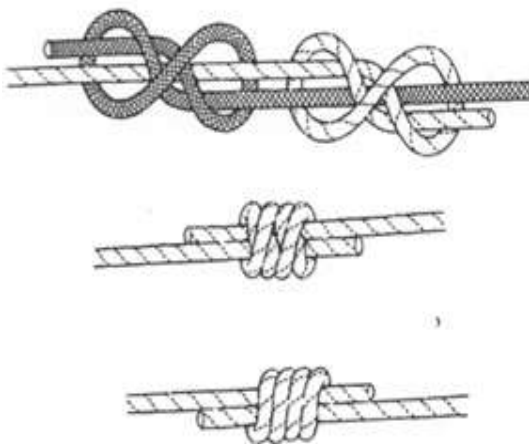


Here is a list of the required knots that you will learn and need to tie in order to complete the Helicopter Rope Master course. It helps if you can learn them in advance.

<u>Knot</u>	<u>Time (in seconds)</u>
Over hand loop	15
Figure 8 loop	30
Double f-8 loop	30
Double fisherman's knot	60
Middle of the line prusik	30
Tape/ water knot	30

A. Terms used in rope work:

1. **Bight:** A simple bend in a rope; the rope does not cross itself.
2. **Half hitch:** A loop that runs around a rope in such a manner as to bind on itself.
3. **Hitch:** A configuration that is tied around an object.
4. **Loop:** A simple bend in a rope that crosses itself.
5. **Pigtail:** The short length of rope at the end of a knot or coil.
6. **Round turn:** A bend in a rope that runs 360° around an object with both rope ends running in the same direction.
7. **Running end:** The free or working end of the rope.
8. **Standing end:** The anchored end of a rope.



Double fisherman's knot: Used to tie two ropes of **equal or unequal** diameter together or connect two ends of a rope to make a loop. It is a strong joining knot, but is difficult to untie once loaded with weight. Used for rope and accessory cord, **not for webbing**. Form a loop in your left hand, pointing your left index finger straight out. Wrap the pigtail around your finger toward your wrist 2 times. Pull finger out of the loops and insert the pigtail. Dress the knot. Flip the rope around in your hand and do the same thing again. When finished there will be four loops on one side and 2 "Xs" on the other with the cross bars going the same way.

Tape-Water knot: Used to secure two ends of **webbing** together. It is constructed by tying an overhand knot in one

end of the webbing and threading the other end of the webbing back through the knot in the opposite direction. Ensure the pigtails are either both up or down. Dress the knot down and allow at least 2 inches for the pigtails.

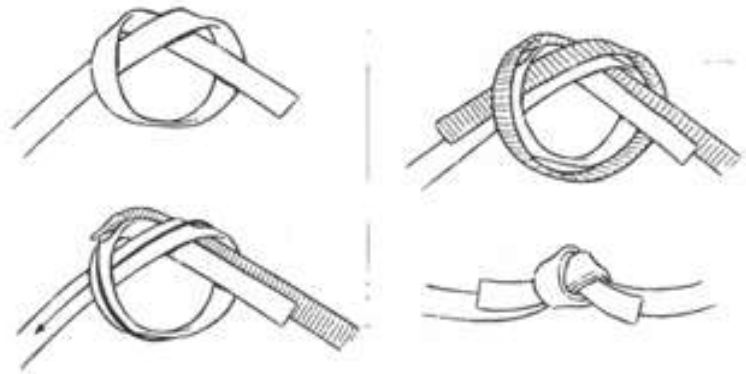
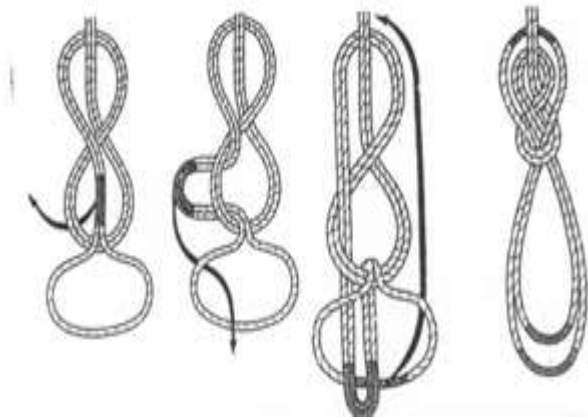
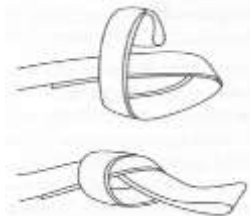


Figure 8 loop: This knot forms a single bight and is used to form an anchor point in the middle of a rope. Make a bight in the rope. Wrap the bight around the rope 360° and then run the bight through the loop.



Overhand knot: Used as a stopper knot or to form a loop in the end of rope, webbing or cordage. When making a loop out of webbing, watch for twists.



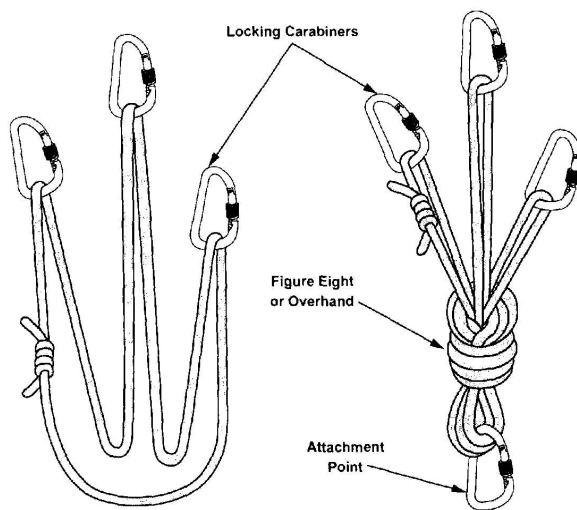
Double figure 8 loop: This knot forms a double bight and is more versatile than the single loop 8. It is used with multiple anchor points. Tied just like a figure 8 loop but instead of running the bight through the loop to finish, lay the two legs of the bight across the loop and pull through the loop while taking the top of the bight up and over to the back of the knot.

Pre-equalized cord rigging

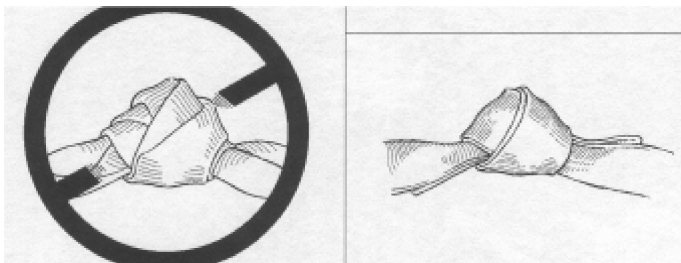
This method provides three pre-equalized attachment points and uses none of the rappel rope to construct the rigging. It can be used with or without the rescue rope setup. The anchor points can be in any configuration or distance apart. The pre-equalizing cord allows for easy disconnecting of the rappel rope(s). Rigging the system is as follows:

- Cut a piece of 1-inch tubular nylon or rappel rope to an approximate length of 20 feet, depending on the anchor point separations.

- Tie the ends of the 1-inch nylon together using a water/tape knot to form a continuous loop. Leave 1 to 2 inches of pigtail. If using rappel rope, tie ends using a double fisherman's knot, leaving a minimum of 2 inches of pigtail.
- Attach the loop to each of the three anchor points using a locking carabiner for each with the gate facing up and locked. Position the knot that secures the loop close to an anchor point.
- Pull the three rope sections between the anchor points and gather them together to form three bights. Ensure the bights all have equal tension when pulled in the direction of the rappel. Ensure the knot that secures the loop is still positioned close to an anchor point and not in the bights.
- Make a figure eight knot or overhand knot with the three bights and attach a large locking carabiner to this point. This is the attachment point for the rappel line.



Dressing knots



Knots that are properly dressed are stronger, easier to untie and easier to identify as being properly tied.