

Ladies at the Helm

September Focus:

ALL ABOUT KNOTS

Objective:

Properly tie

identify and

use knots.

Understand

knots & line

relations.

Understand

how type of knots

affect the knot.



Objective

- To be able to properly tie, identify and correctly use the chosen knots
- Understand how knots compromise line
- Understand how type of knots affect the line

Materials

- 6-foot lengths of line of a (1/2" or 5/8" diameter) for each student
- Board with cleats to practice or boats with cleats or use cleats on showroom boats

Knot terminology: loop, working end, standing end, bite, bitter end, fair lead

Types of Knots and the Uses: For each, explain how to tell if the knot is tied correctly, how to untie it, its advantages, and how much it reduces the strength of the line. Some knots can result in 50% of strength loss.

Class One Knots

- Clove Hitch
- Rolling Hitch
- Round Turn and Two Half Hitches
- Cleat Hitch
- Figure 8

Additional Knots

- Bowline
- Zeppelin Bend
- Reef Knot

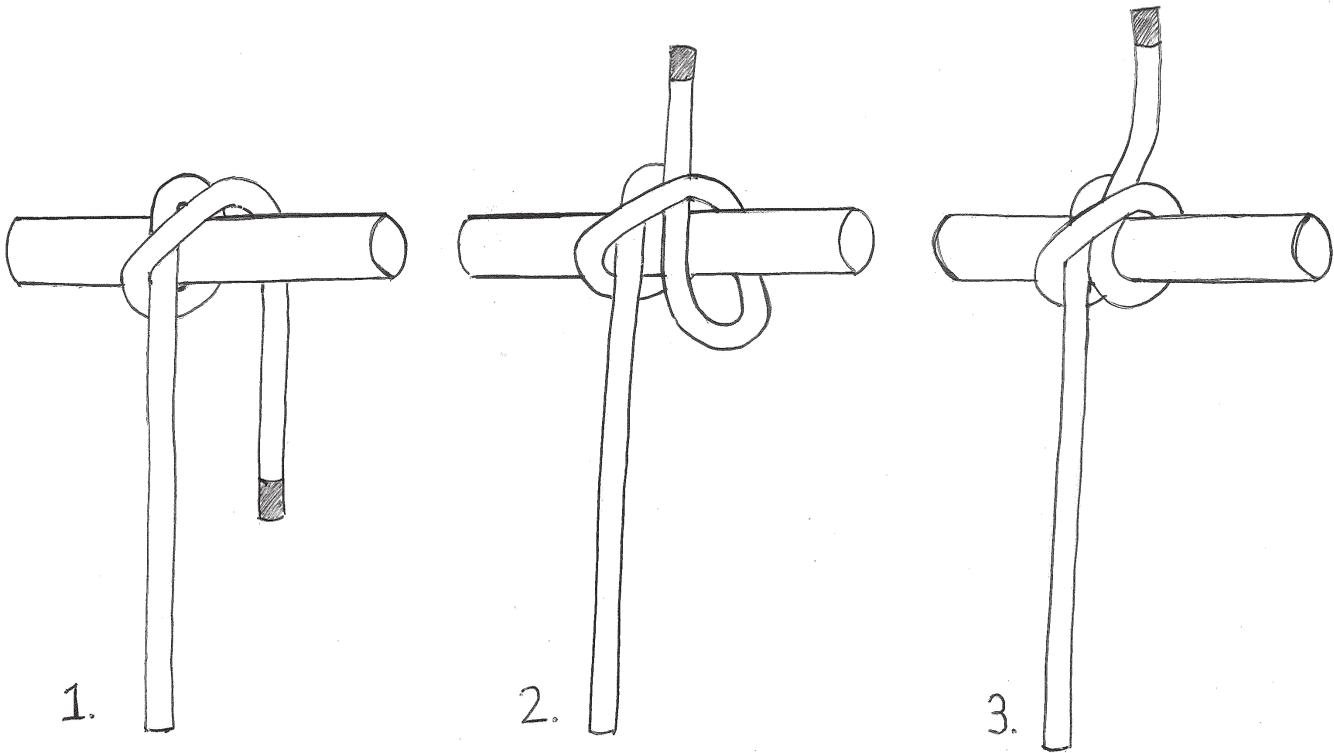
What Makes a Good Knot

Will not slip when in use; and can be tied and untied without difficulty; is the right knot for intended use.

Knot Terminology

- Bitter end - the free end of the line
- Standing Part - the end of the line that is fixed when tying the knot; often the longer end
- Bight - loop in the line between the standing end in bitter end. The two parts of the line do not cross each other
- Loop - loop in the line between the two ends and the ends cross like an upside-down roller coaster

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CLOVE HITCH

The **Clove Hitch** is also called the builder's knot or the ratline hitch. This knot is good if the strain is horizontal. If the strain pulls at an angle to the knot, it will rotate and untie itself unless both the working end and standing end are under strain. Works on round objects, but not so well on square objects because it can rotate and untie. This knot is easy to adjust and untie. When tied back on itself with the bitter end locked in, it becomes the buntline hitch and is almost impossible to untie.

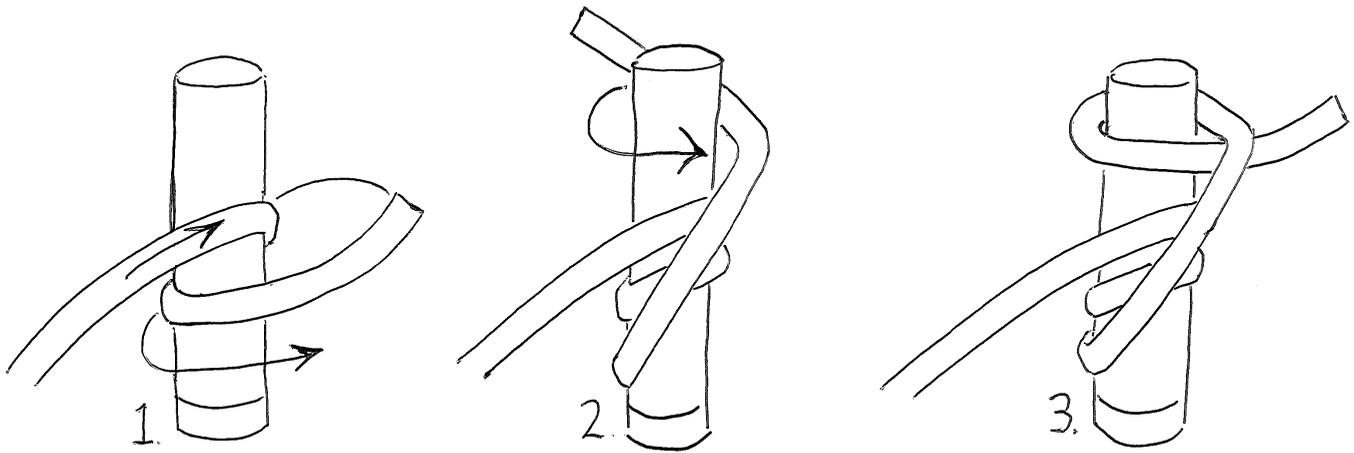
Real Life Experience

Cheyenne - "I have used this knot in limited but specific instances: attaching pig stick or ratlines down, temporarily tying a dingy to a post or a fender to a stanchion. For the last two examples, I typically do a round turn and two half hitches instead of a clove hitch.

Sue - "You might already know this knot from tying a scarf."

How to Tie

1. Wrap the bitter end of a rope around a post. Crossover itself and around the post again.
2. Slip working end under last wrap.
3. Pull tight.

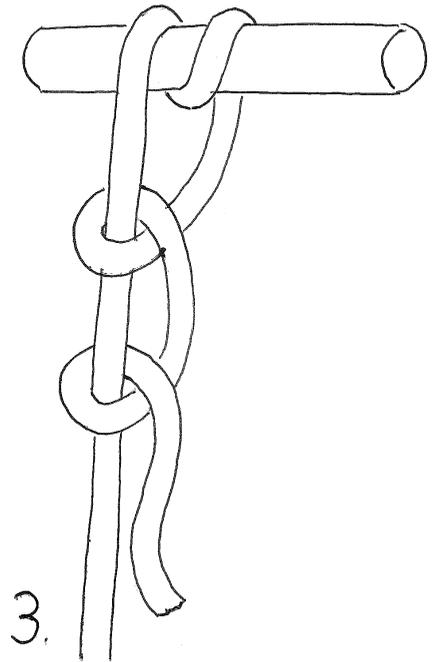
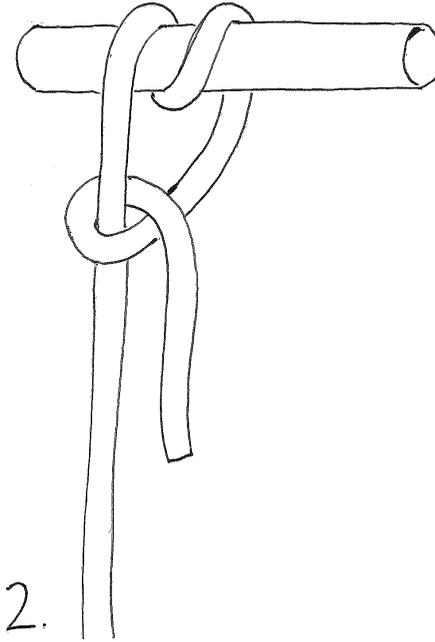
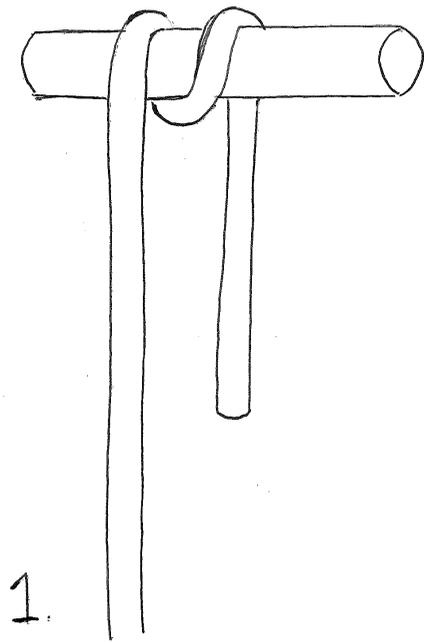


ROLLING HITCH

The **Rolling Hitch** is used when attaching a line to a rod, pole, or another line. It's used for lengthwise pull as opposed to a right angle pull. Excellent for when you need to transfer one load to another. This is like a clove hitch but an extra turn is added to the side on which the load will be applied. Easy to tie and untie while maintaining a load. It can be adjusted without untying from the line or pole when not under load.

How to Tie

1. Wrap the bitter end of a line around an object. Repeat, creating a second round turn under the first turn.
2. Cross above the 2 round turns and make another round turn.
3. Pass the bitter end under the last wrap and pull tight.

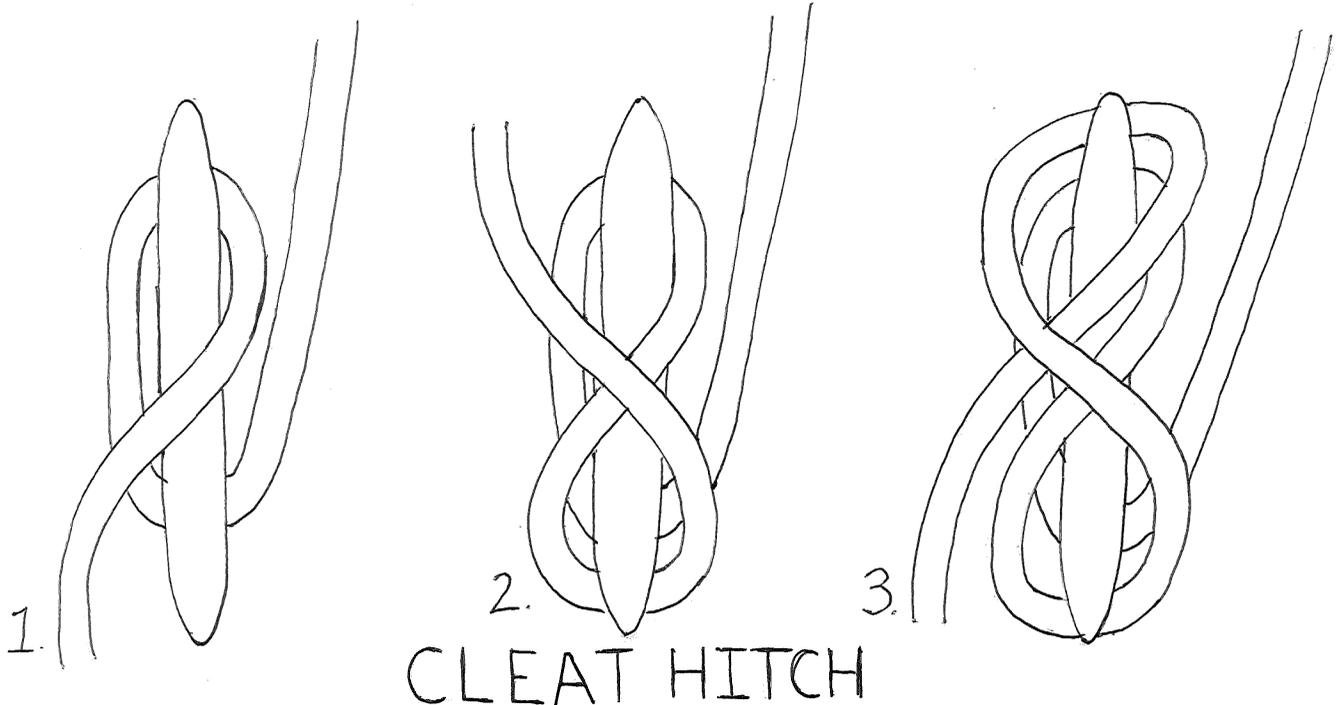


ROUND TURN AND TWO HALF HITCHES

Very useful knot in many applications. It is easy to tie and untie even when under strain. Very secure and will hold no matter what direction the strain is being pulled. In many cases this knot will be all you need. It is used to secure the end of a line to a fixed object, so it's great for securing fenders or your painter (bow) and stern line to a post when a cleat is not available. Because of the round turn it is great for getting something you are lashing down tight before making it off. The round turn will safely allow you to secure something under strain without getting hurt. The round turn also allows the knot to be untied no matter how much strain is on it. When untying something under strain, always be careful to not be in the way of the line as it comes free. It is important that a full round turn is made or it can become a very difficult knot to untie.

How to Tie

1. Holding the rope in your left hand take the bitter end of the rope and wrap it once above the standing part snug against the post. Take the bitter end and wrap a second time around, making a loose loop to the right overlapping the standing part.
2. Twist the bitter end to the left under the standing part and up through the loop.
3. Below the loop, twist the bitter end under then over the standing part into the loop you just created. Pull on both the standing part and bitter end of the rope to tighten the knot.



For most types of line, the number of turns that is commonly needed to create a safe amount of friction to keep your boat safely moored is 3 turns, the last of these being a locking hitch. It is important to ensure that the lead to the cleat is what is called a "fair lead". The first step to safely securing to a cleat is knowing what a fair lead is. If the lead is not fair, the line may need to be cut to get it off the cleat. There are 2 well-known rules of securing to a cleat. The first is that no matter the direction the first turn should always be a "C" turn. The second is that you always go clockwise in your first turn. Why? It has to do with sailing on voyages. In the dark you need to know that every line is secured in the same way. That way if you need to untie it when you can't see it, you are still safely able to handle it. Clockwise is the direction that it works best with the lay of traditional 3-strand line. Counter clockwise can cause the traditional lines to hackle and will eventually be the death of the line.

Real Life Experience

Cheyenne - "In my experience the first turn being a "C" turn is the most important. The "C" at the start transfers most of the load to the beefy, strongly secured part of the cleat while keeping the side the working end is coming off of clear so a change in condition can not cause a jam. The "C" turn is the first of the 3 turns done to secure the to the cleat. The second is a figure 8 over both sides of the horn. The third figure 8 is finished with a locking hitch.

An important step of the cleat hitch is using the correct diameter line for the cleats. Also remember when securing to a cleat no matter how good your line handling skills are - your boat will only ever be as secure as the cleat itself is. "

How to Tie

1. Take a turn around the base of the cleat, and then bring the line over the top of the cleat.
2. Wrap the line back under the arm of the cleat opposite the first turn, then back over the top of the cleat
3. Wrap under the first arm a 2nd time and then back over the top of the cleat twisting it a half turn to create a locking hitch.

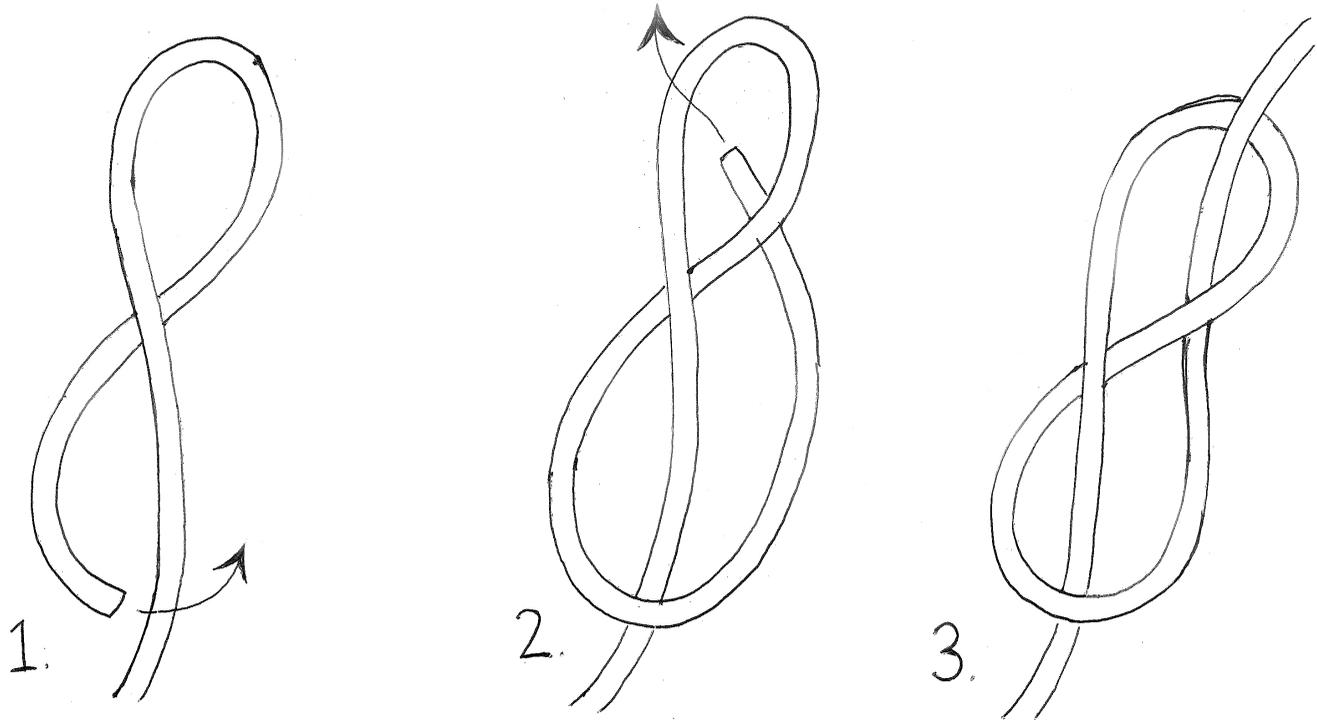
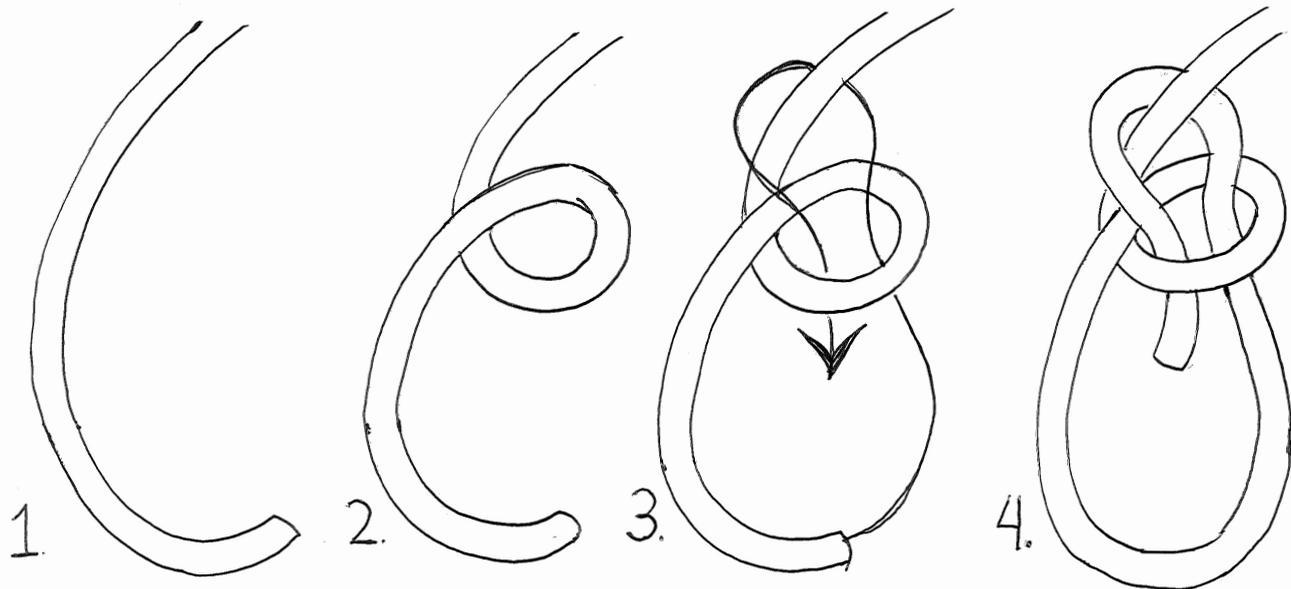


FIGURE 8 KNOT

The single **Figure 8 Knot** is used as a simple stopper knot at the end of a line. There is also a double version that is a popular climbing knot. The single figure 8 is easy to untie, and may untie itself if used with certain types of line. As with all knots make sure you leave plenty of tail when tying this knot.

How to Tie

1. Using the bitter end, make a loop over the rope, keeping in mind there should be some slack on the tail.
2. Wrap the bitter end back, this time going under the standing end.
3. Bring the bitter end up through the first loop, pulling the two ends to make the knot tight.

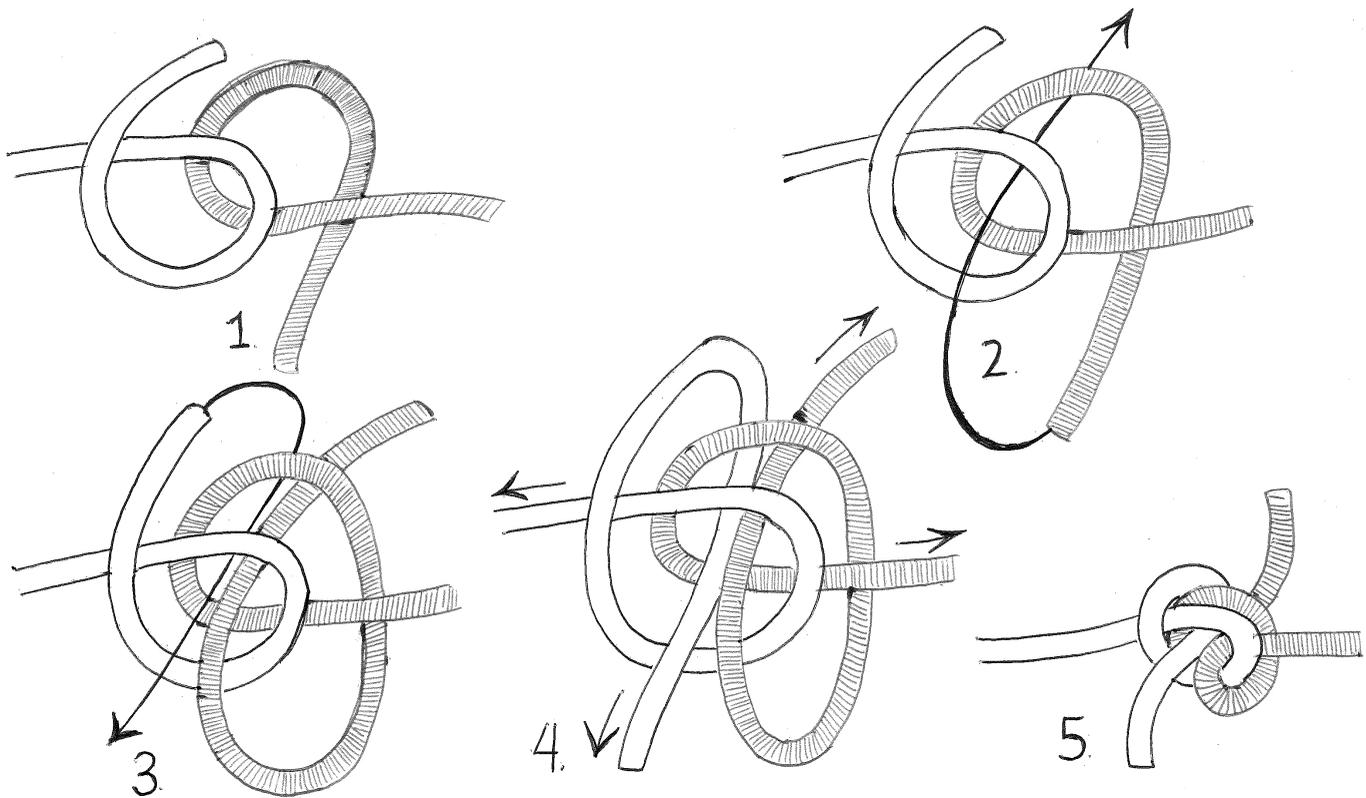


BOWLINE

The bowline is one of the most used and the most miss-tied of knots (other than the “simple” square knot). It is important to be able to identify a correct bowline before putting this knot into practice. This is a very good knot that gets the starring role on the water in both mooring and safety-related uses. Tied right, it is perfect for these applications. This is the perfect knot for when you need a loop, and works great for securing something to something else with the loop. It is a safe and secure knot to use when there is a person at the other end of it, like when hoisting someone aloft or back onto the boat. When the bowline is under load it will lock on itself making it impossible to untie until the load is removed. Great if you are the load and you want to make sure that knot you are attached to is not going to find itself untied. However, if what is being secured might come under strain at a time when you may need to untie the knot, this is not the knot for the task. Even after a load has been applied to the knot, once it is removed the knot is once again easy to untie which is a great advantage over other knots that create a loop.

How to Tie

1. Lay the rope across your left hand with the bitter end hanging down. Form a small loop in the line in your hand.
2. Bring the bitter end up to and pass through the eye from the under side (the rabbit comes out of the hole).
3. Wrap the line around the standing end and back down through the loop (around the tree and back down the hole).
4. Tighten the knot by pulling on bitter end while holding standing line.



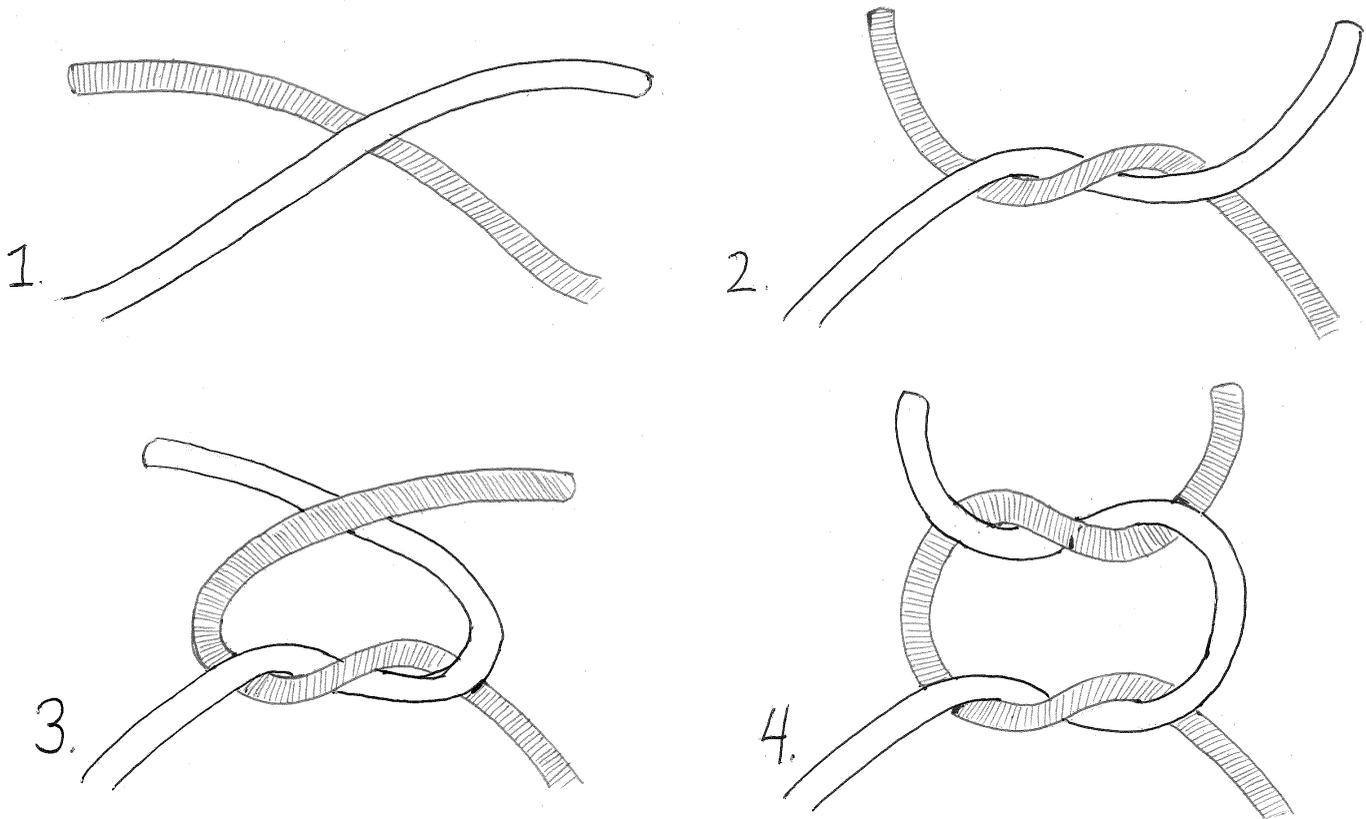
ZEPPLIN BEND

The **Zeppelin Bend Knot** is used for tying two lines of the same diameter together. It is very easy to tie correctly and is also easy to untie, even after it has come under strain. Unlike the reef knot, this one is difficult to untie while the knot is under strain. It also holds together when slack.

Real Life Experience: This knot holds extremely well and has hardly any of the slippage as I have experienced with the square knot.

How to Tie

1. Form a loop in each of the ends of rope.
2. Overlay one loop on the other, such that the bitter end of each rope faces "outwards" or away from the other hitch.
3. Pull either bitter end once around the loop in the other rope, and then through the "tunnel" created by the two hitches.
4. Repeat with the other loose end.
5. Pull on all four rope parts to tighten the knot.



REEF KNOT

The **Reef Knot**, also known as a square knot, this is used to bend two lines of the same diameter together. Like the bowline, this knot is often tied incorrectly and when so is no longer an effective knot. The wrong version of the knot is commonly called a granny knot. A correctly tied square knot can be untied under strain, one of the reasons it is ideal for reefing.

How to Tie

1. Hold an end of the rope in each hand.
2. Pass the right end over and under the rope in your left hand.
3. Pass the rope end now in your left hand over and under the one now in your right.
4. Tighten the knot by pulling both running ends at the same time.