around a post of some kind, first tie a basic Overhand Knot around the object (picture 1). Bring the working end of the rope behind the object (to the left of the Overhand Knot and around to the front at the bottom of the object, then thread it through the Overhand Knot as in picture 2. Bring the working end back towards the left, over the first strand and under the second strand (picture 3). Now bring the working end behind the object (to the left of the knot) and around to the front at the bottom again, then thread it over-under-over as in picture 4. Now bring the working end behind the object (to the right of the knot) and around to the front at the bottom, and you have completed a Turk's Head. If you thread the working end of the rope through the knot again, precisely following the original path, then tighten carefully, you will have a two-ply Turk's Head (picture 5).



Daisy Chain



Like the Braid Knot, this can be used as a decorative "pull" at the end of a rope or string, or as a "friendship braid," or as a decorative handle, and so on. To tie this knot, start somewhere in the middle of the rope by tying a Slip Knot (picture 1). Push a bight from the end of the rope through the loop of the Slip Knot (picture 2), and continue pushing a new bight through each previous bight, working your way towards the end of the rope. Push the end of the rope through the final bight in order to "lock" the Chain Stitch (picture 3). To untie this knot, simply remove the end of the rope from the final bight, then pull both ends of the rope apart from each other. This will untie all of the Slip Knots. Kids love this one because all of the knots seem to "magically" disappear at once when both ends are pulled!



Braid Knot



This can be used as a decorative "pull" at the end of a rope or string, or as a "friendship braid," or as a decorative handle, and so on. To tie this knot, start by looping the rope around twice in order to create three strands to work with (picture 1). Begin "braiding" the three strands (just like braiding hair) by bringing the bottom strand over the center strand, then bringing the top strand over the new center strand (picture 2). Continue alternating in this way (picture 3) until you have braided as far as you can go (picture 4). As you are braiding the rope, the end of the rope will become twisted and tangled (which is starting to happen in picture 2). Simply pull the end of the rope out of the tangle periodically (picture 3) to keep it untangled.



Other Interesting Knots

Square Sinnet



The Square Sinnet uses 2 strands of cord; you can use the same color or 2 different colors for a combined finish. The result is useful as a fob or terminator with squared shape. If you want to leave a small lace of paracord in the end then you should plan the length before starting the knot, you can use a small rubber band to separate the lace from the rest of the cord. If you want to install a solid ring you also have to do it before starting the knot.

Round Sinnet



This is a variation of the square sinnet that produces a cylindrical result instead of a square, the paracord strands doing spiral waves.

It has a nice look when you combine strands of paracord of different color. The procedure to create this knot is almost identical to the square sinnet but what you do in every step is slightly different basically you cross the strands of paracord instead of bending them along straight lines.



Cobra Stitch



The Cobra Stitch also known as Solomon bar knot is the star of the "flat" knots. It can be used to enhance lanyards, to create fobs, to create bracelets, to create belts, straps for bags or pouches, straps for flashlights, etc. This interesting knot can also be used to "store" paracord inside the knot itself in a way that can be easily pulled out in case of need, that is why you will often see bracelets or belts labeled with the word "survival" meaning you can use them to get cord in case of need.

The Cobra Stitch can be done with a single strand of paracord, with 2 strands or with 3 strands depending on the kind of result you want. You can leave a loop of cord outside of the cobra stitch to be used as an attachment point.



Level Seven – Black Rope

“Knot Master”

Level seven is the final level of the Knot Master program. The Level of Knot Master is achieved by combining two or more of the knots that you have learned in the previous levels and create a decorative or functional rope project. Some projects seen in the past include decorating a walking stick, key fobs made from a combination of Round or Square Sinnet and modifying the Chinese Button as a lanyard knot, or even a key fobs made from a King Cobra, which is a variation of the Cobra Knot. Some have also used paracord to make a cross.

Use your imagination and create your rope project. Once you have done so, you are a “Knot Master”.

Beware to keep proficient on all of the knots you have learned. Wearing the black rope is a symbol to all that you can be relied upon to demonstrate and teach any of the knots at any given moment.

The highest level of Knot Master can only be earned upon reaching the rank of Eagle Scout. At that point the scout can wear the Red, White, and Blue rope.



Revised October 2010

Possible Camp Gadgets

This is an opportunity to use your imagination and knot skills to create a camp gadget. Some suggestions are:

- Pack holder
- Table
- Camp entrance/gateway
- Paper Towel Holder
- Rain Gauge
- Flag pole
- Weather rock
- Trash bag holder
- Chief kit holder
- Utensil holder

Knot Resources:

<http://www.animatedknots.com/index.php?LogoImage=LogoGrog.jpg&Website=www.animatedknots.com>

<http://www.flyangleronline.com/begin/knots> Animated Knots

<http://www.noreast.com/knots/knotsindex.cfm> Animated Knots

550# cord @ \$7.00 / 100'

http://www.supplycaptain.com/index.cfm?fuseaction=product.display&product_ID=72&ParentCat=19

carabiner key chains.

http://www.laserengravedkeychains.com/large_D.htm

<http://www.strapworks.com/ProductDetails.asp?ProductCode=MSL>

Guide adapted from Troop 531, Maple Grove, MN and Troop 994, Woodstock, GA