

BERMUDA KITES

SPITTAL SEASIDE FESTIVAL 2012

SPITTAL IMPROVEMENT TRUST
Working in Spittal, for Spittal


BALLINGER
CHARITABLE TRUST



A Bermuda kite is handmade from wood, string, paper and glue. They are normally patterned with vibrant colours and are traditionally flown in Bermuda only at Easter. The more traditional kite is made from 4 sticks and is hexagonal like the one below. People also fabricate 5 and 6 stick 'moonies' like the one on the left.

For most Bermudians, Good Friday means flying Bermuda kites, and eating codfish cakes, hot cross buns and drinking Bermuda Rum Swizzle. Every Good Friday, Bermudians of all ages build kites, and the sky is filled with them and the sound they make, hummm hummm! However flying kites was popular in all over the world, especially in China, Pakistan, Afghanistan, India, England and Scotland hundreds of years before it ever reached the tiny islands of Bermuda.

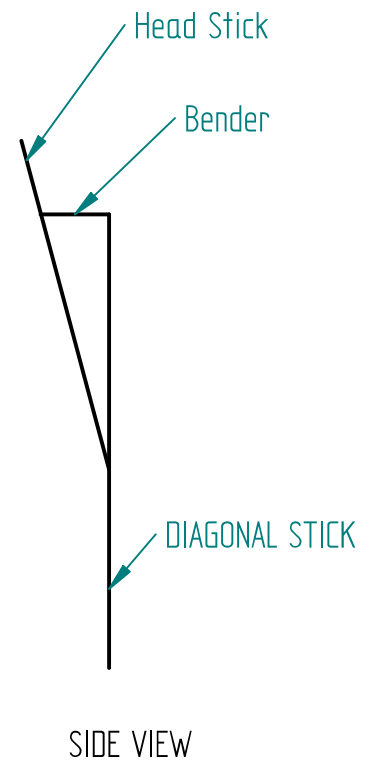
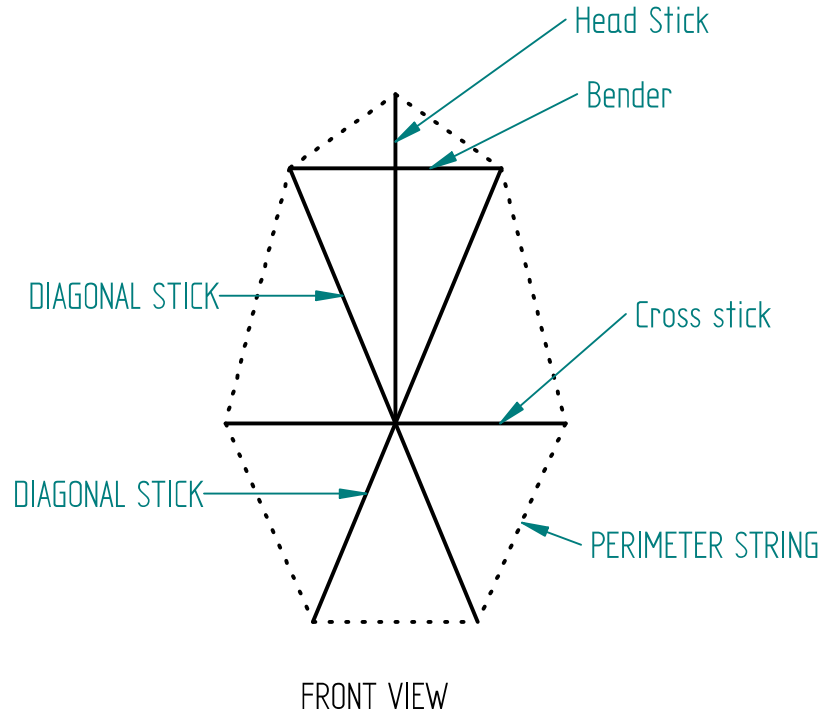
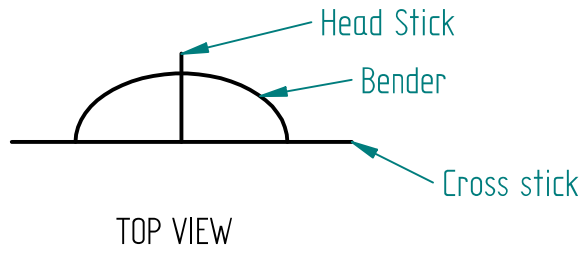
This guide sets out to give a comprehensive explanation of how Bermuda kites are built and flown. This guide provides the details required to construct the frame from flat sticks. Examples are given with illustrations of the knots required for stringing a frame. Methods of marking, cutting and gluing the tissue paper are also explained. Details of the flying loop and tail loop are also shown. Finally some tips on how to fly the kite as we do in Bermuda is illustrated.

I hope you enjoy this guide and have many safe and happy flights with your own homemade Bermuda kite.



Jeff Steynor
Bermuda Kite Hobbyist

Views of the Bermuda kite explaining the different sticks and strings.



MATERIAL

- One 4 x 12 x 2400mm Pine Stripwood
- One bamboo bender about 40cm
- Thin white kitchen string
- PVA glue
- Nail (Thin and about 25mm long)
- Assorted Tissue Paper
- Flying string
- Some old bed sheet material for tail

TOOLS

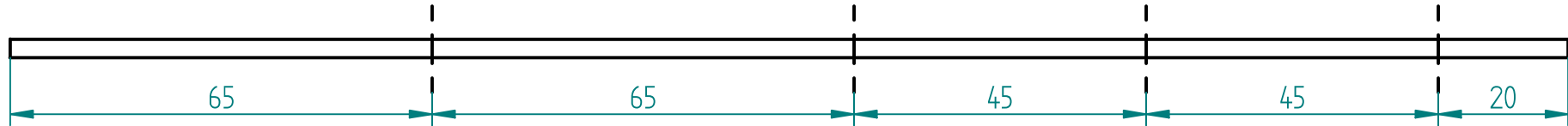
- Hacksaw with fine blade
- Thin paint brush about 1cm wide for glue
- Scissors
- Drill & drill bit 3-4mm
- Hammer
- Knife



	NAME	DATE	TITLE	
DRAWN	Jeff Steynor	08/08/12	Spittal Seaside Festival 11-12 Aug 2012- Bermuda Kite Plans and Instructions	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN CENTIMETERS ANGLES ± 3° DISTANCES ± 0.2 CM			SIZE	REV
			A4	A1
			DWG NAME	
			TRADITIONAL KITE - HEXAGONAL	
			Bermuda Kite Plans A1.pdf	
			KITE TERMINOLOGY	

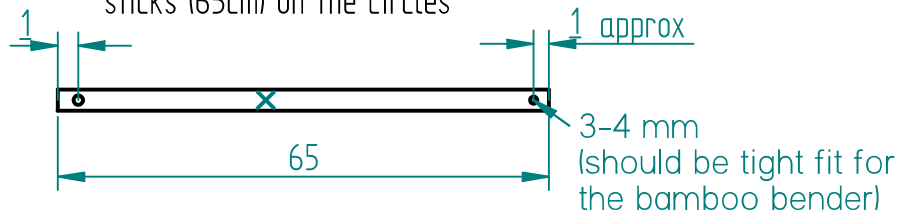
STEP 1

Cut the stripwood into:
 Two 65 cm lengths for the diagonal sticks
 Two 45 cm lengths for the cross and head sticks
 The remainder should be 1 x 20cm length for winding the string



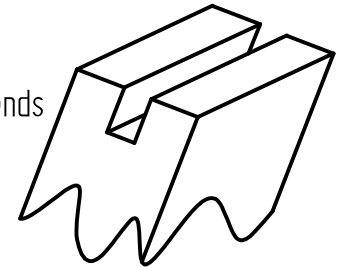
STEP 2

Drill two holes in the diagonal sticks (65cm) on the circles



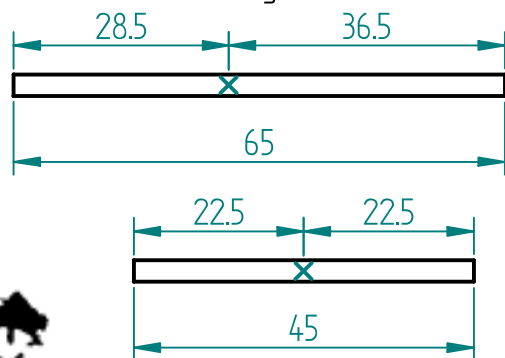
STEP 4

Use the hacksaw blade and carefully cut a groove about 1.5-2.5 mm deep across the ends of all the sticks.

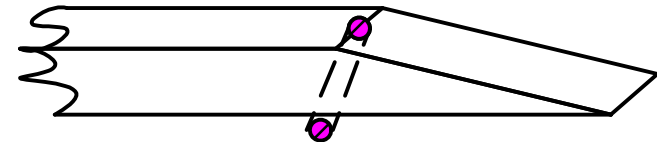


STEP 3

Mark the stripwood at the X points and make a small indent to prevent the wood from splitting when the kite frame is nailed together.



STEP 5

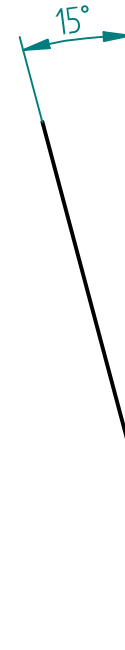
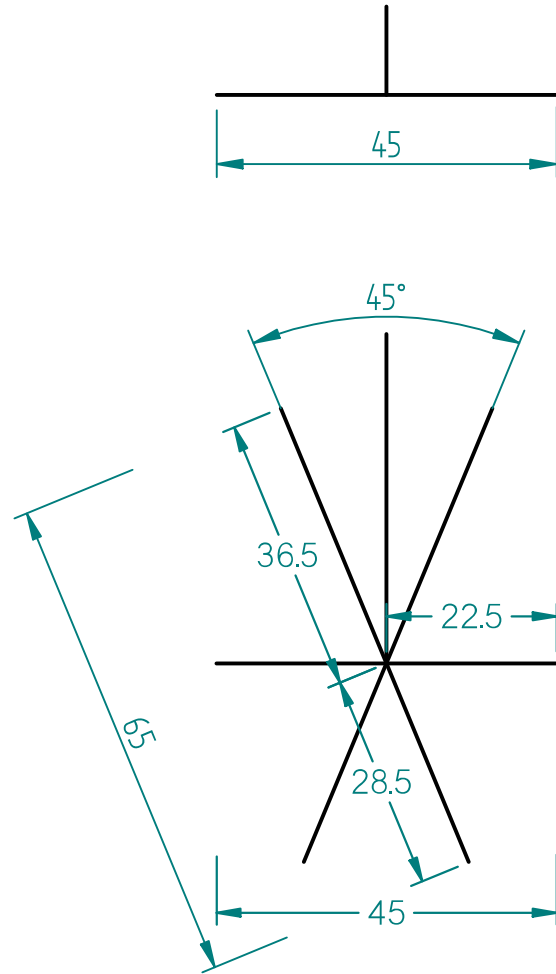


Cut one end of the head stick (45cm) to have a wedge like so. The hole shows how the nail will go through the head stick.



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		A4	TRADITIONAL KITE - HEXAGONAL	A1
			Bermuda Kite Plans A1.pdf	
CUTTING THE FRAME				

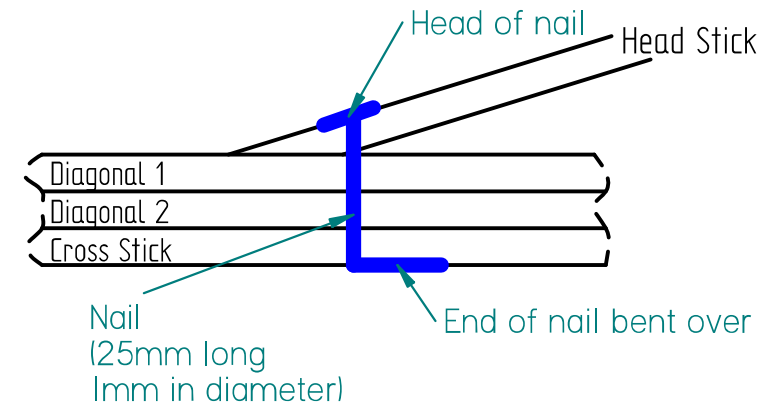
How to build the frame



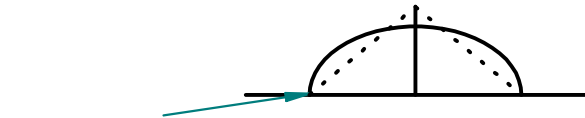
Start the nail through the head stick.
Then hammer through the diagonal sticks
lastly through the cross stick.

Try to keep the nail in the centre line of the sticks.

Bend the nail over so it cannot come out.



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			A4	A1
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			TRADITIONAL KITE - HEXAGONAL	
			Bermuda Kite Plans A1.pdf	
			FASTENING THE FRAME	

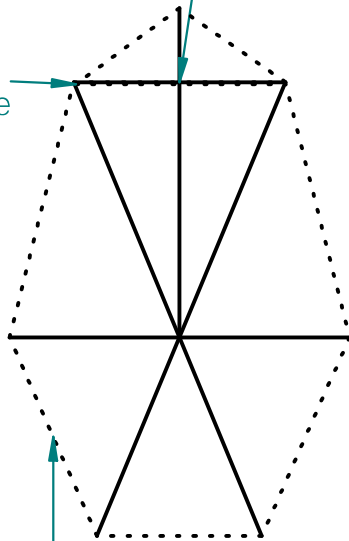


Tie bender on each side to the diagonal sticks using a few loops and a reef knot to stop the bender from slipping

Tie head stick to bender using a few loops and a reef knot to stop the bender from slipping

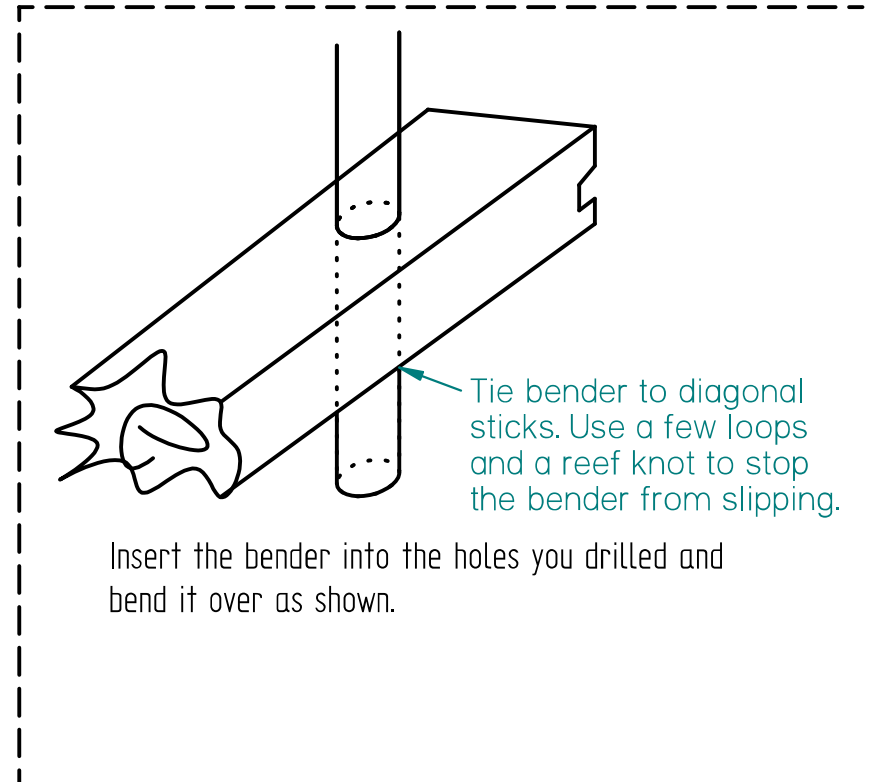
Tie a tight line from the bender ends through the groove in the end of the head stick. Start and finish the line with a clove hitch and two half hitches.

Start and end the perimeter string here



Once the perimeter string is tied tight, get all the sticks even and level so the kite is balanced. Even the head stick should be centered on the bender.

Use kitchen string to tie a tight perimeter loop around the kite. Start and finish the line with a clove hitch and two half hitches.



Tie bender to diagonal sticks. Use a few loops and a reef knot to stop the bender from slipping.

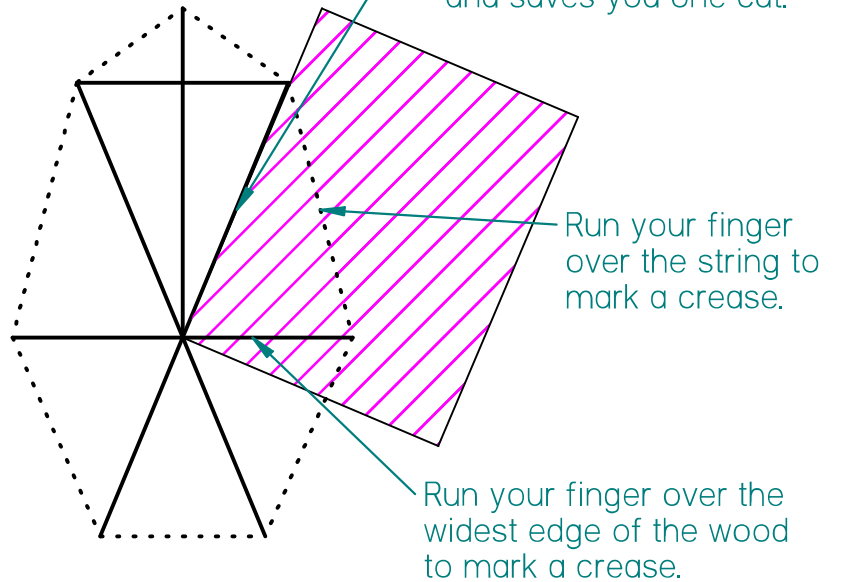
Insert the bender into the holes you drilled and bend it over as shown.

BE SUPER CAREFUL WITH THE BENDER IT BREAKS EASILY!

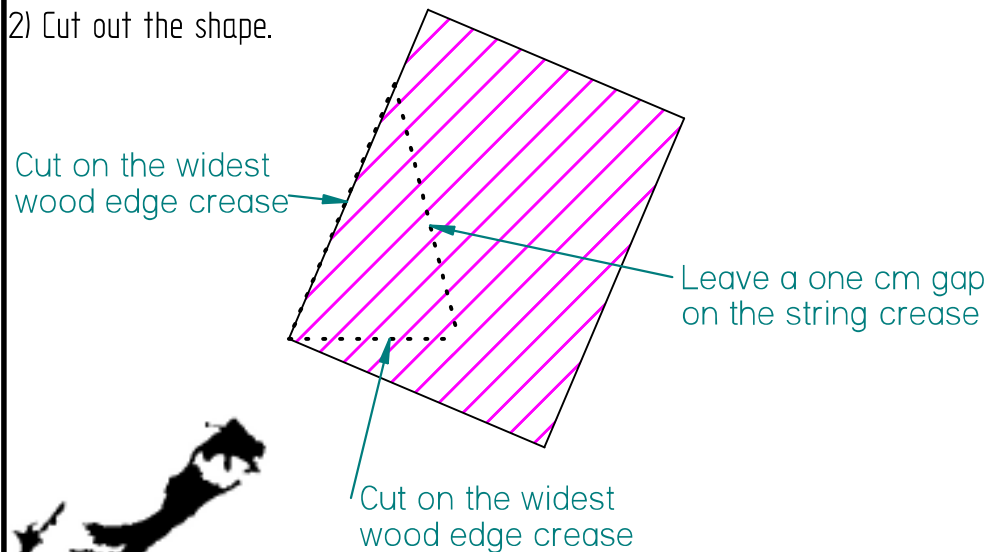


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			A4	A1
			DWG NAME	
			TRADITIONAL KITE - HEXAGONAL	
			Bermuda Kite Plans A1.pdf	
			STRINGING THE FRAME	

1) Lay the paper over the kite.
Have someone help you hold the paper still while you mark out the shape of the panel you want to paper.



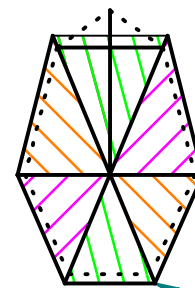
2) Cut out the shape.



3) Cut all the paper first. it makes it easier to mark out the next sheet.

4) I prefer to glue the sheets to the wood first and leave the perimeter string to last. Starting with the lightest colour and working towards the darkest colour normally gives the best aesthetic.

5) Spread a light film of glue on the wood, and then lay the sheet on the wood. Carefully line up the edges of the paper and the wood. When you are happy run your finger over the wood making sure the paper is pressed against the glue. be careful not to rip or pull the paper.



6) Once all the paper is on the kite, turn the kite over to start gluing the perimeter string. Make a small cut in the edge of the paper up to the string on each side. This allows the paper to fold over the string. Apply a light film of glue to the back of the paper and then from the centre fold the paper over string working your way to the edges.

small cuts are made either side of each piece of wood

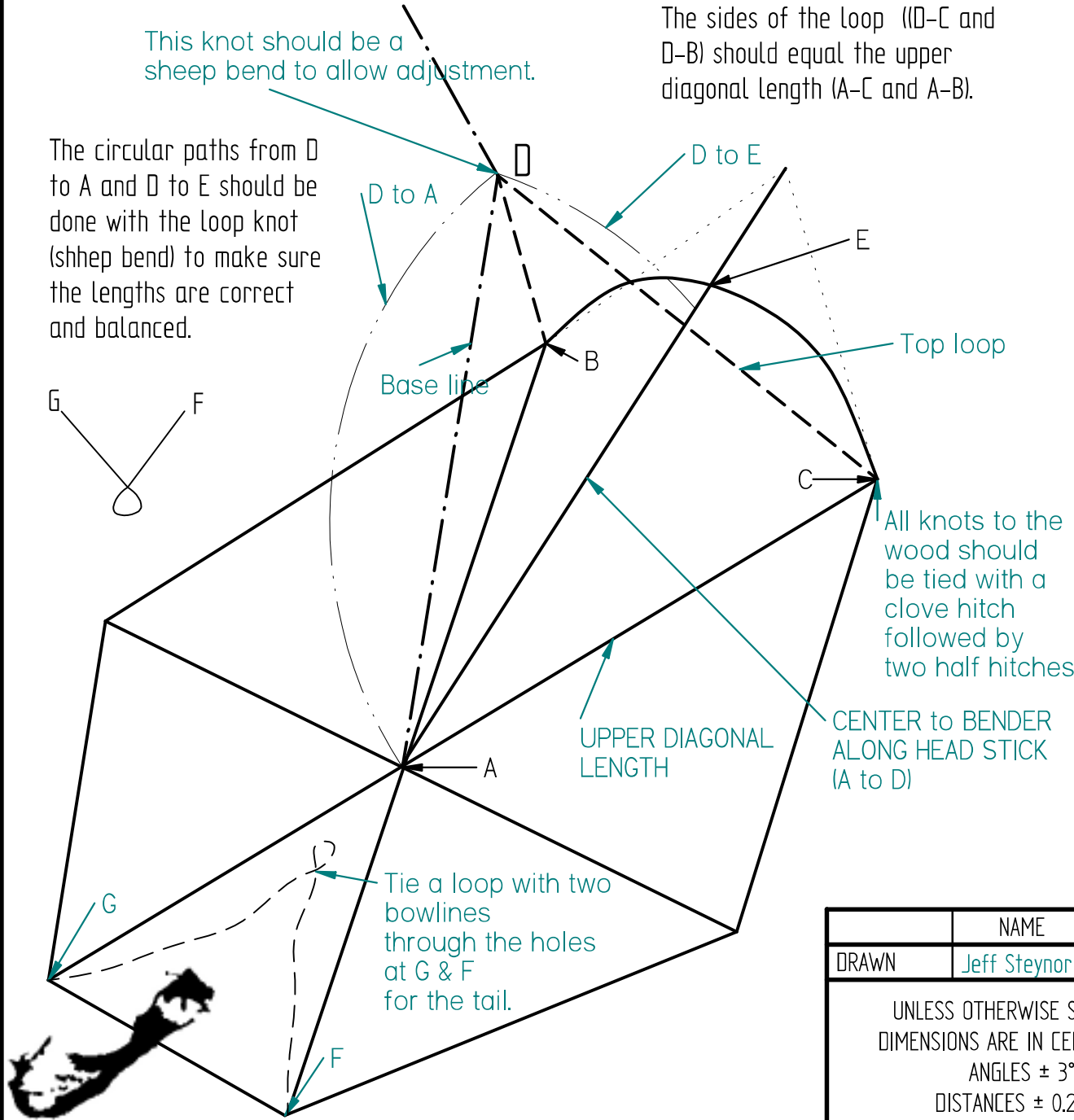
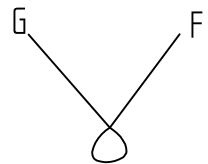


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			DWG NAME TRADITIONAL KITE - HEXAGONAL	
			Bermuda Kite Plans A1.pdf	
			GLUING THE PAPER	

The sides of the loop ((D-C and D-B) should equal the upper diagonal length (A-C and A-B).

This knot should be a sheep bend to allow adjustment.

The circular paths from D to A and D to E should be done with the loop knot (sheep bend) to make sure the lengths are correct and balanced.



1) For the top loop, tie a string from point B to point C. Starting and ending with a clove hitch and two half hitches. The loop should pull down to the middle of the kite at point A

2) For the base line cut a piece of string about 1.5m long. Poke some holes in the paper at point A so you can fish the string around the frame, make one loop with the string and tie a bowline.

3) Run the base line under the top loop and find the center of the top loop by pulling down until the top loop is tight. Then pinch the top loop to mark the spot. Pull the base line up toward point E and tie a sheep bend. The base of the loop (D to A) should equal the length from the center to the bender (A to E) along the head stick minus 2 to 5cm depending on the wind conditions and amount of tail.

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN CENTIMETERS
ANGLES $\pm 3^\circ$
DISTANCES ± 0.2 CM

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	SIZE	DWG NAME	REV	
	A4	TRADITIONAL KITE - HEXAGONAL	A1	
Bermuda Kite Plans A1.pdf				
TYING THE FLYING AND TAIL LOOPS				

HOW TO GET THE KITE UP IN THE SKY:
 IN BERMUDA WE DO NOT RUN WITH THE KITE. THE FASTEST WAY TO PULL THE STRING IS BY PULLING HAND OVER HAND BETWEEN YOUR LEGS. LET THE STRING FALL ON THE FLOOR. DO NOT HOLD THE BALL OF STRING, HOLD THE LINE ITSELF.

If the kite does not climb there may not be enough wind, or you may have too much tail, or the loop is set too much pulling.

The kite may take more pulls and sinks than 4 to get to full height.



Pitch Kite 30m downwind

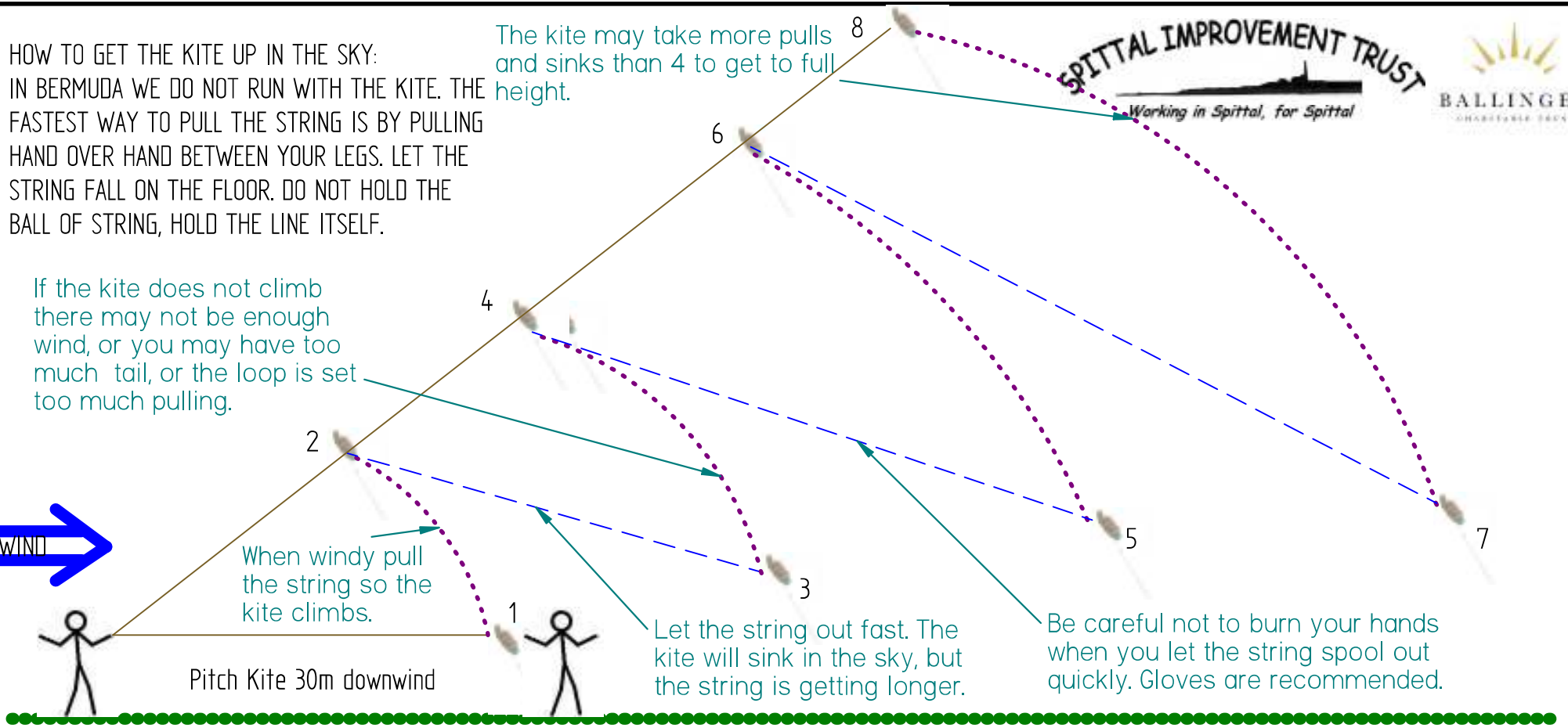
When windy pull the string so the kite climbs.

Let the string out fast. The kite will sink in the sky, but the string is getting longer.

Be careful not to burn your hands when you let the string spool out quickly. Gloves are recommended.

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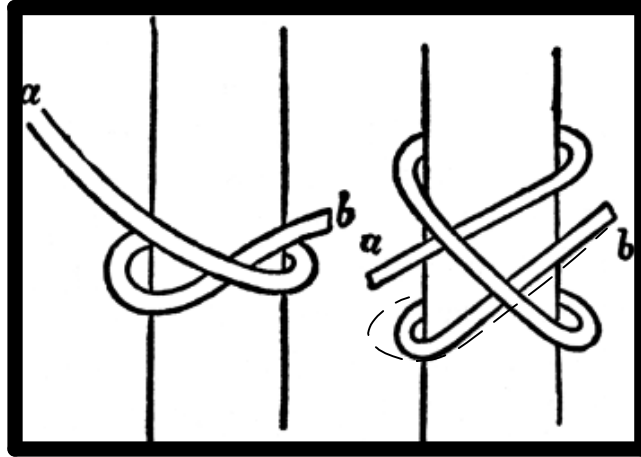


Kites should be flown in open spaces away from crowds of people.
 A kite can injure people on landing/crashing.
 Check for power lines, do not fly near power lines.
 If your kite breaks free and lands in the power lines leave it alone.
 Call the authorities.

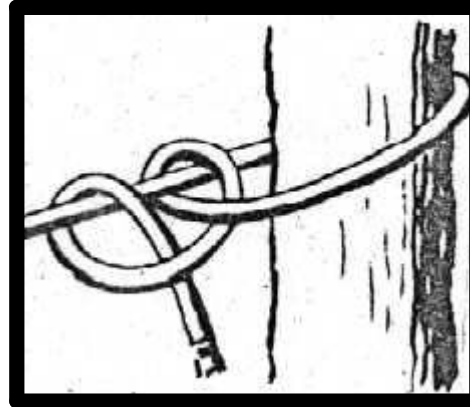


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			FLYING THE KITE	

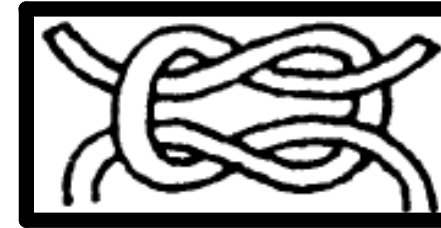
Clove hitch used often in the stringing of the kite



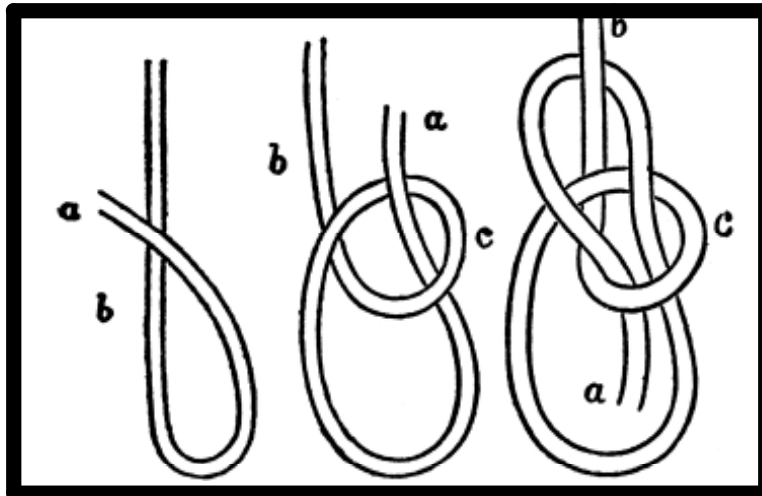
Two half hitches used to prevent knots coming undone.



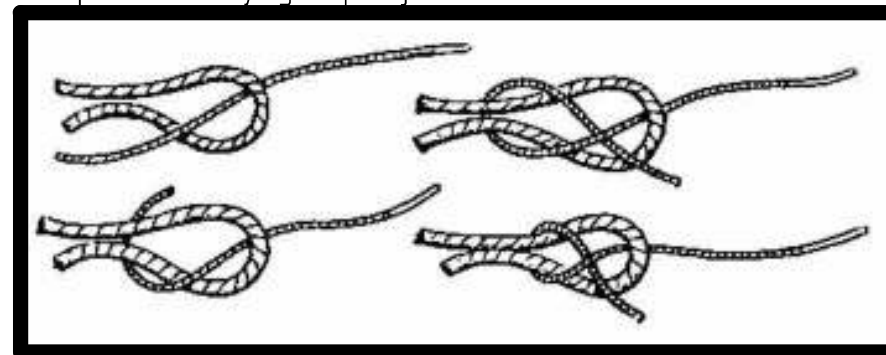
Reef knot for finishing loop ties etc.



Bowline knot - used for the base of the flying loop.



Sheep Bend for flying loop adjustment knot.



These knots are some of the knots that you may find useful in stringing your own kite next year and the year after that!



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			EXAMPLES OF KNOTS		