

The Scrapboard Guide to Knots

Apparently, there are over 2,000 different knots recorded. This is obviously too many for most people to learn.

What these pages will attempt to do is teach you seven major knots that should meet most of your needs.

These knots are what I like to think of as “gateway knots”, in that once you understand them you will also be familiar with a number of variations that will increase your options.

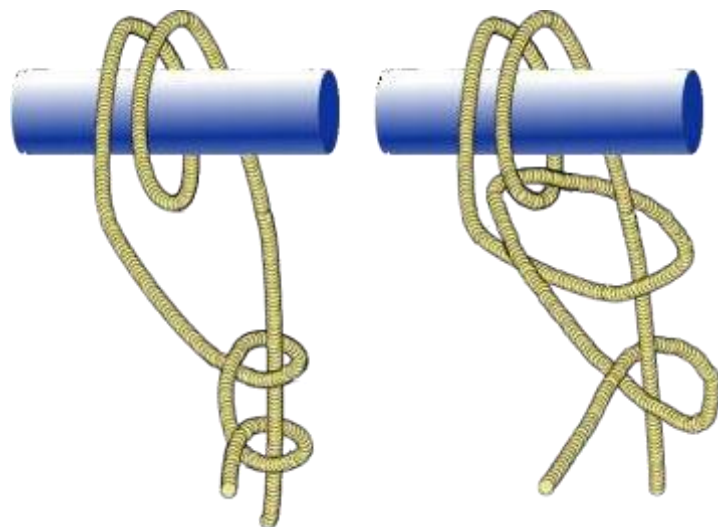
Nine times out of ten you will find yourself using one of these knots or a variant.

The best way to illustrate what I mean is to jump in and start learning some of these knots and their variations.

You may find it useful to have some string or cord handy while you are reading.

Part One: A Bowline and Two Hitches

Round Turn and Two Half Hitches



Round Turn and Two Half Hitches (left) and Fisherman's Bend (right)

The **round turn and two half-hitches** is very simple and useful knot with a somewhat unwieldy name! The name, however, describes exactly what it is.

The round turn with two half hitches can be used to attach a cord to a post or to another rope when the direction and frequency of strain is variable.

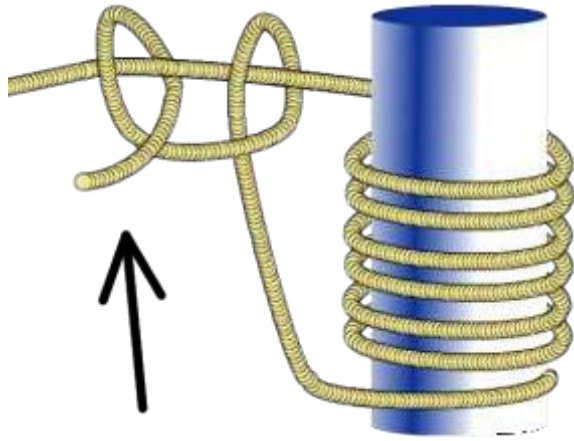
A round turn and two half hitches can be tied when one end is under strain.

If the running end passes under the turn when making the first half-hitch, it becomes the **Fisherman's Bend** (actually, a hitch).

The fisherman's bend is used for applications such as attaching hawsers.

It is a little stronger and more secure than the round turn and two half-hitches but harder to untie so do not use it unless the application really needs it.

The fisherman's bend cannot be tied while the rope is under strain.

*Pipe Hitch*

The **Pipe Hitch** is so called because it can be used to pull a pipe or post out of the ground.

It is essentially “Lots of Round Turns and Two Half-hitches”.

Note that the hitches are made on the end closer to the direction the force will be applied from.

Turned the other way up, this variant could be used to hang something from a vertical pole.

If you have enough rope, this knot could be used to attach a shelter or hammock to a tree trunk.

Double Half-Hitch

Tie a round turn and two half-hitches without the round turn and you have a double half-hitch.

Another way to tie this is to make an overhand knot around an object,

then make a half-hitch with the free end.

If you make the final half-hitch with a bight, the knot is easier to untie.

The double half-hitch can be used in place of a clove hitch, fisherman's bend or bowline. It is a primary knot used in macrame.

The Bowline

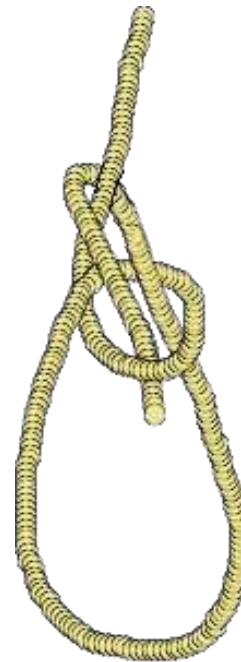
Pronounced “[boh-lin](#)” (/ˈbəʊ lɪn/) and sometimes called the “King of Knots” due to its usefulness.

The bowline forms a loop that will not change in size or tighten around what it is placed around.

The bowline is a simple knot that is easy to untie.

In Scouts, you were probably taught to tie a bowline saying a little story: “*The bunny comes up out of the hole, hops around the tree and dives back in the hole*”.

The finer points of the bowline are that the “bunny hole” needs to be made correctly and that the free end needs to be on the inside of the loop, as shown.

*Bowline*

To make the bowline correctly, make this loop so the rope crosses over the top of itself towards the standing end and bring the free end up through the loop. The running end finishes on the standing end side of the loop.

- With your right hand, take a section of the standing end and twist clockwise. This should make a loop with the upper part crossing over the top of the standing end.

Transfer the loop to your left hand and feed the running end up through the loop from below/behind. It should cross over the top of the upper part of the loop.

Take the running end behind the standing part and back down into the loop, parallel to the course it came up.

- A variation of the above method holds the very tip of the running end between the first two right fingers.

Using the right thumb and first two fingers, take hold of a section of the standing part. The back of your hand should be towards you.

Turn your right hand clockwise so the palm is toward you. The tips of your two fingers should be within the loop formed, with the tip of the cord between them.

Take the tip of the cord with your left hand, take it around the standing part and return the tip to your right fingers. Pull the running end down through the loop and complete tying the knot.

- Once you have mastered the above trick, feed a rope under your left armpit, across your back and hold the end in your right hand. Use your left hand to take the load of the rope while you tie the knot.

Place your right hand on top of the standing part on your left, with the palm down.

Make a clockwise rotation of your right hand so that it passes outside and under the standing part.

Your hand returns to the original position, palm up, before the standing end. A loop around your hand or wrist should have formed in the standing end.

Using the fingers of your right hand, pass the tip of the running end behind the standing part beyond the loop.

Pull your right hand out of the loop, bringing the running end with it.

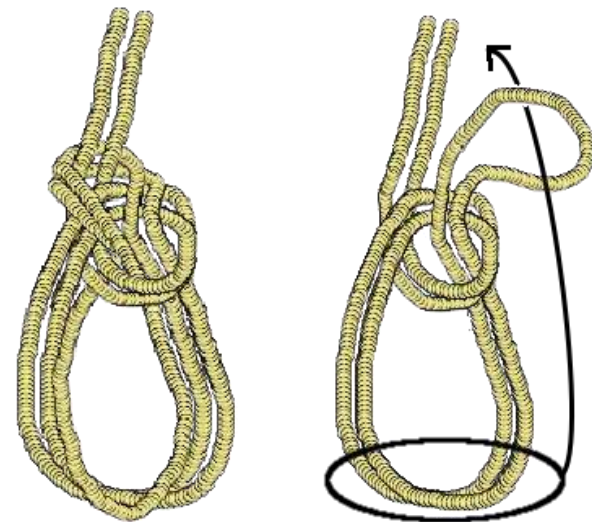
You have tied a bowline around your chest effectively using one hand!

- Also learn to tie the bowline when you are at the standing end of the rope - ie when the knot will be upside down to how it is usually illustrated.

The easy way to do this is to take a section of standing end in your left hand and twist clockwise. Hold the loop formed by holding the crossover between left fingers and thumb.

With the right hand, bring the running end through the loop from the far side. Pass the running end under/behind the standing part closest to you, then feed the running end back through the loop and away from you.

Note that with the bight towards you, the loop in the standing part is made with the right hand. With the bight away from you, the left hand is used. In either case the loop is made with a clockwise rotation of the correct hand.



Triple Bowline (left) and Bowline on the Bight (right)

Bowlines may slip with certain cord materials. If you suspect this may happen, make a half hitch or two with the running end. An overhand as a stopper in the running end may also be used, or the running end tied as an overhand around the loop.

If you tie a bowline with a doubled rope but make the running end loop as big as the other loops, you have a **Triple Bowline**, a useful knot for rescue purposes since you have a loop for each leg and one for the waist.

The **Bowline on the Bight** gives you two loops but is tied slightly differently to other bowlines. The running end loop does not pass around the standing part but instead the two main bights are passed up through it.

Large ropes are sometimes joined by entwining the two ends as though making a reef knot then tying each loop as a bowline.

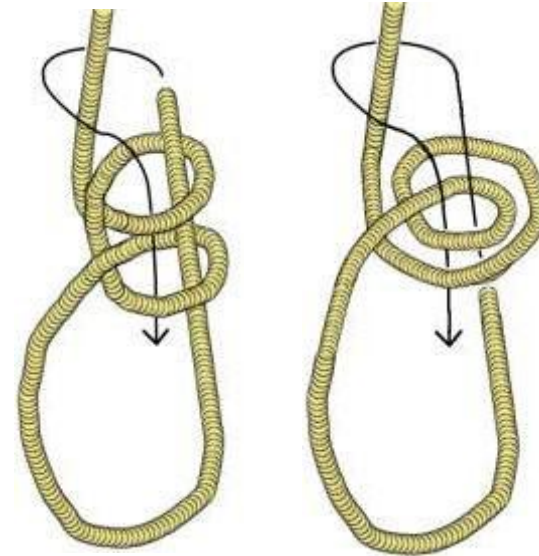
A **“Running Bowline”** is a noose made using a bowline loop as the eye.

A **Water Bowline** makes two loops in the standing part to create a clove hitch. The running part is then passed up through, around and down as normal. You can make this knot by throwing two half-hitches over the running end and then taking the running end around the standing part and back through the hitches.

The water bowline is considered more secure than the bowline, so is used when towing a load over rough terrain or through water.

The **Double Bowline** (not to be confused with the bowline on the bight) places the lower loop on top of the upper.

The double bowline is not regarded as being as secure as the water bowline but is sometimes used by climbers since it is easier to untie than a figure eight loop.



Water Bowline

Double Bowline

Timber Hitch

The timber hitch is probably one of the simplest knots but very useful in the correct context.

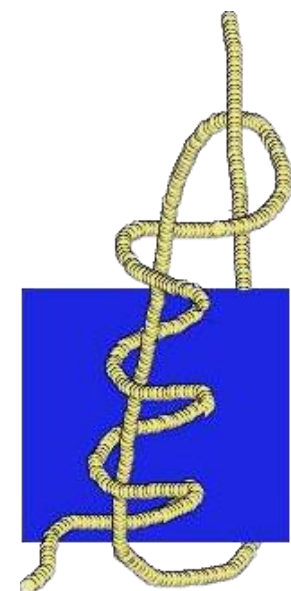
It is a reminder that more complicated is not necessarily better.

The timber hitch has great gripping power but cannot be tied while there is strain on the line. It can be easily untied.

This is a temporary or semi-permanent knot good for applications where the strain on it is fairly constant.

As the name suggests, one of its applications is for hauling logs over ground or towing them through water.

If you have ever twisted a wire into a loop, you have probably already used a timber hitch without realizing it.



Timber Hitch

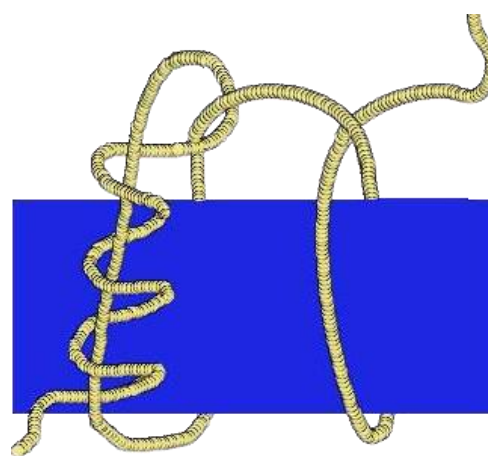
Pass the cord around the load and then loop it around the standing part. I like to make the first turn as a half-hitch. Make at least three more turns around the rope.

The timber hitch is a good knot for natural materials and can be used to bind bundles of twigs together so that they burn slower on a campfire.

It is also useful as a start to lashings for shelter construction.

At the other end of the scale, the timber hitch may be used as a starter knot when sewing. Make a single stitch and tie the free end around the part with the needle.

1 Killick Hitch



Killick Hitch.

to a log,, or make a leger weight from a stone when fishing.

If the rope makes another half hitch further down. this becomes a **Killick Hitch**.

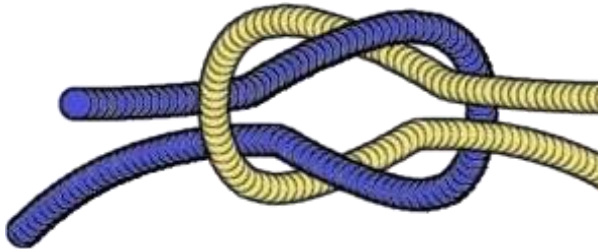
Depending on application, this hitch may be close to the first turn or some distance further down. The latter is more usual if this knot is being used to haul a log lengthways rather than perpendicularly.

The killick hitch is often suggested as a useful way to improvise an anchor for a boat. Therefore, it can also be used to lift weights, anchor a guy rope

That is three of the basic seven knots learnt already! We have learnt two useful hitches, a fixed loop, and a number of useful variations. In the next section we will learn about joining ropes together.

Part Two: Reefs and Sheets

The Reef Knot



Reef Knot

Americans often call this a “square knot” but since there is at least one other knot with that name we will use the more common term of reef knot.

This knot should be flat and both free ends should be on the same side. If this is not the case it is a Thief knot or a Granny knot and not as secure.

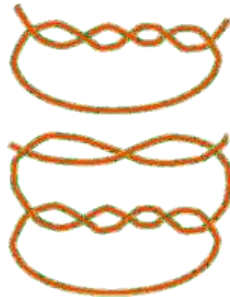
The reef knot is easily untied, but the downside is it can work itself loose.

The reef knot is not suitable for cords of widely differing diameters or slippery material.

The reef knot is also not recommended for applications where a permanent or secure join is required.

Generally, the reef knot should never be used as a bend to joint two cords. The reef knot is usually recommended for applications where the two ends of the same cord are joined together. Reef knots are therefore most useful for tying headscarves and bandages etc.

The photo below shows a clever application of a reef-type knot to prevent electrical cables or computer leads pulling apart.



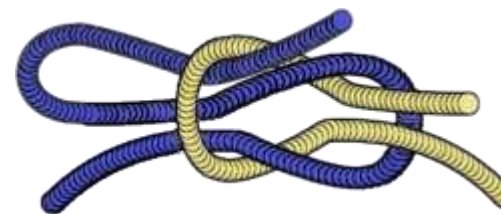
Surgeon's Knot



Traditional way to teach the reef knot is “*tie left over right then right over left*” -which just baffled me as a child, so I learnt to tie it by learning what it should look like.

The reef knot is basically two overhand knots, and if the second knot is made with doubled cord you have the knot you tie your shoelaces with. If your shoelaces frequently come undone, you may be using a granny knot.

If you make a reef knot with just one end doubled, you have tied a **Single Reef Bow** or **Draw Knot**, which is a form of quick release knot.



Single-Reef Bow

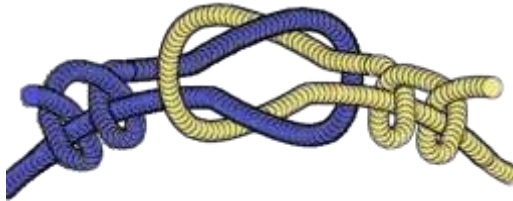
Another variant of the reef knot is the **Surgeon's Knot**. This is used for sutures, tying off blood vessels and less sanguine tasks such as jewellery making and fishing.

For ligatures, a loop of cord is passed around a blood vessel, for example. A reef

knot is tied but the first throw is made as a double overhand knot. The circle of cord is pulled tight and then the tying of the reef knot is

completed.

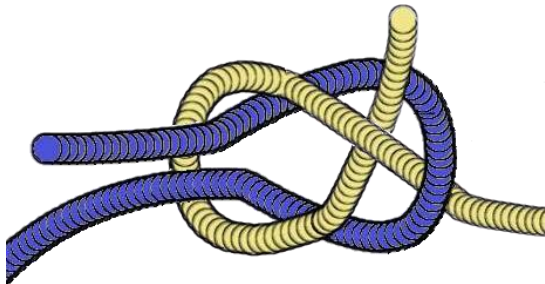
Reef knots can be made more secure by leaving long free ends and tying a couple of half hitches in the free ends, but if you really need to securely join two ends, use a fisherman's knot or sheet bend.



Reef Knot with Half Hitches

Sheet Bend

A “bend” is a knot that joins two ropes together. “Sheets” are a type of rope on a sailing vessel.



Sheet Bend

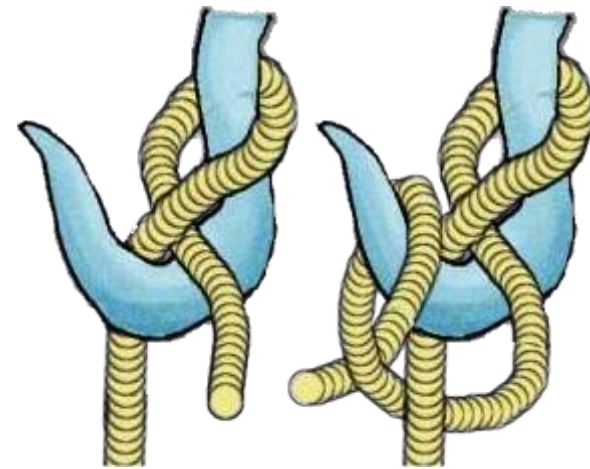
The sheet bend is best known for being used to join two cords of different diameter together, but is also useful for cords of the same size.

The sheet bend can also be tied around certain rigid objects such as a ring or spade grip.

The **Blackwall Hitch** resembles a sheet bend, and is made by making a half-hitch around the hook as shown. This is only a temporary attachment and works best if under constant load and if the rope and hook are of similar thickness.

Don't trust a human life to this attachment.

The hitch can easily be turned into a more secure knot by adding some half-hitches (*right*).



Blackwall Hitch

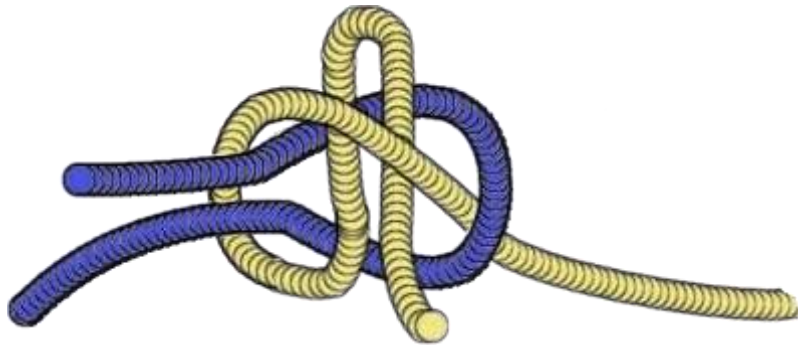
If you need to join two cords of differing diameters, the sheet bend and its variants are the knots to use.

The larger cord is just used to form a loop, while the smaller does all the twisting.

We will refer to these as the passive and active loops in the following descriptions.

In the illustrations, the passive loop is shown as a simple open loop, but it could easily be a loop formed by another knot.

The sheet bend can work loose so the addition of stop knots or half-hitches in the free ends can improve security.

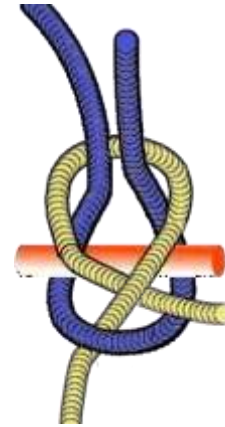


Slipped Sheet Bend

Sheet bends are not good for erratic strain.

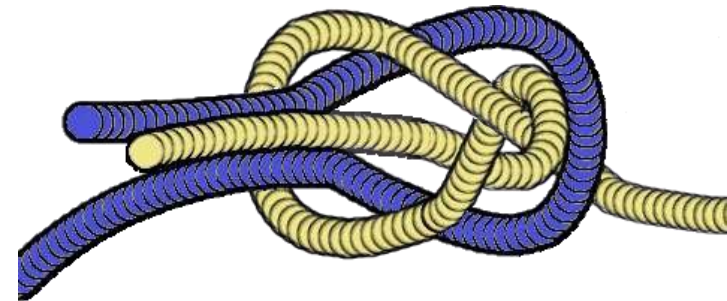
Note that like the reef knot, the free end of both loops should end up on the same side. If this is not the case, there is an increased chance of the knot failing.

If the running end of the crossing cord is doubled to form a bight, you create a **Slipped Sheet Bend**, which is a form of quick release knot.



Sheet Bend with Toggle

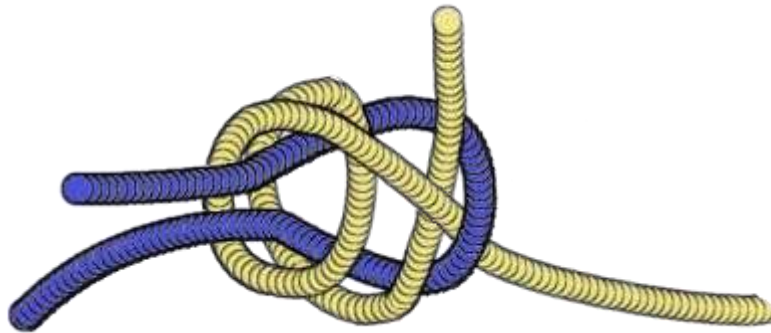
Another quick release trick is to not pull the knot taunt after tying it but to slide a stick or toggle between the two loops. If the toggle is pulled out, the loose knot can rapidly and easily be untied.



Tucked Sheet Bend

Another variant of sheet bend is the **One-way Sheet Bend** or **Tucked Sheet Bend**, which does not have one end sticking out so is less likely to snag if pulled from that direction. Useful for drawing a cord through a narrow opening or channel.

Tie the sheet bend as normal but before tightening, coil the free end of the active loop over and around the standing part and feed it into the eye of the loop. The active loop forms a figure eight shape, so this variant is also a little more secure.



Double Sheet Bend

If the larger cord is stiff, then an extra turn is made to make a **Double Sheet Bend**,

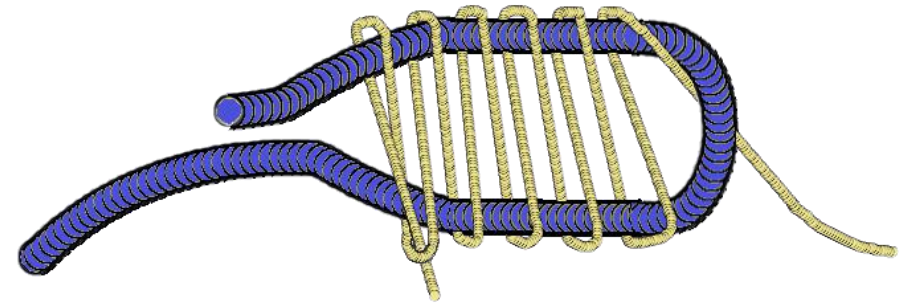
Tie a single sheet bend as normal, then take the free end of the active loop around the back of the passive loop and feed it under the standing part of the active loop once again.

If there is a big difference in cord size, then more turns can be tried.

When there is a very big difference between the size of cords, use a **Racking Bend**.

Note that the smaller cord weaves in and out in a figure eight pattern and the combined effect draws the passive loop closed.

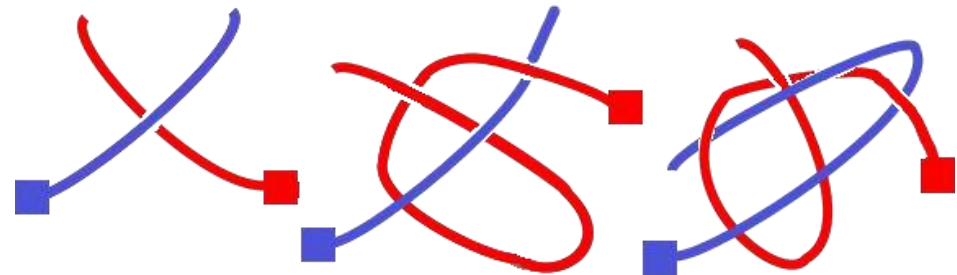
The sheet bend and its variants can also be used when the cords are of the same or similar size.



Racking Bend

Sheet bends are also known as **Weaver's Knots**, since they are employed to join two threads together by these workers.

The following method can be used:



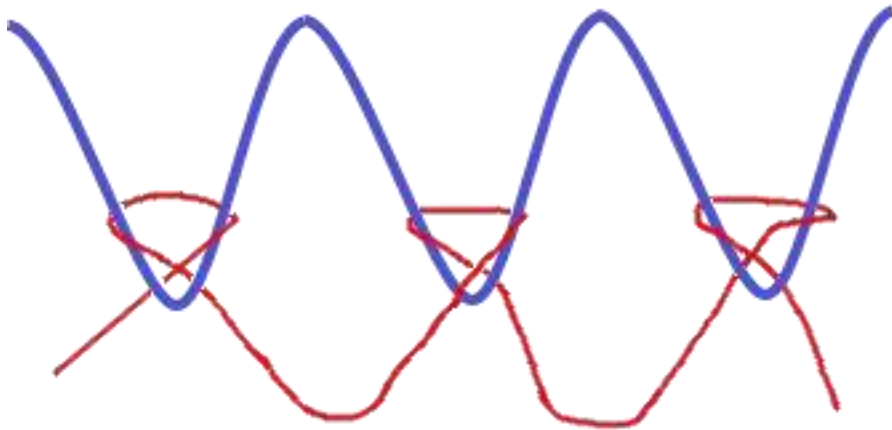
Weaver Knot

Cross the ends of two threads, with Thread A (red) coming from the right and crossing beneath Thread B (blue) from the left.

Take the standing part of A and run it behind the free end of A.

Take the free end of B and feed it through the loop formed by A, then pull tight.

The sheet bend knot is also used in the making and repairing of nets. Knotted nets can harm fish, so should only be used for sustenance survival fishing, not for sport.



Net made using Sheet Bends

- That is two more of our seven useful knots. Next, the fisherman's knot and variants.

Part Three: Overhand Knots and The Fisherman's Knot

Fisherman's Knot

The fisherman's knot is known by a wide variety of names, including fisherman's bend, waterman's knot, English Knot and English Bend.

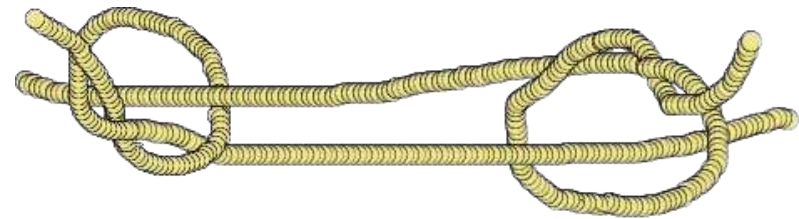
The fisherman's knot is a bend and is therefore used for joining two ropes together.

The fisherman's knot isn't a good knot for modern nylon monofilament

fishing line, so use a double loop or full-blood knot for this material.

For most other types of cord, the fisherman's knot is ideal. It handles varying strain better than the sheet bends and it should be the first knot you consider whenever you must join two lines.

In its simplest form, the fisherman's knot is just two overhand knots, although the double variant is also shown.



Fisherman's Knot

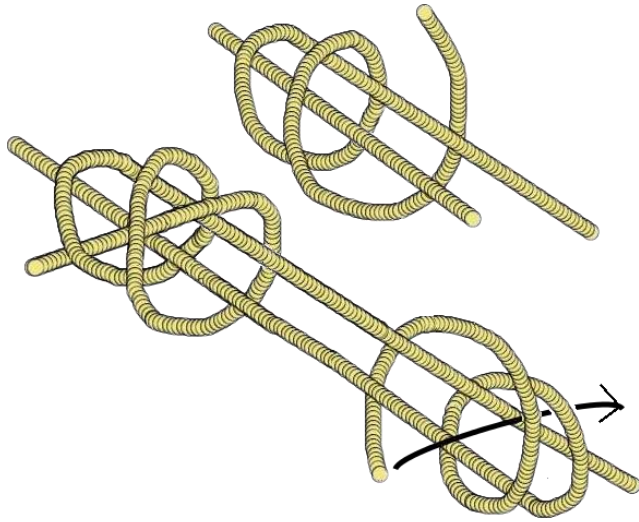
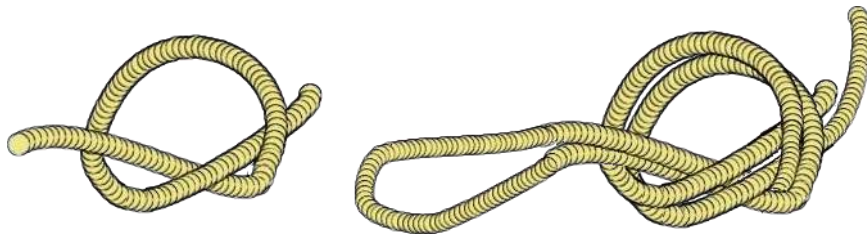
The double fisherman's knot is used when more security is desired or for thinner cordage.

The **Double Fisherman's Knot** looks more complicated in the diagrams than it actually is.

Just put one or more extra coils behind the first, take the free end over the standing end and make sure it passes through the centre of all the coils.

Double and triple fisherman's knots form a neat cylindrical shape that is useful for applications when the final appearance of your knot matters.

A fisherman's knot using quadruple overhands may be useful for narrow cordage such as fishing lines.

*Double Fisherman's Knot**Overhand Knot and Loop*

Overhand Knot

The basis of the fisherman's knot is the **Overhand Knot**.

The overhand knot is one of the simplest knots and one that often seems to tie itself. Leave a mess of string in a drawer and it will acquire a few overhand knots. Anglers often find these knots appearing in their line after a few casts and call it a "wind knot". Other types of knot may form overhands if they collapse or are being untied.

If you fold your arms, pick up a piece of string between your hands and unfold your arms you will have tied an overhand!

Overhands are often used as stopper knots and to prevent the end of a string fraying.

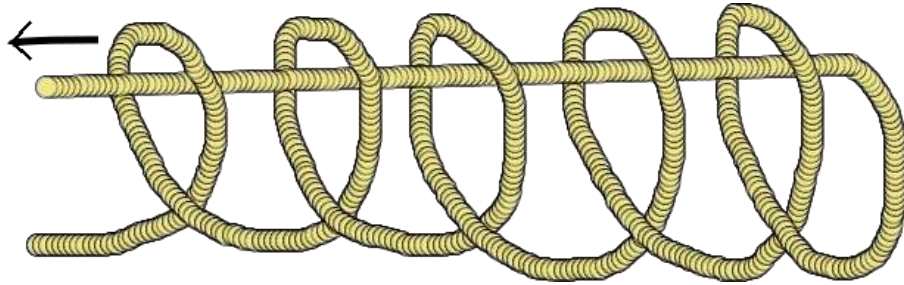
Double the end of a cord and tie the bight into an overhand knot and you have an **Overhand Loop**, a quick way to make a simple loop of set size.

For a cylindrical stop knot, make a loop in the end of a cord and use the running end to tie a double or triple overhand around the standing part.

Carefully tighten the loop and knot to form a barrel-shaped stop knot.

A pair of such knots may be used to join two ends of cord together. This resembles a double or triple fisherman's knot but has the ends in the centre of the knot, which may appear neater.

There is a quick way to make lots of overhands, for example, to knot a rope for climbing.

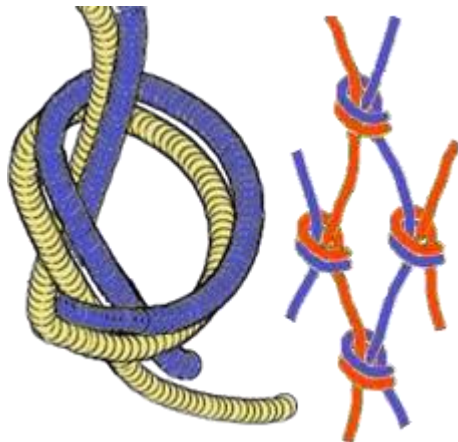


Chain of Overhand Knots

Hold the rope in your left hand and start making coils with your right. The rope of each new coil should pass over the top of the cord to its left. You can do this around a pole in which case you are actually tying a line of half-hitches. Take the right end of your rope, feed it through the centre of the loops and pull to the left.

You may have to tease the knots out and adjust them, but your rope should have a string of overhand knots down it.

An alternate way to do this is to drape each coil over your left arm, grasp the right end of the rope in your left hand and draw it through the



Lapped Overhand Knot and Net

coils by withdrawing your arm. You can also coil a rope on the floor and pull the bottom end up through the centre.

The **Lapped Overhand** is when two cords are held in parallel, and a single overhand tied with them both.

When sewing, I pass a thread through the eye of the needle, bring both ends together and then join them by a lapped overhand. I then sew with the doubled thread and never have the needle detach from the thread, without the need for fiddly knots. Effectively I am sewing with a very long overhand loop!

Lapped overhands can also be used to make nets.

The **Tape Knot** may also be called a **Water Knot** or **Webbing Knot** and is used to join flat materials such as straps together. (There is a least one other knot called a “Water Knot” so I prefer the more descriptive alternate names).

Tie a loose overhand knot in one end of the flat material and then thread the other end through the knot until you have two parallel overhand knots and tighten.



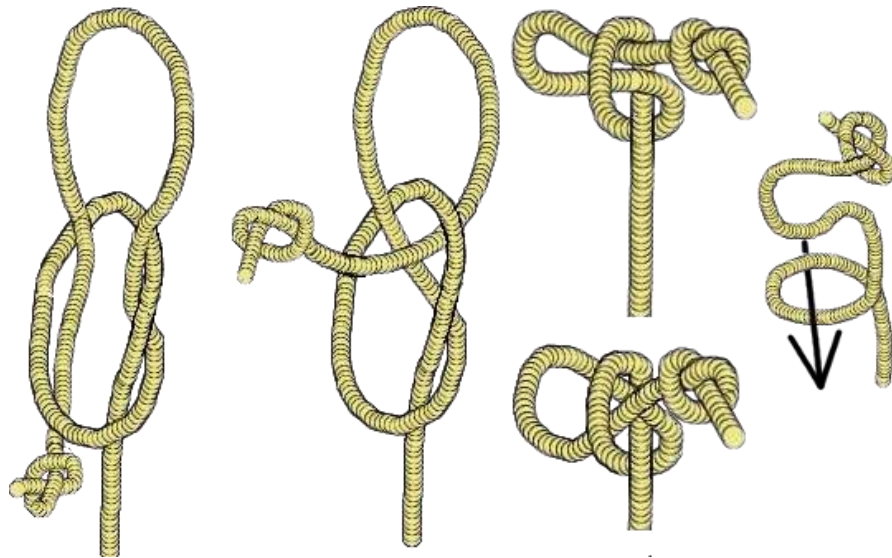
Tape Knot

The end of a tape can also be doubled and tied into an overhand to form a quick loop. A slip knot may work with some flat materials.

Honda Knots

Honda Knots are another way of making a loop of fixed size.

A “honda” is the eye of a lasso and these loops are designed to ensure a rope will pass through freely.



Honda Knots

There are several variants of this knot, but all are made by combining an overhand knot with an overhand stopper knot.

The left variant on the illustration resembles a slip knot but the overhand is tied in the standing end.

The middle variant makes a very circular loop that can be useful for some applications.

The two variants shown on the right create a loop at a right angle to the

rope. The right angle honda knot is easily tied by forming a loop and pushing a bight through it, as shown on the far right.

The “right angle honda” knot is sometimes used as a stopper knot to prevent the rope end passing through an eye.

Some of these variants are also called “**Bowstring Knots**”, illustrating another use.

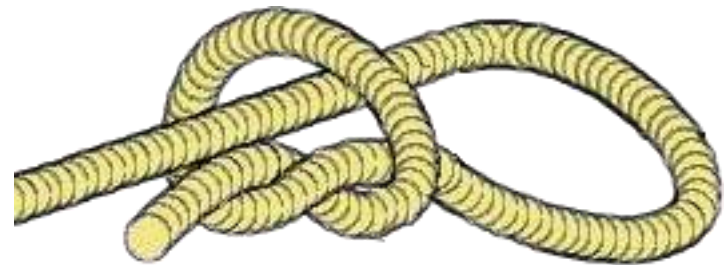
Such loops have also been used to tether livestock or make collars.

Honda Knots are sometimes tied by tying the stopper knot part last. This lets the loop be passed around another part of the rope and creates a noose and its honda at the same time.

Slip Knot

Tie the running end of a cord into an overhand knot that passes around the standing part and you have made a **Slip Knot**.

The slip knot gives you a simple noose that you can tighten. If you are wrapping a parcel in string, you may start off with a slip knot.



Slip Knot

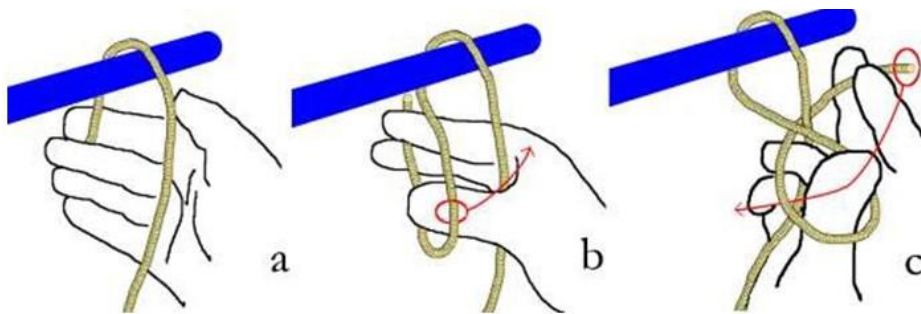
Among other uses, a slip knot can be used to secure a stopper in a bottle. Put the overhand part of the knot over the bottle neck so the loop part crosses over the stopper. Pull down on both ends to tighten and bring both ends up over the top of the stopper and tie off with a reef knot.

*Bottle Hitch*

It is possible to tie a slip knot one-handed.

Pass the cord around an object and take hold of the free end between the tips of your first two fingers.

The standing end passes across your palm, under the thumb (a).

*Tying a Slip Knot One-Handed*

Use your thumb to hook a section of the free end to form a bight (b) and take this loop across the front of the standing end (c).

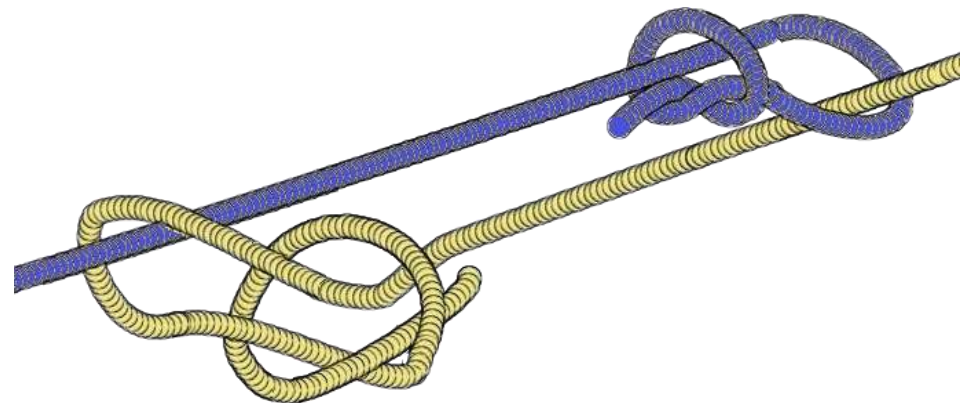
Use your fingertips to pass the tip of the running end behind the standing part and then feed it down through the loop your thumb has formed (c).

You have created a slip knot one handed!

One of my favourite uses for a slip knot is to make an adjustable sling, lanyard or harness.

Tie a slip knot and pass it over the other end of the cord, then tie a slip knot in the end of the second cord, passing around the first cord end so you have something that looks a bit like a fisherman's knot.

Slide the slip knots away from each other to reduce the loop size, pull them towards each other to increase it. Tighten by pulling the cord behind the knot.

*Slip Bend*

I don't know of any name for this knot, so I call it a "**Slip Bend**".

Tie a slip knot and tie an additional overhand in the running end and you have made an **arbor knot**, also called a **jam knot** or **Canadian jam knot**.

Slip Knot with Stopper in the Bight: If you tie an overhand knot within the bight of a slip knot, you have a noose that opens but will not decrease below a certain diameter. See the three-brothers knot later.

The name "slip knot" is also used for an easily untied stopper knot.

Structurally, this is an overhand knot with the running end in a bight.

The Non-Slip Knot

When I did a websearch for “strongest loop” I came across this [Kryston webpage](#) and the “non-slip knot”. The article is well worth a read.

The non-slip knot resembles some of the honda knots in that it is made from an overhand knot in the standing part.

If you tie the overhand by passing a bight through a loop the knot will be half-tied already.

Wrap the running end around the main part and feed the end back through the overhand knot.

This knot forms a very strong fixed size loop.

It may be used with fishing line, but also seems to be suitable for larger cordage.

It is easy to learn, easy to tie, easy to adjust and relatively easy to untie. The knot itself looks compact and neat.

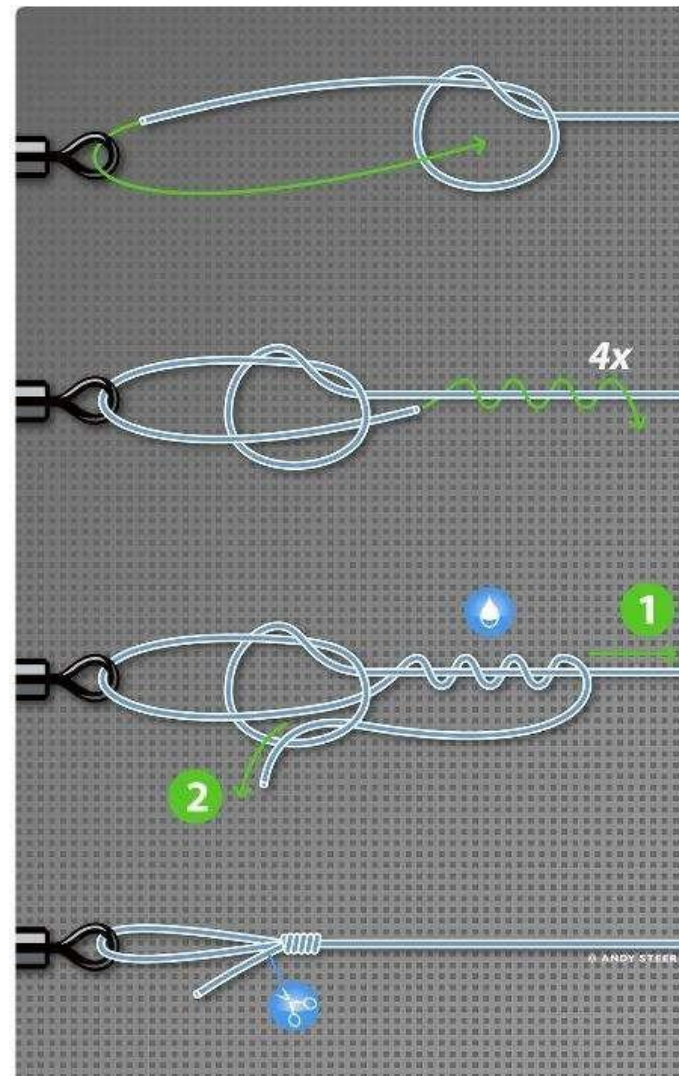
This is a knot that is worth adding to your repertoire.

A variant is the so-called “**Improved non-slip knot**”.

One side of the loop is passed through the overhand on the opposite side to which it left. The free end is passed back down the centre of overhand before the knot is tightened. This is said to create a more open loop.

A video of tying this can be seen [here](#).

[Camping and Woodcraft](#) gives us the **Fisherman’s Eye Knot**. This begins like the non-slip knot with a loop made by the running end passed through an overhand in the standing part. The running end is then simply tied in an overhand around the standing part. This gives a loop that can be reduced but will not open past a certain limit. This is the opposite of the slip knot with stop knot in the bight.



Non-Slip Knot

Kephart notes: *“The strain is divided equally between the two knots, and the loop will stand until the line parts. This is one of the best ways to make an eye on a fishing line or gut”.*

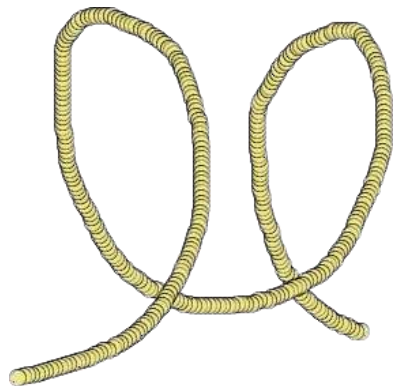
Tie a fisherman’s eye knot with a third overhand within the bight, and you have an easily adjusted fixed loop. There are other ways to make a fixed loop. This knot is easy to remember when you are too stressed to remember the finer points of the bowline.

An alternative way to tie this is to tie a slip knot with a long running end. Behind this, tie the overhand in the standing part. Pass the running end through the second overhand, then tie the running end around the standing part with the final overhand knot.

I do not know of an official name for this variant of fisherman’s eye knot. I call it the **Three-Brothers Knot**.

Handcuff or Hobble Knot

If you take a cord between your two hands and rotate your hands clockwise you will form two loops.



Two Loops Formed by Clockwise Twist

Place the loops so that they overlap, the one to the rear and on your right over the left.

Take the “inner edge” of each loop and pull it through the centre of the other loop and you create a **Handcuff Knot**, also known as a **Hobble Knot**.

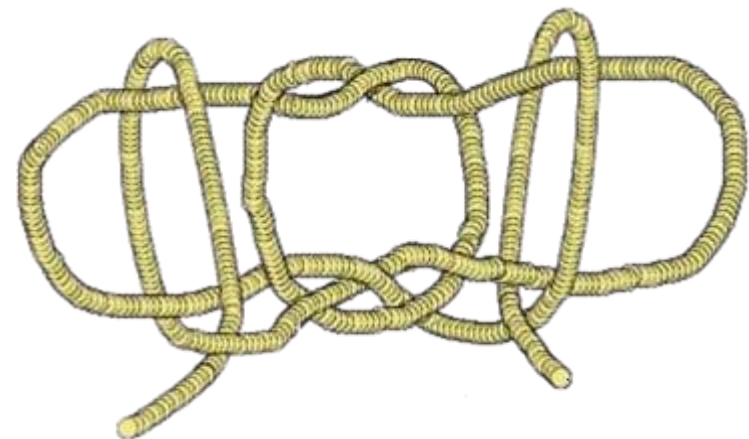
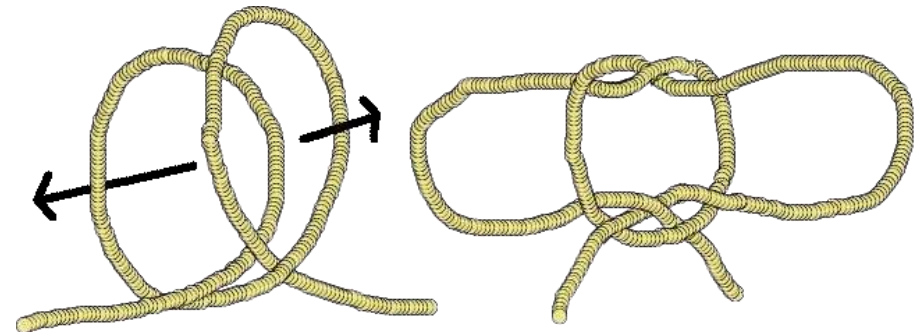
Although tied like a clove hitch, this is structurally a double slip knot.

Despite the common name, it is not the best knot for securing a prisoner. A couple of round turns or clove hitch secured with a reef or surgeon’s knot is often simpler. Later we

will learn the Highwayman’s Hitch.

Place the loops over the hands or feet, pull the ends to tighten then take the ends around the wrists/ankles and secure with a reef knot.

With thin cord, the handcuff knot can be used to bind the thumbs together behind the prisoner’s back.



Handcuff Knot

As the second name suggests, the hobble knot can be used to prevent

grazing horses wandering too far.

An interesting property of this knot is that you can tie it in the middle of a rope without needing to access the ends. If you tie it near a stopper knot you create a loop with one fixed and one adjustable loop.

Rescue workers can use this knot to secure the hands of an unconscious person to make them easier to carry.

A large handcuff knot can be used to move an unconscious person by rope.

One loop is sized to fit under the arms, the other to pass behind the legs and half-hitches added to lock their size.

Tied in the middle of a rope one end can be used to raise or lower the subject while the lower end can be controlled to prevent the subject swinging against a cliff or building.

Overhand Can or Bottle Sling

The overhand can be used to rig a carrying sling for a can or bottle. This may be done to improvise a bucket.

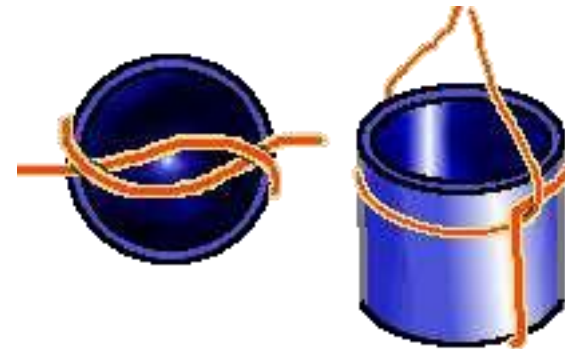
Simplest way to do this is to place the can on the middle of the cord and tie a loose overhand above the can.

Open the knot out so the cord makes right angle bends that pull snug on the sides and tie the loose ends together by reef knot.

When the weight is taken off the sling it will tend drop away, which may or may not be desirable.

I use this sling to carry plastic water bottles. I tie an overhand a third of the way up, another two thirds up and another just below the neck to form several horizontal “girdles” around the bottle.

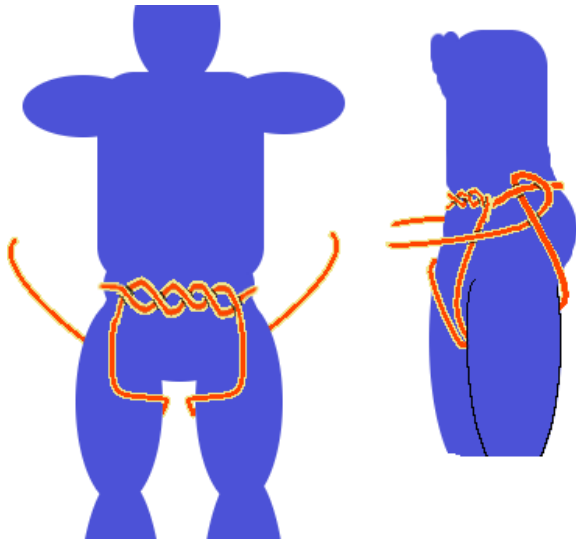
The last knot is pulled tight, and one end is tied around the other. The longer end is formed into a carrying sling by tying it to the cord lower down on the bottle.



Overhand Can Hitch

Emergency Climbing Seat/Swiss Seat.

An emergency climbing harness may be made using an overhand knot.



Emergency Harness

Place a rope around your waist and tie an overhand in front. In our example in the illustration a double overhand has been used.

Take the two ends down between your legs, up around the backs of your thighs and up to your hips. Pass the ends inside the belt part and if you wish, take them over behind to make half hitch as shown.

Squat down, then pull on the ends while standing up again to tighten the leg loops.

Bring the ends forward to secure the rope with a reef knot. Offset this reef knot to one side and secure it further with a couple of half-hitches in the tails.

The reef knot is made to the side so that it will not get in the way of a carabiner.

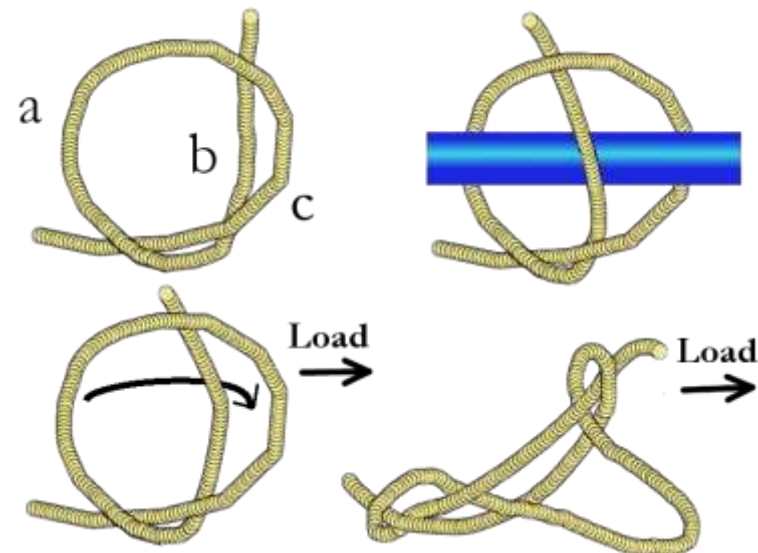
Marlinspike Hitch

The marlinspike hitch and artillery knot both start off with a shape that looks like an overhand knot.

The marlinspike hitch can be formed in the middle of a rope without needing to access the ends.

The marlinspike hitch is a temporary hitch used to insert an object such as a stick or sailor's marlinspike to serve as a handle to pull a rope.

This knot may be used to pull a cord to tighten other knots.



Marlinspike (top) and Artillery Knot (lower)

This knot may also be used to insert objects such as glowsticks through a rope or could be used to attach a rope to fenceposts.

The knot may also be used at either end of a plank to hang a seat.

Make a loop with the uppermost part towards the direction you intend to be pulling towards.

Pass part of the rope behind the loop to form a pretzel shape.

Insert your handle so that it goes over the loop but under the length of rope behind. In the illustration, over (a) and (c) but under (b). You will be pulling the rope towards the (a) side in the illustration.

Make a marlinspike hitch away from the nearest end of the rope and pull the back cord (b) and you have the start of a honda knot. Just add a stopper knot to the end.

Artillery Knot

The artillery knot can put a loop in the middle of a rope even if the ends are tied to something.

The knot can be used to haul a wagon or gun when horses are not available so is also called a “manharness hitch”, artilleryman’s knot and variations of such.

When used in this role a loop large enough to pass over the soldier’s shoulders would be used.

The artillery knot is a one-way knot, in that it pulls better in one direction than the other. For this reason, it should not be used for safety lines.

The Alpine Butterfly knot, which we will learn later, is the knot of choice for that application.

To tie an artillery knot, begin as you did for the marlinspike hitch and make a loop with the uppermost part towards the direction you intend to be pulling towards.

Take the front edge of the loop (a), pass it under the rear cord (b) and over the rear part of the loop (c).

Adjust to size and pull tight.

A quick way to tie this is to pass your hand over (c), under (b), grasp the front of the loop and pull your hand back the way it came.

The artillery knot can be used to put a loop eye in the centre of a rope without untying the ends, so can be used for a number of applications.

One idea is to pass a rope end through the eye of the artillery knot and hook the loop formed over or around an anchor such as a tree trunk. Pulling on one end the rope will be firmly anchored and can be used to descend a steep slope. Pulling the other end allows the rope to be recovered.

Figure Eight Knot and Loops

If you can tie an overhand knot, you can easily learn to tie a figure eight.

I often use the figure eight as a stopper knot since it is more decorative and slightly bulkier than an overhand.

If you tie a figure eight with a doubled cord, you create a **Figure Eight Loop**.

The figure eight loop is regarded as being stronger than the overhand, and many climbers use this knot to attach the ends of lines to their safety harness, so is an important and useful variant to know.

The figure eight loop may also be used as a stopper knot. Useful if you do not want the tip of the cord at the very end.

The **Re-Threaded Figure Eight** is another way of creating a figure eight loop and used for attachment points such as a closed ring. Just tie a loose figure eight and thread the free end through the knot.

The **Flemish Bend** is a bend made by rethreading a figure eight knot with the end of another rope. While the Flemish bend is recognized as being a very strong bend its reliability and safety for climbing seems open to debate. The fisherman’s bend seems to be more reliable and less likely to get caught up.

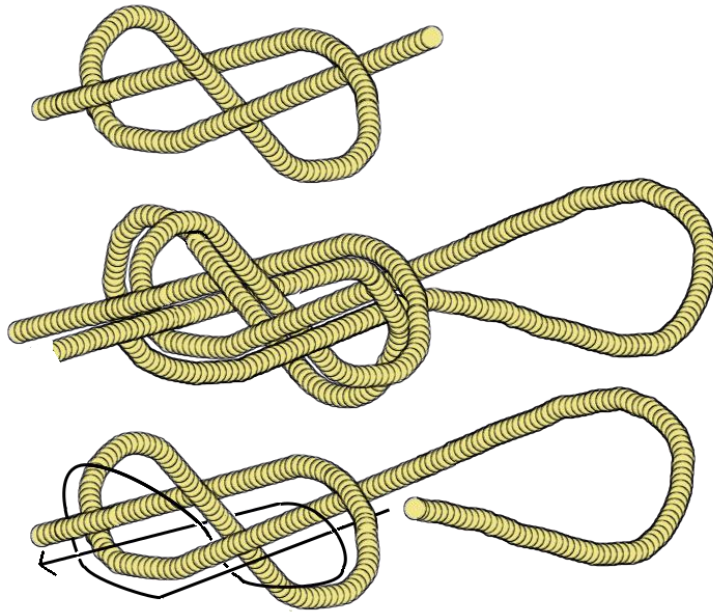


Figure Eight Knot and Loops

The figure eight gives us another way to carry a bottle or can.

Instead of making an overhand above the object, you make a large figure eight shape on the ground and place the object on the central cord.

Note that the central cord passes over the top of the other two strands, unlike a true figure eight knot. Each end then passes over the outward side of each loop, as shown in the illustration.

Bring the rest of the knot up the sides and tighten.

While a little fiddlier to set up than the overhand method, this sling is less likely to collapse if weight is taken off the sling. This is because the lower upright section goes under the horizontal cord before becoming horizontal itself. Several horizontal encirclements may be added if desired.

I use a cord knotted in this fashion to [carry my iPod](#).

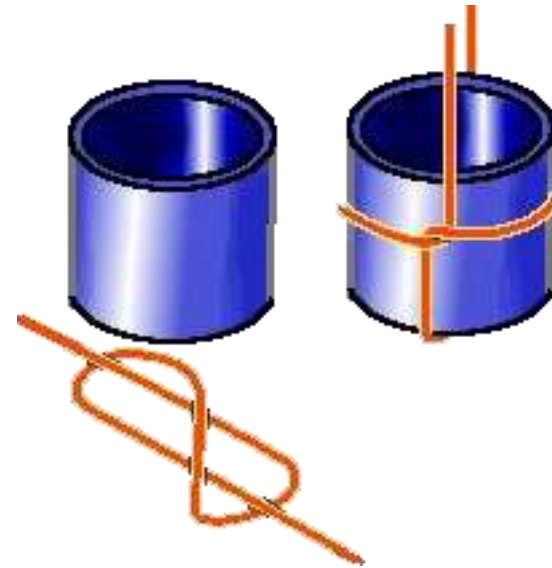


Figure Eight Can Hitch

The **Figure Eight Dally** is something I came across in a Time-Life book on cowboys.

A dally is a way of securing a rope around the horn of a saddle.

This method is interesting since it can obviously be tied when the rope is under strain.

I suspect the rope was braced against the left side of the horn, a loop being held in the right hand and the rest on the left, lower down.

The loop in the right hand is twisted inward to cross the line.

The free end or a bight of it is then thrown over the top of the standing end, passed around the front of the horn and pulled through the loop held

by the right hand.

The knot is pulled tight on the horn and probably secured with a round turn or some hitches.

Alternately, a loose figure eight could have been pretied in the line and the forward loop of the eight slipped over the horn when necessary.

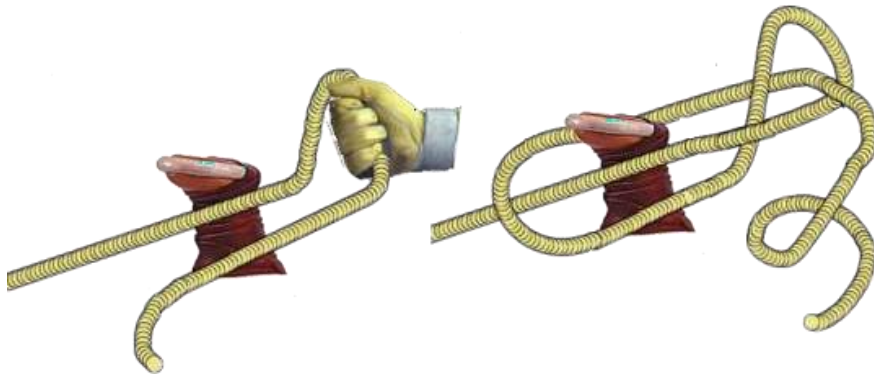


Figure Eight Dally

Part Four: The Clove Hitch and its Relatives

Clove Hitch

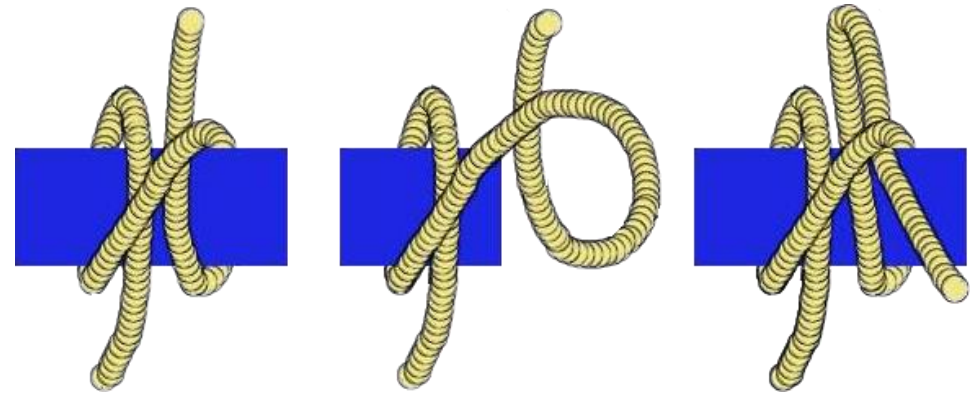
The clove hitch is a knot that is very strong when the tension is steady and from one direction but is not as secure if the direction and tension varies.

Used in the correct applications this is a very useful knot.

Clove hitches can be used to hang things from poles or other ropes or to bind poles together.

The clove hitch can be tied when the end is under strain and is easily

untied.



Clove Hitch and Slippery Hitch

The running end can be half-hitched around the standing part for added grip.

Clove hitches are used for tying prisoners. This is sometimes done with a clove hitch over each thumb. T

he clove hitch can also be tied with a quick release loop, whereby it becomes a **Slippery Hitch** (*Illustration, right*).

The clove hitch is the basis of many other useful knots.

The clove hitch is actually a pair of half-hitches. To remember how to tie a clove hitch think of a letter “N”.

There are a couple of different ways to tie a clove hitch. If near the end of a pole or tying it over a hook or someone’s thumb you can make a round turn then slip a loop over the end (*Illustration, middle*).

You can also hold a string between your fingers and twist both hands clockwise to form two loops.

Place the rightmost, further loop over the left one and slip them both over an object to give a clove hitch.

This is like how we learnt to tie a handcuff knot but instead of pulling the loops through each other, you slip them over an object.

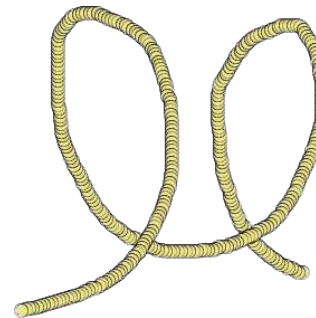
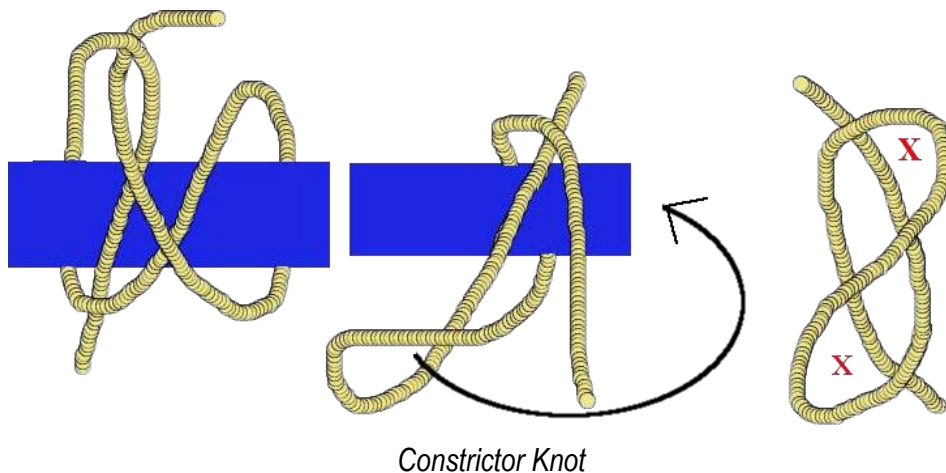
This method is worth remembering if you are tying a water bowline.

Both this method and the previous one lets you form a clove hitch without needing to access the ends of the cord.

A useful variant of the clove hitch is a knot called the **Constrictor**.

Tie a clove hitch and pass the running end under the first loop.

If you have trouble remembering how this is done then remember that “Constrictor” has an **O** before the **I**, so the running end goes **O**ut and under to head **I**n.



Two Clockwise Loops Create a Clove Hitch

insert an object so that it passes over the top and bottom loops (X) but under the others.

Constrictors have many applications.

As the name suggests, the constrictor knot grips tight. Whilst a clove hitch is noted for how easily it can be undone, a tightened constrictor will often need to be cut off.

It is therefore prudent not to use constrictors in applications that only require a clove hitch.

To cut a constrictor cut across the riding turn so you knife edge only contacts cord, not what the knot is around.

Constrictors are very good for holding things together while glue is setting.

A constrictor can be used as a semi-permanent whipping for the end of a rope or can be used to seal the neck of a sack.

A slipped variant of the constrictor can be made with the running end made into a bight before being passed through the first turn. Pulling the end converts the knot into a clove hitch. Even with this bight added, a constrictor may grip too tight to be untied.

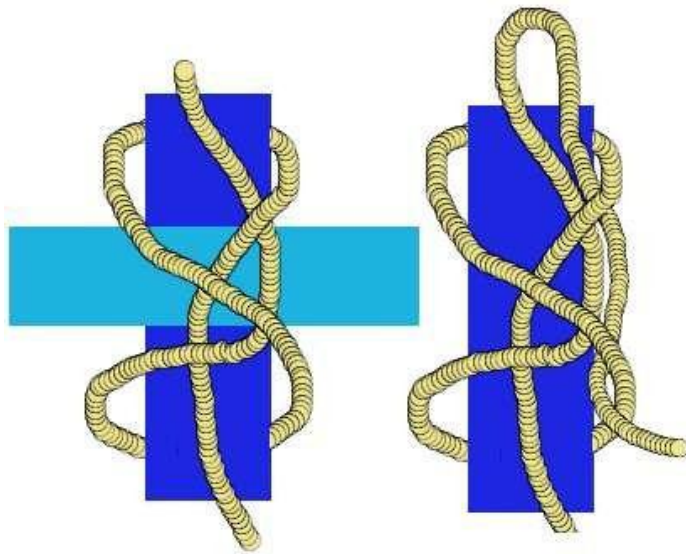
There are several other ways to tie this knot (as there are for the clove hitch).

One way is to make a round turn around a post but before you pull this tight, make a loop and bring this over the standing part and over the end of the post. A constrictor tied like this is a fast way to whip a rope end.

A one-handed way to tie the constrictor knot is to draw an ampersand “&” starting at the bottom, pass the running end behind the top loop then

insert an object so that it passes over the top and bottom loops (X) but

under the others.



Transom Knot (left) Slipped Strangle Knot (right)

Related to both the clove hitch and the constrictor is a **Transom Knot**, which is useful for tying cross pieces of wood together. This knot is therefore useful for shelter construction, gardening and kite making.

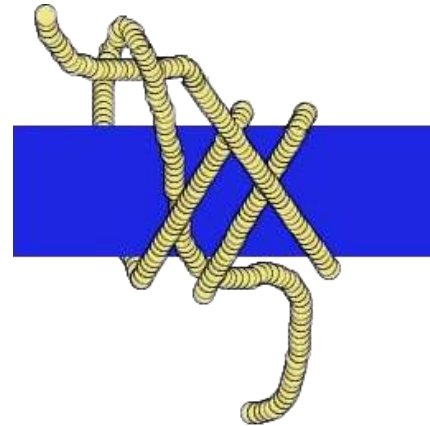
The Transom knot is easier to remember if you think of a number **8** or an **X** rather than a letter **N**.

The running end passes over the standing end and is slipped under both loops.

A second transom knot can be tied around the other side of the crosspiece, at right angles to the first.

Tie a transom knot around just a single object and you have a knot that grips like a constrictor but that can be easily freed, particularly if the running end was doubled as a bight.

This variant is known as a **Strangle Knot**, or **Slipped Strangle Knot** when the running end is a bight, (*Illustration above, right of Transom*) and is useful for closing sacks.



Net Line Hitch

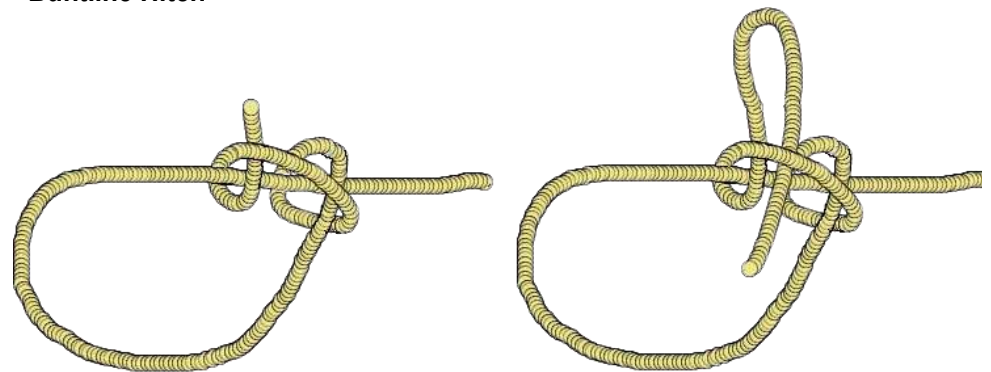
It may also be thought of as a transom that makes extra turns over the standing end before tucking through just the first loop.

Looking rather like these knots is the **Net Line Hitch**. This knot is from Geoffrey Budworth's *Book of Knots* but seems to be absent from most websites on knots.

Effectively this is a Ground-Line Hitch improved by an extra turn over the standing end. This knot grips the object it is tied to securely but resists pulling from either direction.

A good knot for safety lines or tethering animals.

Buntline Hitch



Buntline Hitch (left) and Slipped Buntline Hitch (right)

In the section on bowlines, we saw how the water bowline was made using a clove hitch as the “*bunny hole*” rather than a single loop.

You may also use the clove hitch to create a retractable noose.

The clove hitch must be tied so that the free end finishes on the side of the noose.

This knot is a sailing knot known as the “buntline hitch”. A buntline is used to support a part of a sail known as a “bunt”.

The buntline hitch is a compact, very secure and easily tied knot.

Jerking and pulling on the knot tends to tighten rather than loosen it.

Buntlines can jam and become very difficult to untie, so a slippery hitch is sometimes used instead of a clove hitch, becoming a “**Slipped Buntline Hitch**”.

Even with this variant, buntlines are not really for applications where you expect to be able to easily untie the knot.

The loop can also be made as a round turn around the object before the clove or slippery hitch is tied.

Part Five: Other Useful Knots

So far we have looked at seven basic knots.

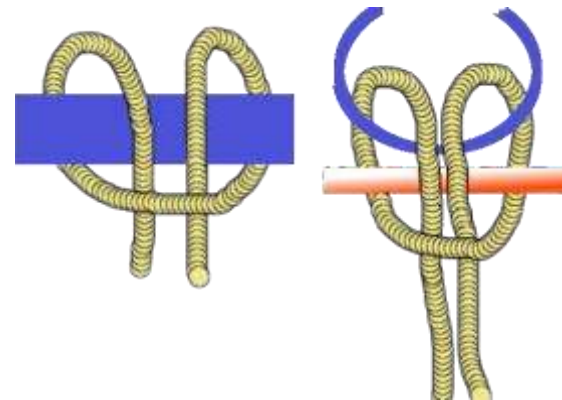
Each had a number of variations and if you have got the hang of many of these, the chances are you now know the correct knot for about 95% of the applications you are likely to encounter.

This section has some other useful knots that did not fit into the seven groups we have already looked at.

Lark's Head Knot

The lark's head, also known as a “cow hitch”, “lark's foot”, “girth

hitch”, “barrel sling” and many other names.



Lark's Head Knot

will claim they cannot tie a knot use this to attach tags to their luggage or lanyards to their camera.

The lark's head knot is actually two half-hitches, back-to-back.

This knot may be tied with a closed loop of cord.

The toggle trick we learnt for sheet bends can also be used with a lark's head. Slip a stick or pen between the loop and tails for a knot that can be rapidly untied.

Cat's Paw Knot

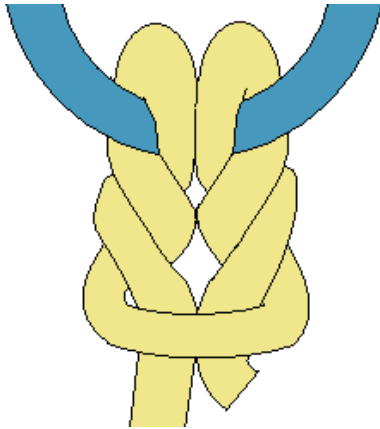
The cat's paw knot is a variant of the lark's head and a more secure alternative to the Blackwall hitch. It may be thought of as a lark's head meeting two timber hitches.

The lark's head is a very simple but useful knot used for everything from luggage tags to moving heavy loads.

Passed around a branch or trunk it may be used to rig a shelter or hammock.

It may be used to attach cords to tent pegs and grommets.

Many people who



Cat's Paw Knot

The two bights are twisted inward, or the running end coiled around the standing part to create the configuration shown.

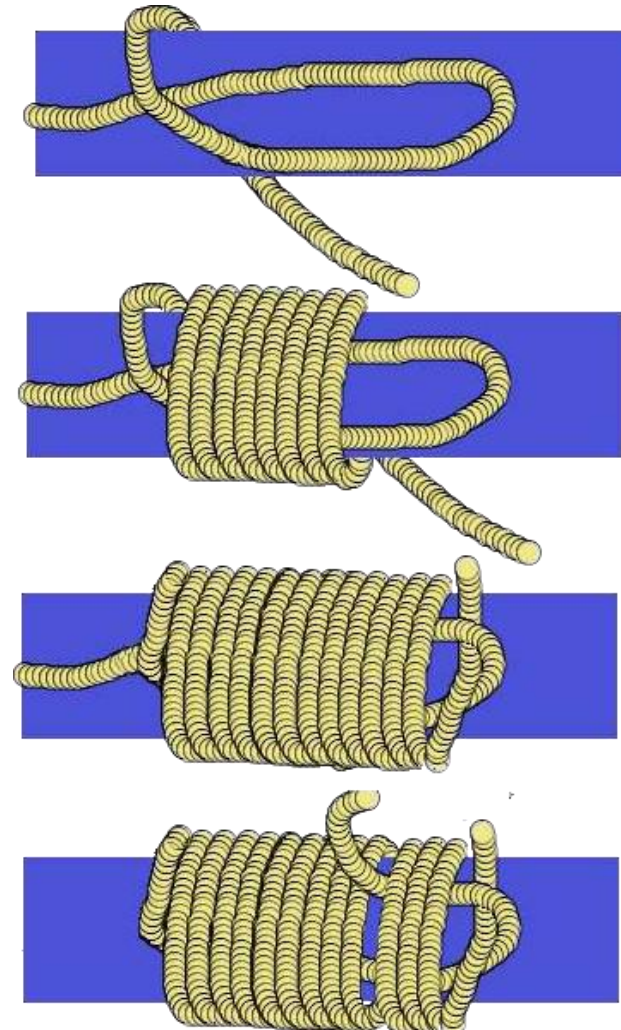
If the rope on one side of the hitch fails, the other side should hold the load long enough for it to be safely lowered.

A cat's paw may be used for purposes such as attaching swivels to fishing lines. Firstly, one of loops described in the [fishing knot section](#) is tied and a swivel, hook, etc attached. The swivel is then rotated several times through the centre of the loop to add the desired number of twists.

Whipping

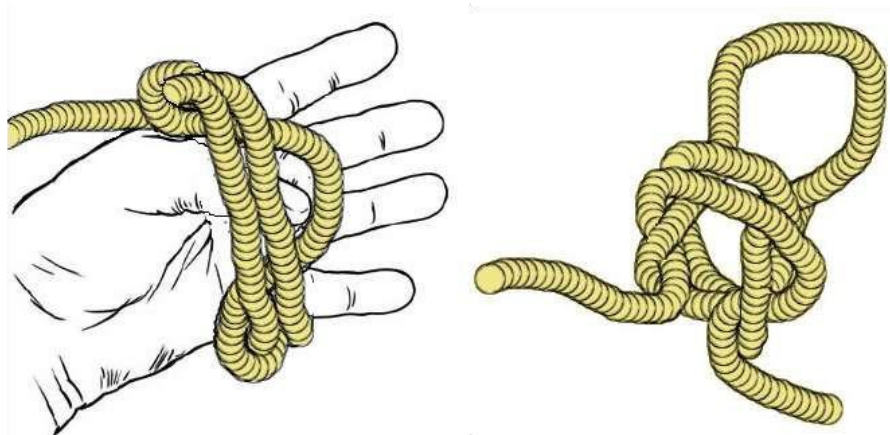
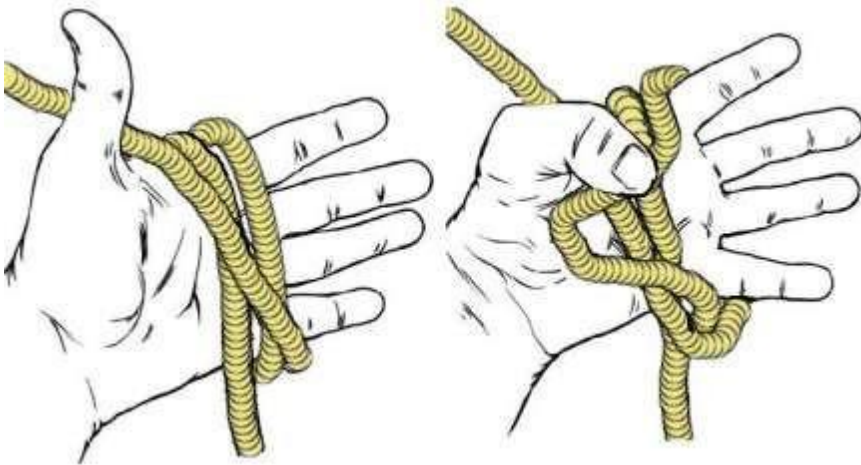
The **Whipping** is used to prevent the ends of a rope fraying, but the same technique is used to wrap a handle or to attach a spade-ended hook to a fishing line.

A whipping is also used to build up the end of a rope to give it more weight for throwing.

*Whipping*

The last picture shows a variation where only a few coils pass over the standing end.

Alpine Butterfly Knot



Alpine Butterfly Knot

In the discussion of the artillery knot it was noted that this was a one-way knot and therefore not suitable for tying onto safety lines.

The knot to use for this purpose is the alpine butterfly knot, which like

the artillery knot, may be tied in the centre of a line without needing to access the ends.

The most effective way to tie this knot is rather neat!

Starting at bottom of the thumb side of your hand, wrap three loose coils of rope around it. The final coil goes diagonally from the base of the little finger to the thumb.

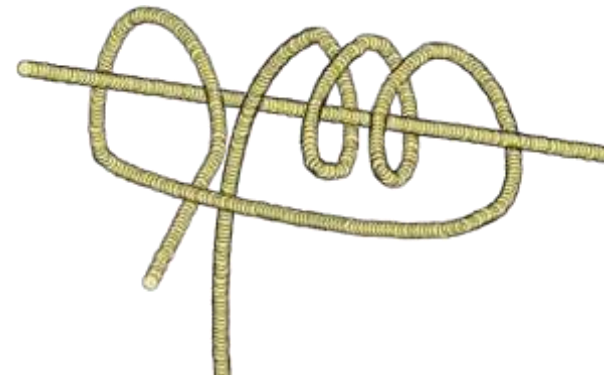
We will call the first coil made the “heel coil”, the second the “palm coil” and the third diagonal one the “finger coil”.

Hold the finger coil in place with your thumb and take hold of the palm coil with your other hand. Pull the palm coil back over the top of the other two coils and tuck it under the heel coil.

Pull the loop of the palm coil forward under the other coils and towards your fingertips. Let the knot slip off your hand, adjust the loops and pull tight.

You have made an alpine butterfly knot!

Magnus/Tauntline Hitch



Magnus Hitch

The Magnus Hitch is one of a family of similar looking knots with similar uses.

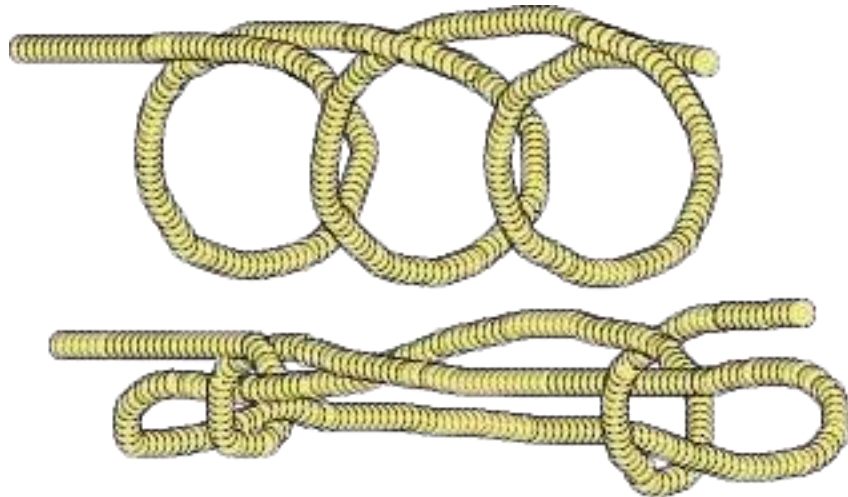
Some sources call the above version a “Tauntline Hitch”, while other sources use this name for another variation.

I learnt this knot as a “Magnus” and the configuration above is the one that I find easiest to remember.

The magnus hitch can be used a little like a clove hitch or round turn and two half hitches, in that it can attach a line to another rope or a pole.

When there is a load on the standing end, it grips tight, yet when the load is relieved, the hitch can be slid along the line/pole.

A useful application for this knot is to use it to tie the end of a rope around itself so that it can form the slider for a guy rope.



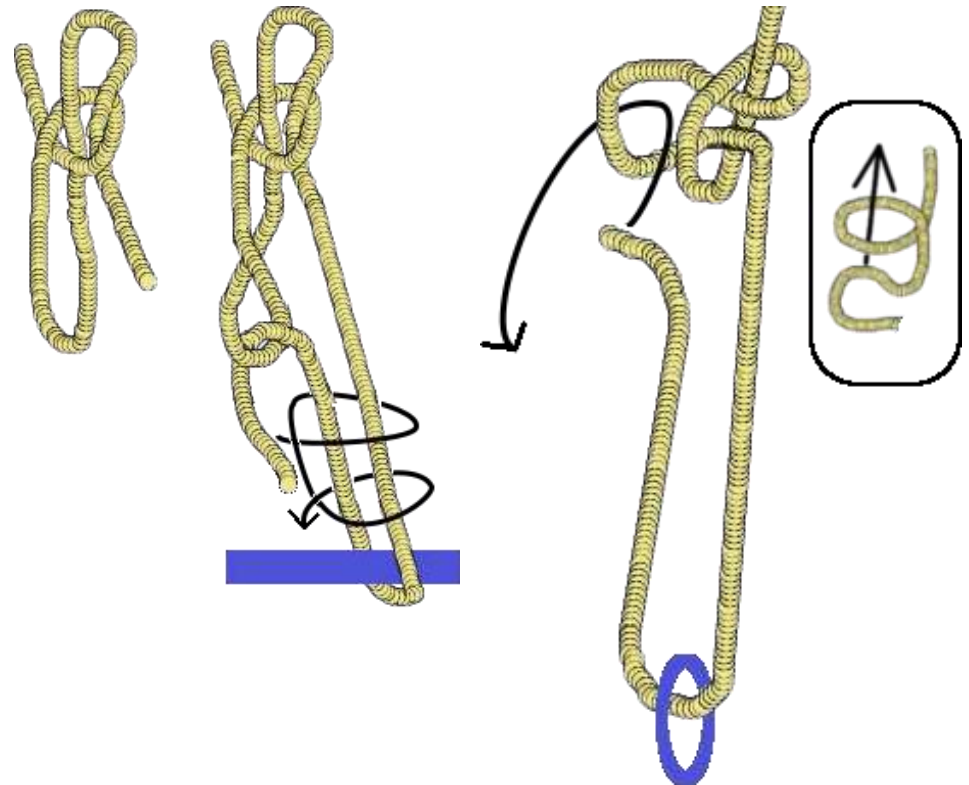
Sheepshank

Sheepshank and Waggoner's Hitch

The **Sheepshank** can be used to shorten a line without needing to cut it or reinforce a line with a damaged part.

You can place a sheepshank in the middle of a rope without needing to untie the ends.

On previous pages we learnt to tie a handcuff knot or clove hitch by twisting a line to make two loops. If you create three loops in the same fashion you can quickly make a sheepshank.



Waggoner's Hitch

Trucker's Hitch

Our main interest in the sheepshank is that it is the basis of the **Waggoner's Hitch**, also known as a “Wako's Transport Knot”.

The waggoner's hitch is a useful knot for tying-down loads.

The **Trucker's Hitch** uses the same principles but forms the eye using one of the honda knot variants.

For either knot the free end of the line is slipped through the eye, pulled taut and then tied around the rest of the line using a pair of half hitches.

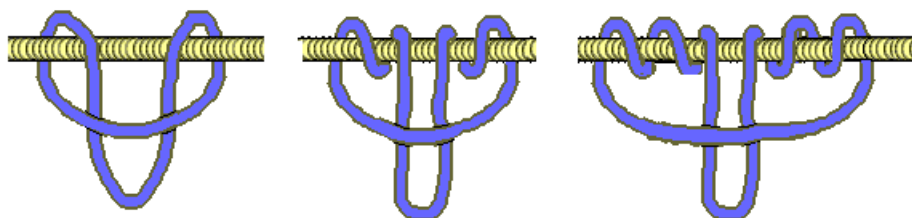
Alternately, the end can be secured around an anchor point using a round turn and two half hitches.

Prusik Knot

The **Prusik Knot** is used for climbing up or down ropes. It can also be used to anchor a pulley or similar on a rope.

Like the magnus hitch, it can be easily slid up and down a line but grips tight when a load is put on it.

Usually, several prusik knots are used together, one supporting the body and the others for the feet.

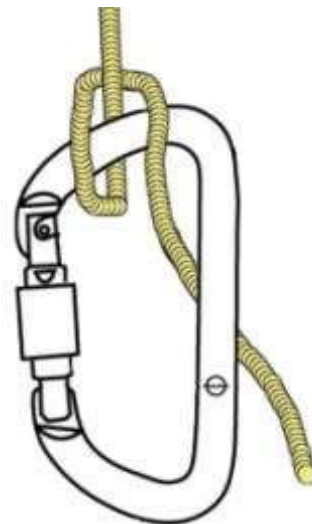


Prusik Knot

A prusik needs a circle of cordage such as a climber's webbing sling. If you do not have such a thing, join the ends of a length of rope with a double or triple fisherman's knot.

Make a lark's head knot, then take the free end around the rope two more times.

Munter Friction Hitch



Munter Friction Hitch

A quicker way to descend a rope is to rappel.

There are ways to rappel with just a rope but those are out of the scope of this article.

Suppose you want to rappel when you don't have a descender device? You may have dropped yours down the mountain or you may only have the carabiner you use as a keyring.

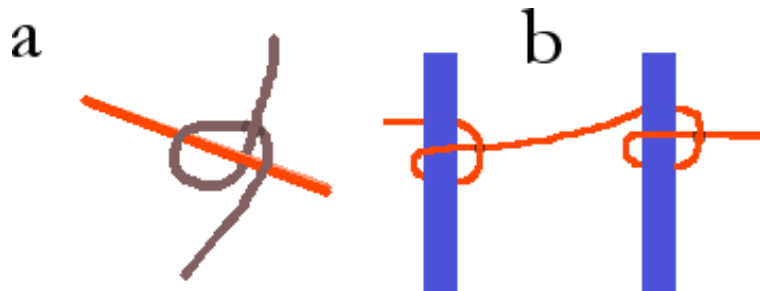
One knot you can use is the **Munter Friction Hitch**.

As well as lowering people, this can be used for other purposes such as lowering loads. It is also used for belaying.

To easily make the Munter friction hitch, hook your carabiner over the line.

Take the lower end of the line over the top of the carabiner, behind the rope, lay it across the carabiner and snap it through the gate.

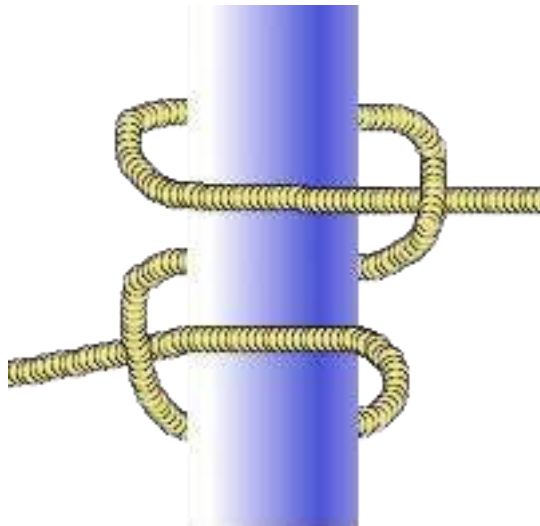
The Munter can also be used for parcel packing (a), and to run a line between posts (b).



Other Applications for the Munter Friction Hitch

[“The Ship in a Bottle \(TSIB\)” hitch](#) used to attach hammocks to tree trunks is actually a pair of back-to-back Munter Friction Hitches.

If you pull just one end, it collapses into a clove hitch.

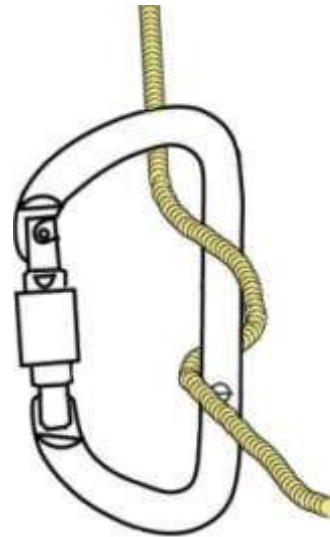
*The Ship in a Bottle Hitch*

Ranger Twist

The knot I call a “ranger twist” is an alternative to the Munter Friction Hitch.

Advocates of this knot will point out that this knot avoids rope against rope friction.

That advantage is probably more of a long-term issue and in an emergency use whichever knot you can remember.

*Ranger Twist*

To make the ranger twist hook your carabiner onto the rope. Take the rope across the back of the carabiner, under and through the gate once more.

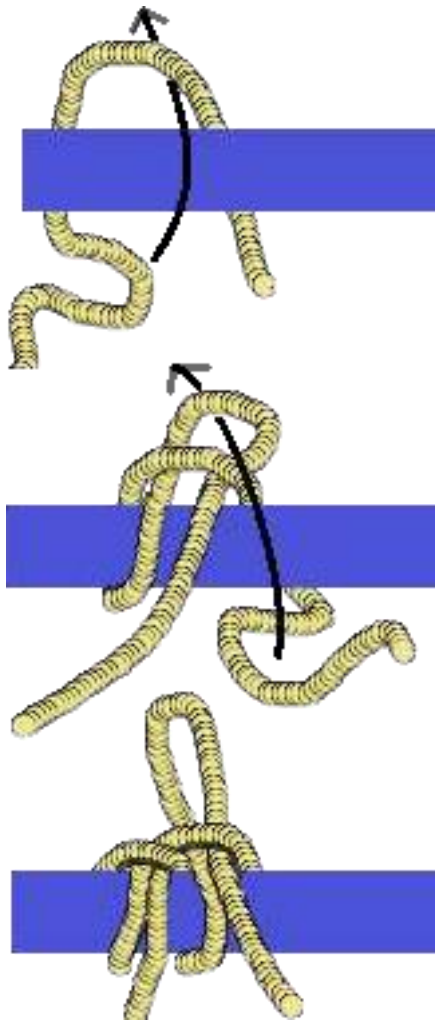
Highwayman's Hitch

The highwayman's hitch is an interesting knot that has several uses.

To tie it, pass a bight of cord behind a post.

Make a bight in the standing end and pass it through the first bight.

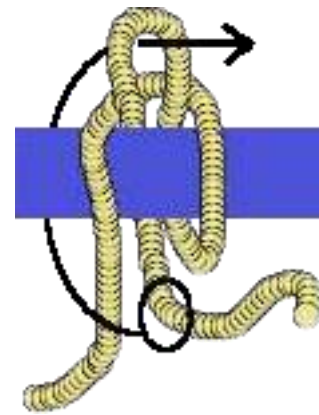
Take a bight of the free end and pass this through the bight you made from the standing end. Pull tight.

*Highwayman's Hitch*

One application of the highwayman's hitch is as a quick release hitch. A tug on the free end will unravel the knot. This is not the most secure of hitches so is not recommended for long term or critical applications.

Another use of the highwayman's hitch is that it was taught by W. E. Fairbairn to British commandos as a knot for securing prisoners.

The knot was tied as described but the final bight has passed over the prisoner's wrist and the ends secured around each other with half hitches. If there was no pole or branch handy the knot was tied around one forearm and the other wrist passed through the loop. Since this knot can be tied in the centre of a line the ends of the line could be used to bind the ankles and neck.

*Tumbling Hitch*

Tumbling Hitch

The highwayman's hitch has a tendency to capsize, so many sources recommend the **Tumbling Hitch** as a more secure alternative.

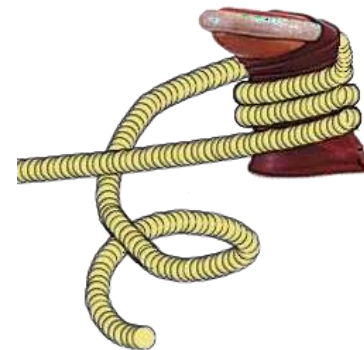
Like the highwayman's hitch, it can be tied in the middle of a line.

A bight is placed over the post and a bight of the free end passed under the post and up through the first bight.

A second bight of the free end passes over the standing end, behind the post and up through the first free end bight. Notice that in this knot the standing part remains static.

Dally

"Dally" means to wrap a rope around something such as a saddle horn.

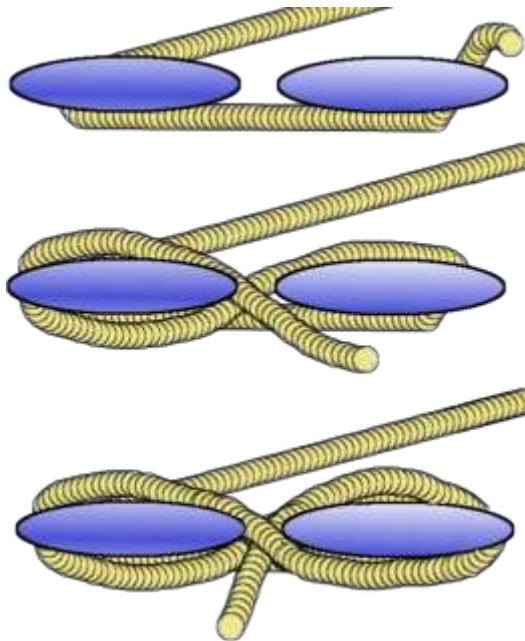
*Dally*

It is from the Spanish "**dar la vuelta**", which means to go around or turn over.

We have already encountered the figure eight dally.

This is an alternate and somewhat simpler method. The rope is wrapped several times counterclockwise around the horn. The free end is then taken under the standing part and a loop half-hitched over the horn to secure it.

Cleat Tie



Cleat Tie

A **Cleat** is the two horns found on boats and flagpoles around which a rope is wrapped.

The key points are that the line initially goes around the far horn and makes at least a half turn before the figure eight turns are made.

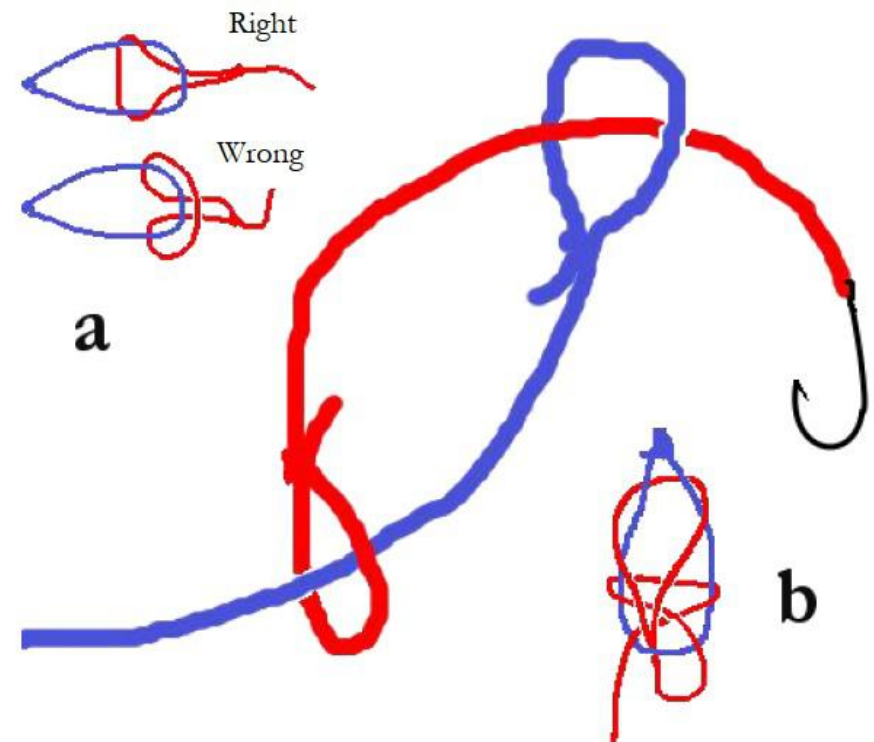
Modern synthetic ropes are slippery so may need many turns to secure them.

The line is shown finished off with the end trapped under a turn but for some applications this is not done, the line staying on by friction alone.

Part Six: Fishing Knots

Modern monofilament fishing line has somewhat different properties to traditional materials such as gut, manila, silk and horsehair. Being springier and smoother, it requires some specialist knots. Different line materials may need different knots. The [Kryston article](#) on knots is recommended.

Some of the knots already covered may be used with fishing lines. This includes variants of the fisherman's knot, sheet bend, fisherman's eye knot and cat's paw.



Loop on Loop

Out in the cold and wet is not the best time to try and tie fine line into intricate knots. If possible, do most of your hook tying at home.

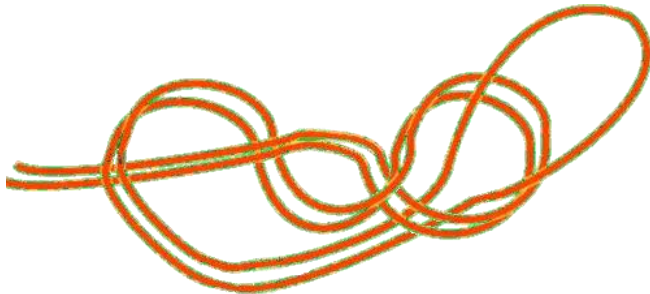
Place each hook on a twenty to thirty centimetre “leader line” and place a loop at the other end.

Tie another loop at the end of your main line.

When it comes time to add hook to line, slip the loop of the leader over the other loop and feed your hook through the main line’s loop.

The finished result should resemble a reef knot, not a lark’s head (a).

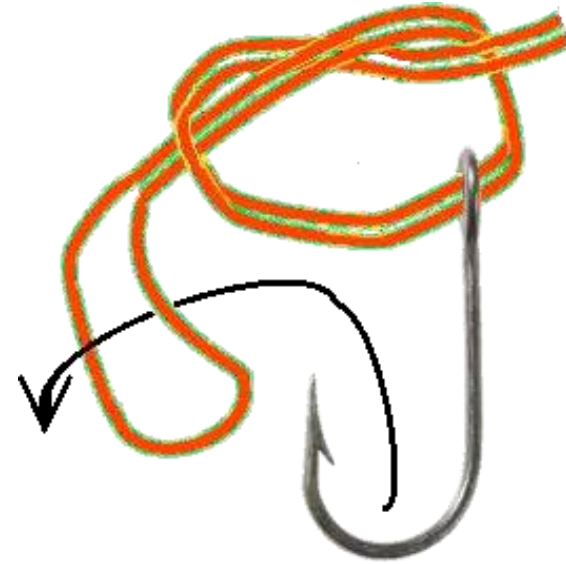
If there is a need for making the system more secure, then a modified sheet bend can be made (b).



Blood Bight Loop

One of the best loops to use is the **Blood Bight Loop**. This is easily remembered since it is effectively a figure eight loop with an extra turn.

The non-slip knot is another recommended loop.

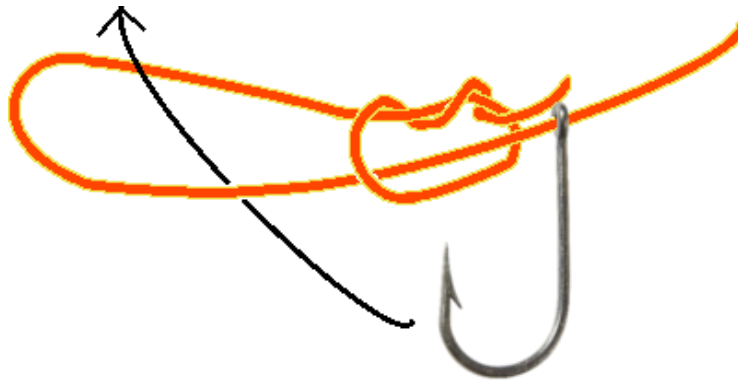


Palomar Knot

One of the simplest ways to join a hook onto a line is the **Palomar Knot**. It is slightly stronger than the Trilene knot, and much easier to tie.

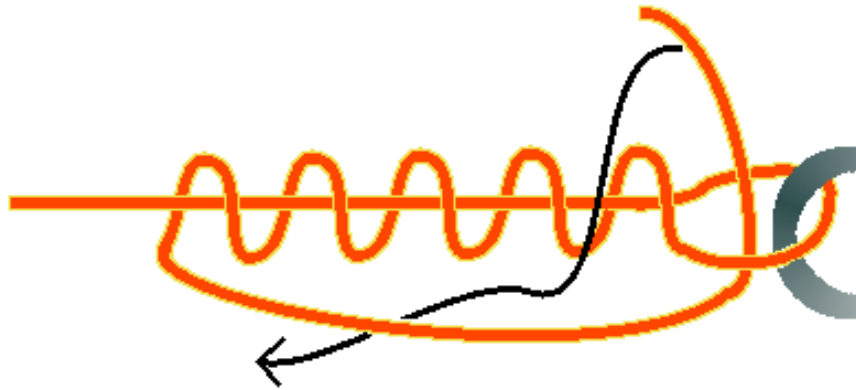
Pass a doubled length of line through the eye of the hook and tie an overhand loop. Pass the hook through the loop and pull tight.

If the eye of the hook is too small for the use of a palomar knot, then try a **Turtle Knot**. Thread the hook on the line and tie a slip knot ahead of it.

*Turtle Knot*

In the illustration the slip knot has been made using an extra turn around the overhand knot for more security. Pass the hook end through the loop and tighten.

Remember that the non-slip knot can also be used with fishing tackle.

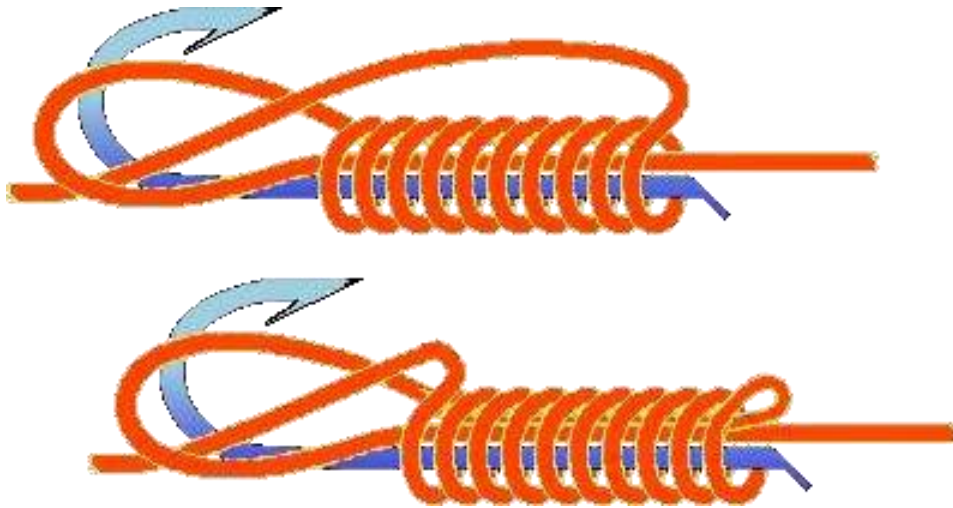
*Half-Blood and Tucked Half-Blood Knot*

A more traditional knot is the **Half-Blood Knot**, also known as a **Clinch Knot**. This is a very strong knot. The line is wound around itself five to seven times and the free end passed through the loop and sandwiched between line and hook. A common variation is to leave the free end long and pass it in the direction of the black arrow, forming a **“Tucked Half-blood”** or **“Improved Clinch”** Knot.

The **Duncan Knot**, **Four-Turn Grinner** or **Uni-Knot** (*below*) can be less fiddly to tie than the half-blood. The [Kryston article](#) recommends this for braided line but cautions it does not work well with fluorocarbon.

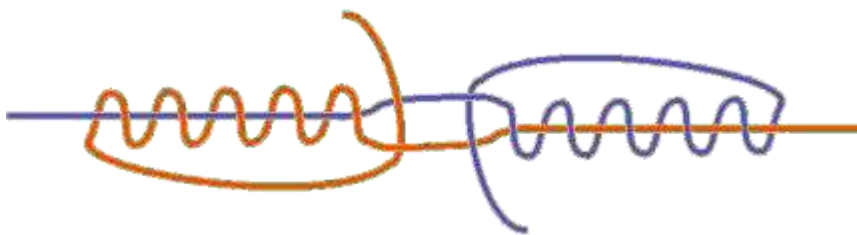
*Uni-Knot*

Spade-ended hooks do not have an eye. Many improvised fishing hooks you might fashion in a survival situation may also lack an eye, so the above knots will not work. To attach a line to a hook without an eye use a knot based on a whipping.

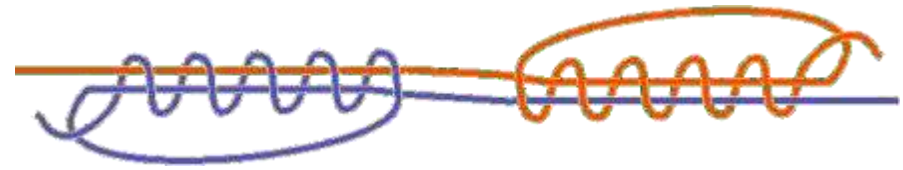


Knots for Spade-Ended and Improvised Hooks

The **Full Blood Knot** is used to join two nylon lines. If one line is thinner than the other, the thinner line is doubled.



Full-Blood Knot



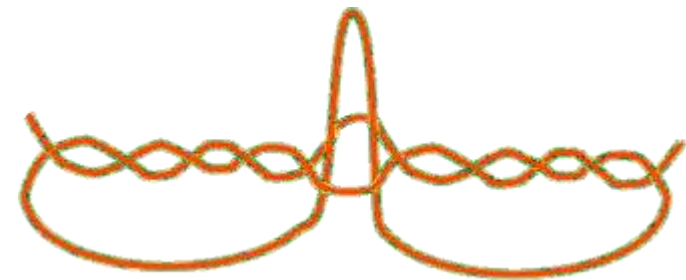
Double Uni-Knot

Alternately a **Double Uni-Knot** can be used to create a knot a little like a fisherman's knot.

To attach a hook or other tackle to somewhere other than the end of the line, a **Paternoster Loop** or **Dropper Loop** is used.

Make a loop of line and take the end of the line around one side of the loop half a dozen times.

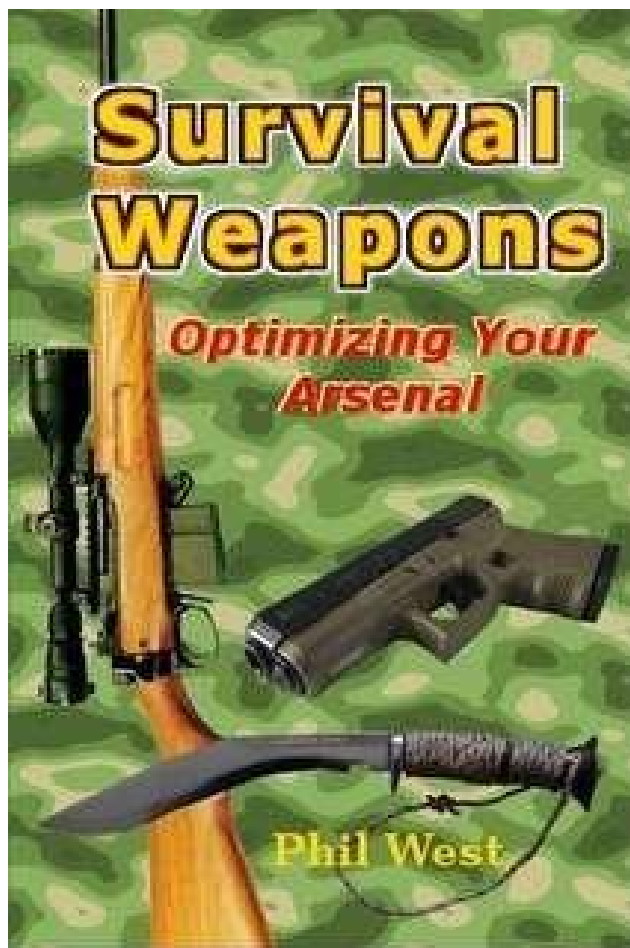
Open-up one of the coils and feed part of the other side of the loop through. Pull tight.



Paternoster Loop

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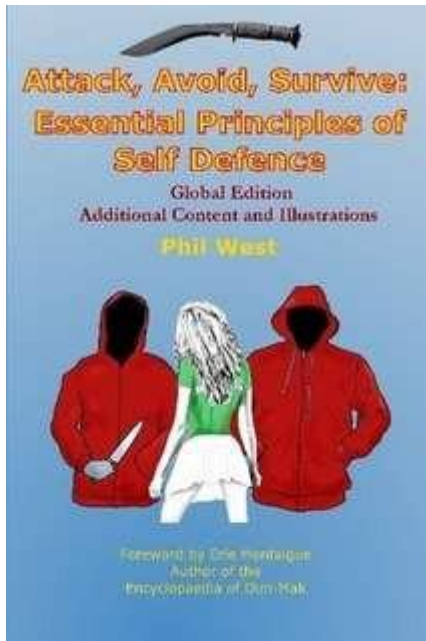
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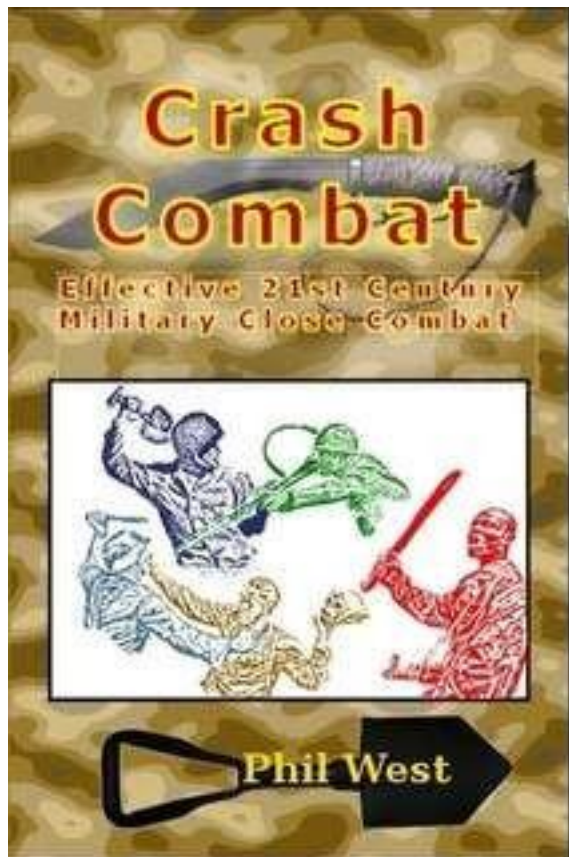
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