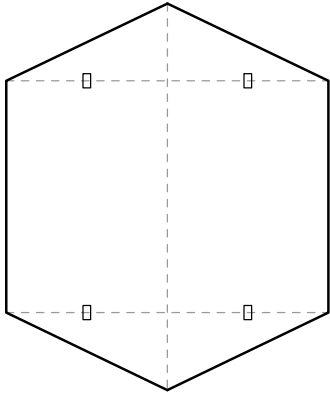


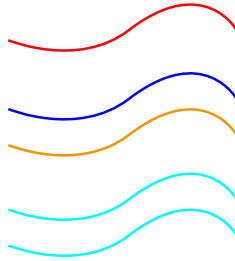
# Rokkaku Bridle and Bow Line Building Guide



## Materials Required



1 Rok



1 Length of Primary Bridle Line

2 Lengths of Secondary Bridle Line

2 Lengths of Bow Line

## Additional Materials Required

(depending on method used)



1 Loop of line 4" (10 cm) long

(required for tow point)

OR



1 Small aluminum ring



4 Loops of line 2" (5 cm) long

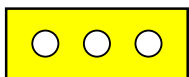
(required for bow lines)

OR



4 Loops of grosgrain ribbon

NOTE: All lines should be braided nylon/Dacron NOT twisted nylon



2 Pieces of stiff plastic or plywood with 3 holes

OR



2 Aluminum guy line sliders

OR



2 Large four hole buttons

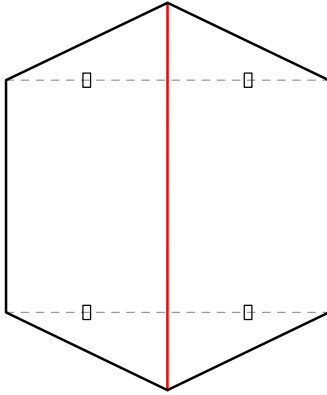
OR



Nothing if using a 'Tautline Hitch'

(required for bow lines)

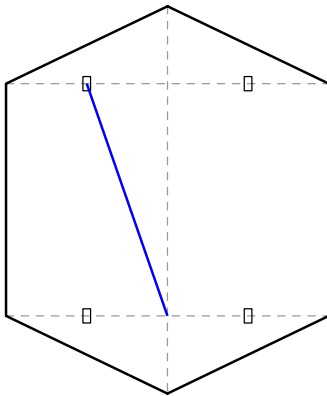
# Cutting Lines To Length



## Step 1

Cut a piece of line the same length as the height of the Rok.

This will become your Primary Bridle.

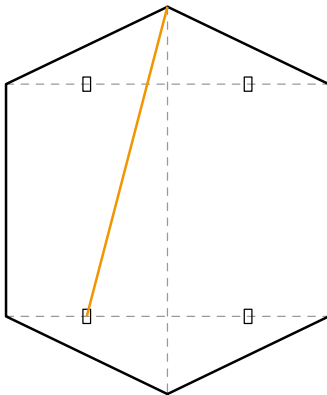


## Step 2

Take one end of your roll of line and hold it on the upper left bridge point (traditionally mid-way between the kite edge and the spine).

Use the line to measure the distance to the lower cross spar/spine crossing point. Double this length and add roughly 6" (15 cm) and cut it off the roll.

This will become your Upper Secondary Bridle.

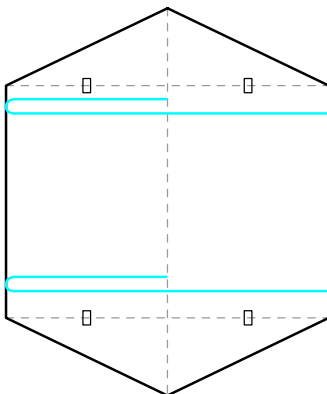


## Step 3

Take one end of your roll of line and hold it on the lower left bridge point (traditionally mid-way between the kite edge and the spine).

Use the line to measure the distance to the point at the apex of the kite. Double this length and add roughly 6" (15 cm) and cut it off the roll.

This will become your Lower Secondary Bridle.



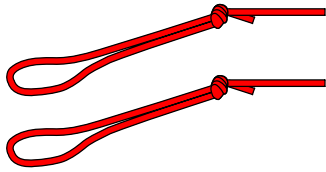
## Step 4

Cut two lines that are roughly 1.5 times the width of the kite.

These will become your Bow Lines.

# Making The Bridles

(for knot tying information see the Appendix)



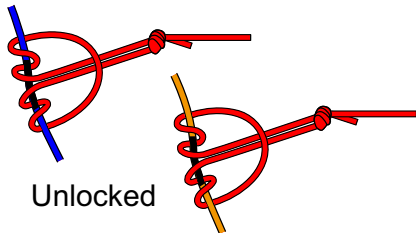
## Step 5

Tie a 2" (5 cm) 'Figure 8 Loop' in each end of the Primary Bridle line.

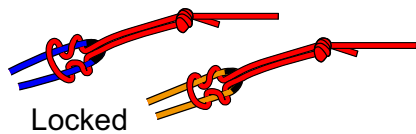


## Step 6

Fold the Primary Bridle in half and mark the mid point.



Unlocked



Locked

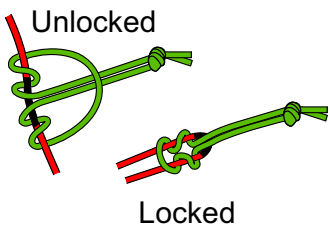
## Step 7

Fold the Secondary Bridles in half and mark the mid points. Attach the loops on each end of the Primary Bridle to the mid points on the Secondary Bridles using a 'Prussic Knot'.

Note: You will have to pass all the line (including the other Secondary Bridle) through the loop when making the second 'Prussic Knot'.

Pass the line through the loop at least twice then 'stroke' the loop away from knot in the Primary Bridle and pull the knot tight to lock it.

To adjust the position of the knot pull the Secondary Bridle straight which releases the 'Prussic Knot'. Slide the Primary Bridle to it's new position and re-lock by stroking the loop away from the knot in the Primary Bridle and pull the knot tight again.



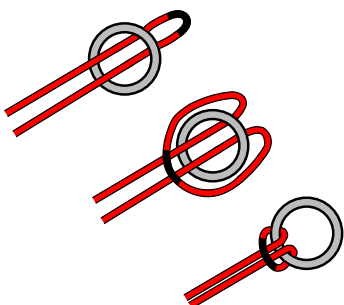
Unlocked

Locked

## Step 8a

Either attach a 4" loop of line to the mid point of the Primary Bridle using a 'Prussic Knot'...

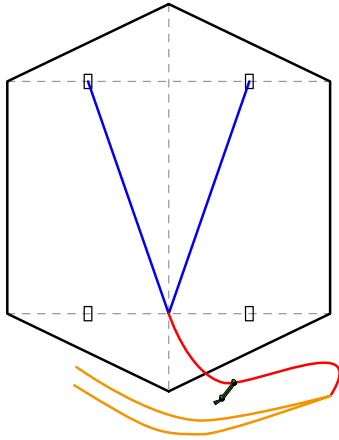
OR



## Step 8b

... attach a small aluminum ring to the mid point using a 'Larkshhead Knot'. Slip the line through the ring, fold it back around the ring then hold both lines and pull on the ring to lock.

## Attaching The Bridles To The Kite

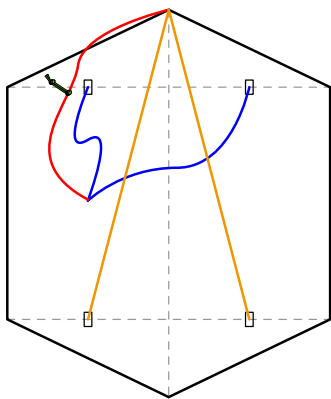


### Step 9

Position the Primary/Upper Secondary Bridle knot on the lower cross spar/spine crossing point.

If you have bridle loops sewn to the front of the kite then tie the ends of the Upper Secondary Bridle to the loops, ensuring that the knot remains on the spar/spine crossing point.

If you have a 'no-sew' kite then you will have to pierce the sail at the bridle points and tie the bridles to the spar, ensuring that the knot remains on the spar/spine crossing point.



### Step 10

Position the Primary/Lower Secondary Bridle knot on the point at the apex of the kite.

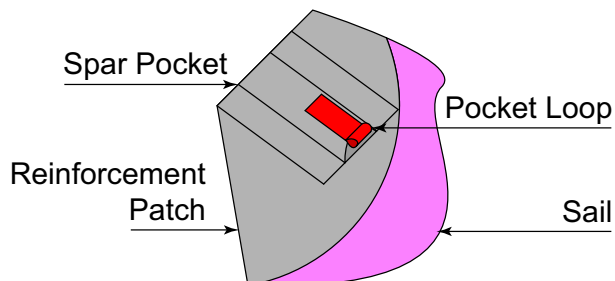
If you have bridle loops sewn to the front of the kite then tie the ends of the Lower Secondary Bridle to the loops, ensuring that the knot remains on the apex of the kite.

If you have a 'no-sew' kite then you will have to pierce the sail at the bridle points and tie the bridles to the spar, ensuring that the knot remains on the apex of the kite.

## Attaching The Bow Lines

The method of attaching the bow lines depends on the type of kite construction (sew/no-sew), the type of pockets and the cross spar material used. There are many different ways of doing this and therefore there is no 'right' way. I have outlined a couple of different methods that I have used successfully on several different Roks.

### Pocket Loops



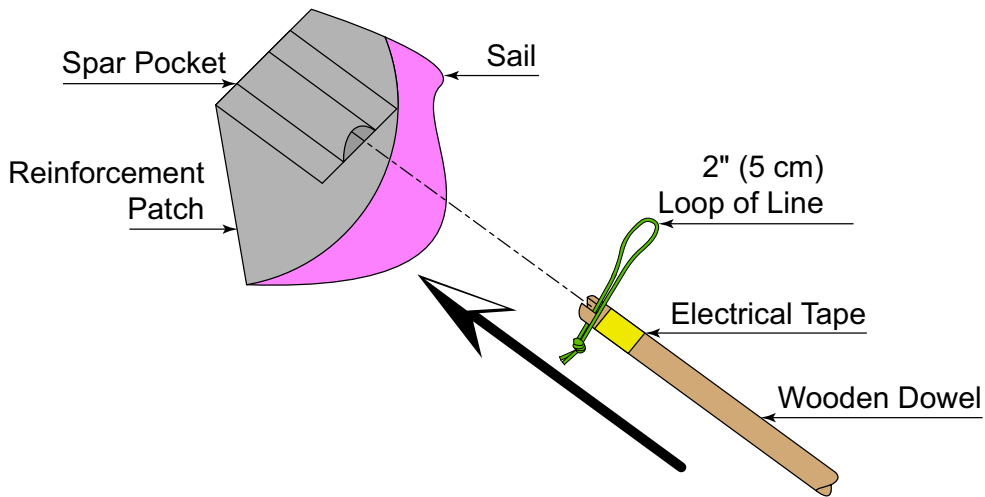
Pocket loops are made from 'grosgrain' ribbon and are sewn on top of the spar pockets. They are 'normally' used on sewn kites with epoxy fibreglass, carbon fibre or dowel spars where an arrow nock is not used.

# Attaching The Bow Lines

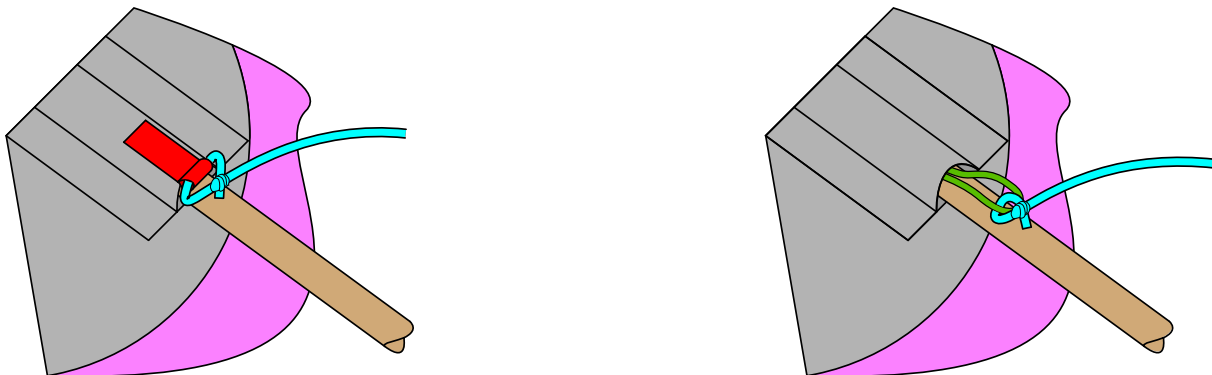
## Bow Loops

Bow loops are used on 'no-sew' kites or where an arrow nock is required. The arrow nock can be a push on type or in the case of wood dowels it can be a saw cut in the end of the dowel.

If you are putting a saw cut in dowels it is advisable to wrap a couple of turns of electrical tape around the dowel below the slot to prevent the dowel from splitting. Ensure the end of the dowel is well sanded to prevent it cutting through the pocket.



Hook a 2" (5 cm) loop of line over the arrow nock on the end of the cross spar and then insert this assembly into the spar pocket. Repeat for the other three bow spar pockets.



### Step 11

Tie one end of the Bow Line to either the pocket loop or bow loop (as applicable) on one of the bow pockets using a 'slip' knot.

# Attaching The Bow Lines

## Bow Line Adjuster

The method for attaching the Bow Line Adjuster differs depending on which type of adjuster you are using. The four most common types of adjuster are shown below.

### Plastic/Plywood Adjuster



#### Step 12a

Thread the free end of the Bow Line through an end hole on the adjuster and back through the middle hole. Take the line through the loop on the opposite pocket and back to the adjuster. Tie the end of the Bow Line through the remaining hole using a slip knot.

### Aluminum Adjuster



#### Step 12b

Thread the free end of the Bow Line through a hole on the adjuster and down through the slot. Take the line through the loop on the opposite pocket and back to the adjuster. Tie the end of the Bow Line through the remaining hole using a slip knot.

### Button Adjuster



#### Step 12c

Thread the free end of the Bow Line through a hole on the button and down through a diagonally opposite hole. Take the line through the loop on the opposite pocket and back to the button. Tie the end of the Bow Line through one of the remaining holes using a slip knot.

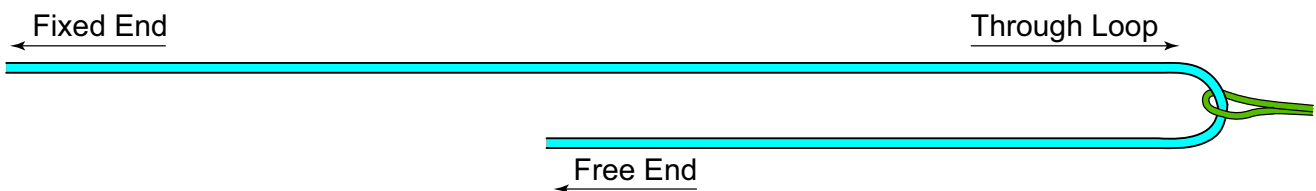
# Attaching The Bow Lines

## Bow Line Adjuster

### 'Tautline Hitch' Adjuster

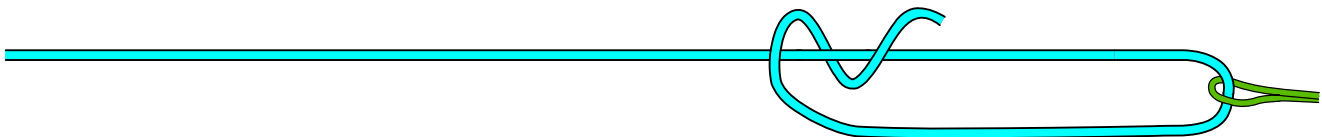
#### Step 12d

A Bow Line adjuster can be made without any additional parts by using a 'Tautline Hitch' instead of a rigid adjuster. The steps for tying a 'Tautline Hitch' are shown below: The knot should be tied as close to the free end as possible to minimise line loss.



#### Step 12d (i)

Thread the free end of the Bow Line through the loop on the opposite pocket.



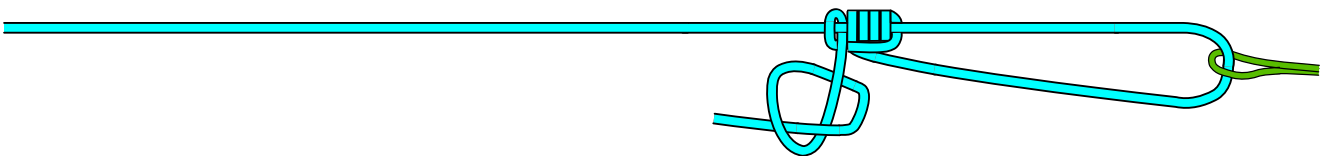
#### Step 12d (ii)

Pass the free end over the Bow Line and then make 3-4 wraps working towards the pocket loop.



#### Step 12d (iii)

Bring the free end out through the middle of the loop in the Bow Line and make one more wrap as shown above.



#### Step 12d (iv)

Tie a simple 'Overhand' knot in the free end and work the knot tight against the 'Tautline Hitch'. This will act as a 'stopper' knot and prevent the 'Tautline Hitch' coming loose. As an extra safety precaution in nylon/Dacron line melt the end of the line left sticking out of the 'Overhand' knot with a cigarette lighter and press the molten ball against the side of the lighter to form a belled end.



# Preparing To Fly

## Setting The Bows

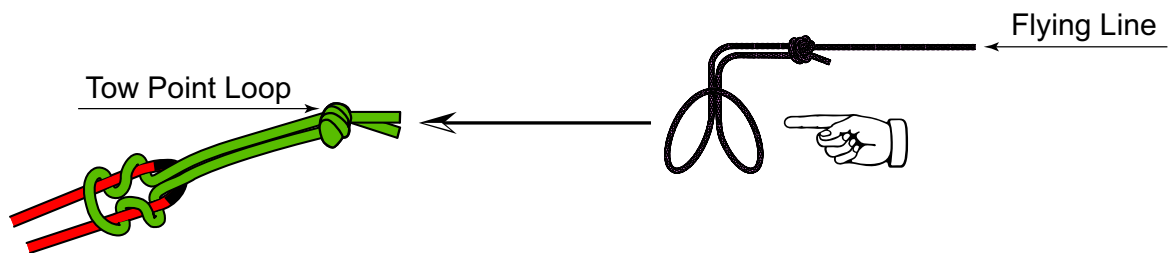
The amount of bow required differs depending on the size of the kite and the strength of the wind. A little bit of trial and error will be required to find the best amount for each kite, but generally smaller kites need a proportionally larger amount of bow to fly well.

### Step 13

Begin by laying the kite face down on the ground ensuring the spine is sitting on top of the cross spars. Note: If the spine is closest to the skin it could get broken due to the forces exerted by the cross spars.

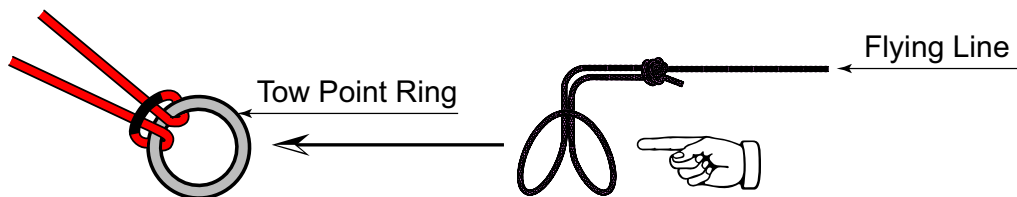
Slide the Bow Line adjusters to tension the lines until you have the required amount of bow. Generally slightly more bow is put into the lower cross spar than the upper cross spar. Once the bows are set you can attach the flying line.

## Attaching The Flying Line



### Step 14a

If your Primary Bridle is fitted with a tow point loop then form the end of the flying line into a 'Larkshead' knot and slip it over the knotted end of the loop. Pull the 'Larkshead' knot tight and the knot on the tow point loop will prevent it slipping off again.



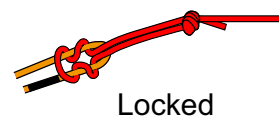
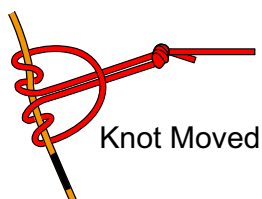
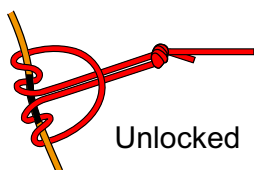
### Step 14b

If your Primary Bridle is fitted with a tow point ring then form the end of the flying line into a 'Larkshead' knot and slip it over the ring. Pull the 'Larkshead' knot tight and the ring on the Primary Bridle will prevent it slipping off again.

# Making Adjustments

## Adjusting For Yaw

If your kite is not sitting vertically in the sky or it has a tendency to spin in one direction or the other then you may find adjusting the position of the Primary to Secondary Bridle knots will improve this. This is a trial and error situation and you will have to make an adjustment and see if there is an improvement.

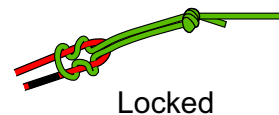
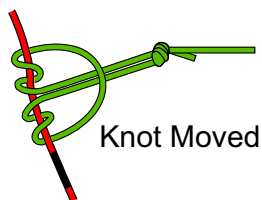
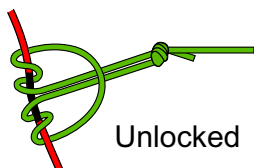


### Step 15

If you hold the Secondary Bridle on either side of the Primary Bridle knot and pull tight the 'Prussic' knot will unlock allowing you to slide the Primary Bridle to a new position. Re-lock by stroking the loop away from the knot in the Primary Bridle and pull the knot tight again. Make adjustments of no more than 1/4" (6 mm) and try to fly the kite again.

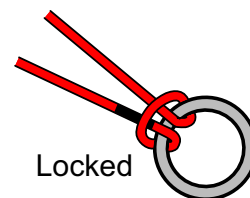
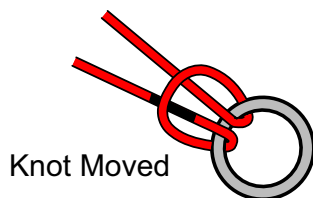
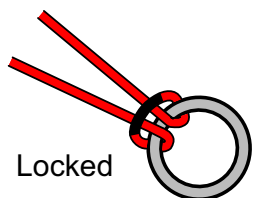
## Adjusting For Angle of Attack (AoA)

Adjusting the AoA may be required if your kite is not flying at its best. Light winds will require a different setting than stronger winds. Changing the AoA changes the amount of lift produced by the sail.



### Step 16a

To adjust the AoA on a bridle fitted with a tow point loop follow the instructions shown in Step 15 above. Make adjustments of no more than 1/4" (6 mm) and try to fly the kite again.



### Step 16b

To adjust the AoA on a bridle fitted with a tow point ring pull on the loop to release the knot. Slide the line to the new position then grip both lines and pull on the ring to lock the knot. Make adjustments of no more than 1/4" (6 mm) and try to fly the kite again.

# Appendix

## Knot Tying Information

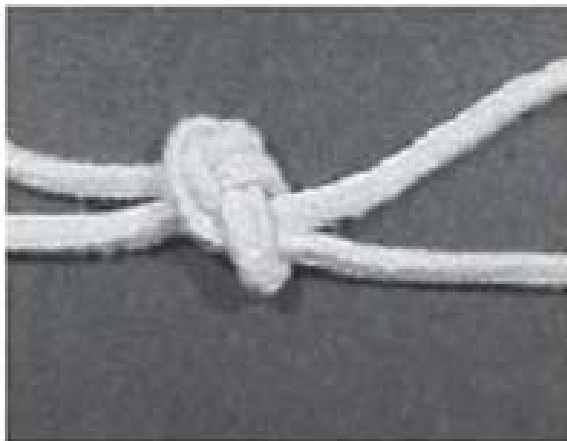
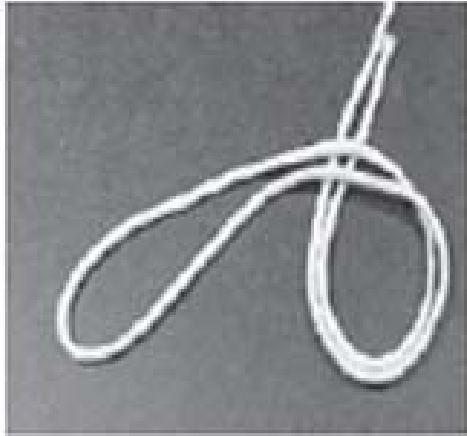
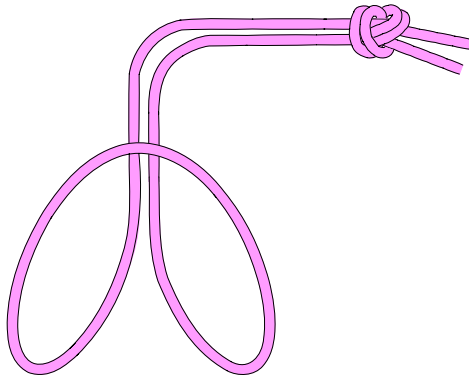
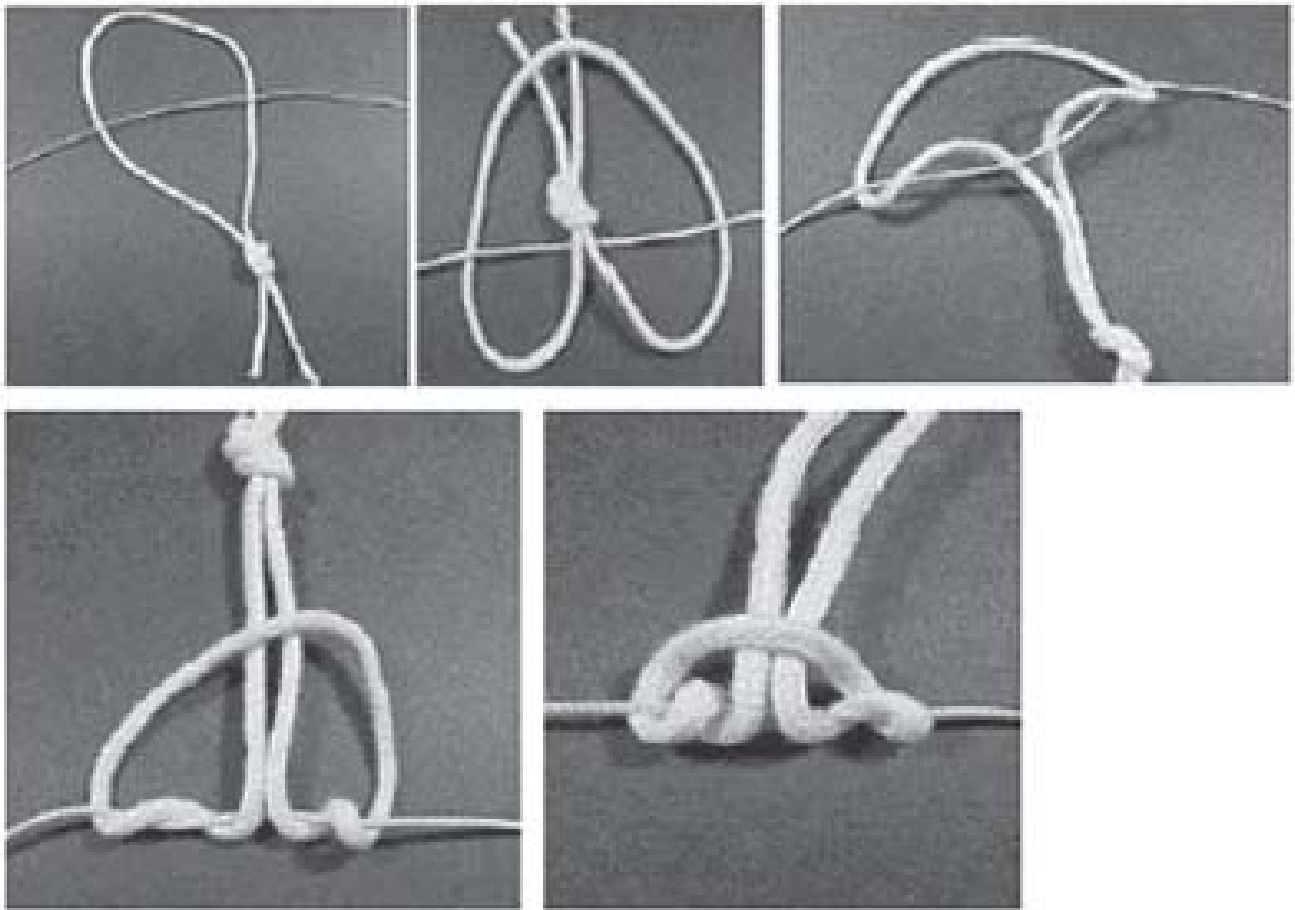


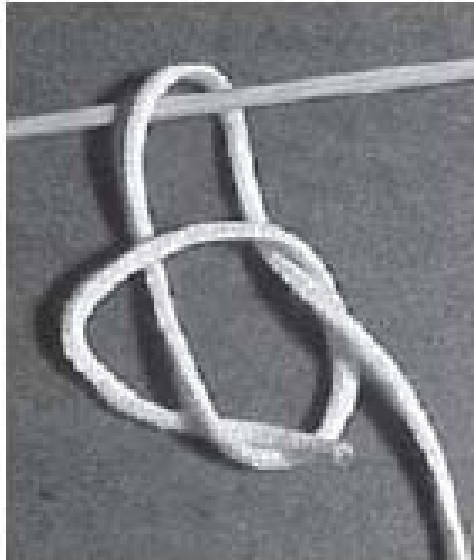
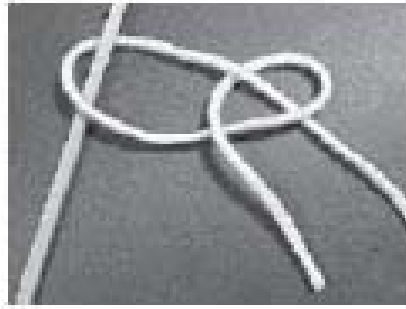
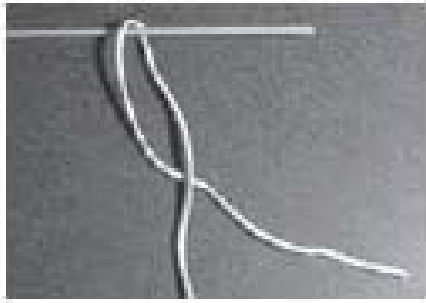
Figure 8 Loop



Larkshead Knot



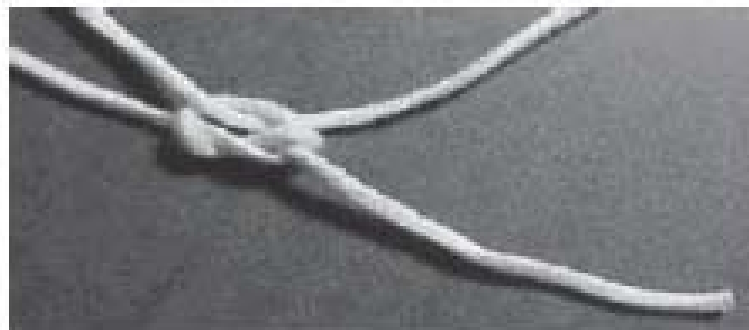
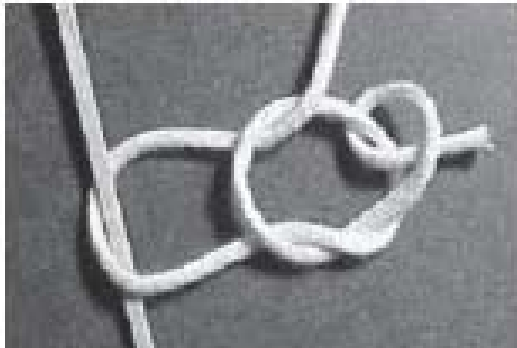
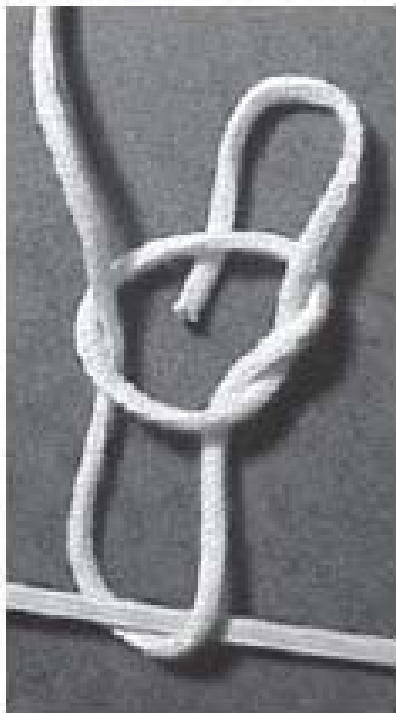
Prussic Knot



## NOTE

The upper three photos show the basic knot

The lower three photos show an additional turn for security.



Slip Knot