

# SIMPLE DELTA

This is a simple easy to build Single Line kite called a Delta. It will fly in 2-10 mph wind, but will struggle in higher winds. It is easy to add artwork, or change out the tails, and if a stick breaks it is easy to replace.

**DIFFICULTY: EASY - MODERATE**  
**COMPLETION TIME: 1-1.5 HOUR**

## SUPPLIES

- RIPSTOP NYLON OR SIMILAR FABRIC AT LEAST 26" X 40"
- 3 3/16" WOOD DOWELS 48" LONG

## TOOLS

- QUILTERS MARKER/PENCIL
- RULER
- EX-ACTO KNIFE, OR OTHER CUTTING KNIFE
- SEWING MACHINE
- DOUBLE STICK TAPE or GLUE STICK
- PAINTERS TAPE OR MASKING TAPE.

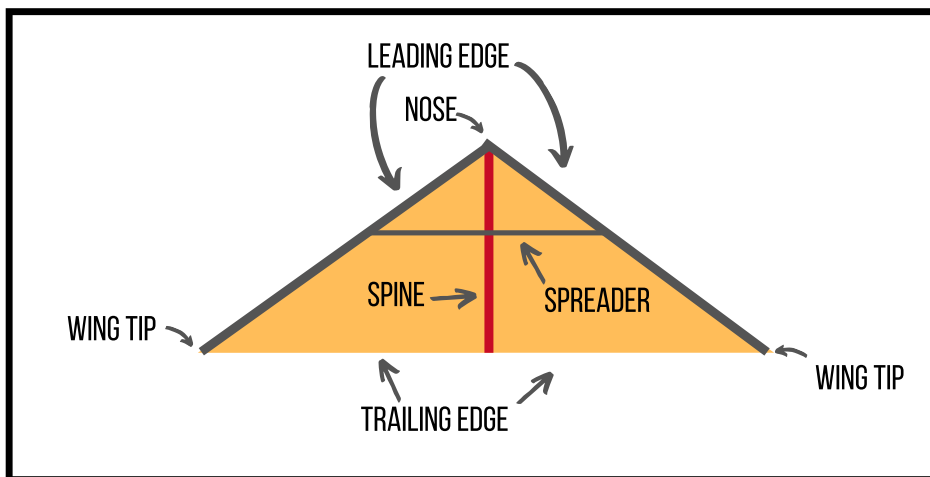
## NEED FOR FLYING

- FLYING LINE
- FLAGGING TAPE

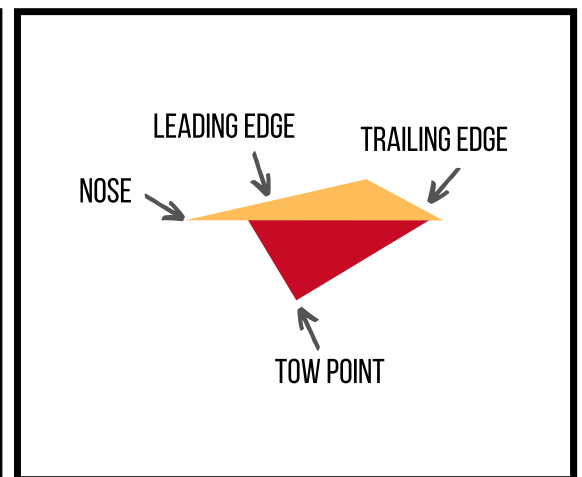


Through out these instructions there are a few terms that are used that it may be helpful to know. They refer to parts of the kite, and are critical in achieving the correct lay up for the kite. The 'Back View' is what the kite will look like completed if it is laying with the belly down on the table. The side view is what it looks like if you are holding the kite. You may need to refer back to this as you build your kite.

### 'BACK' VIEW



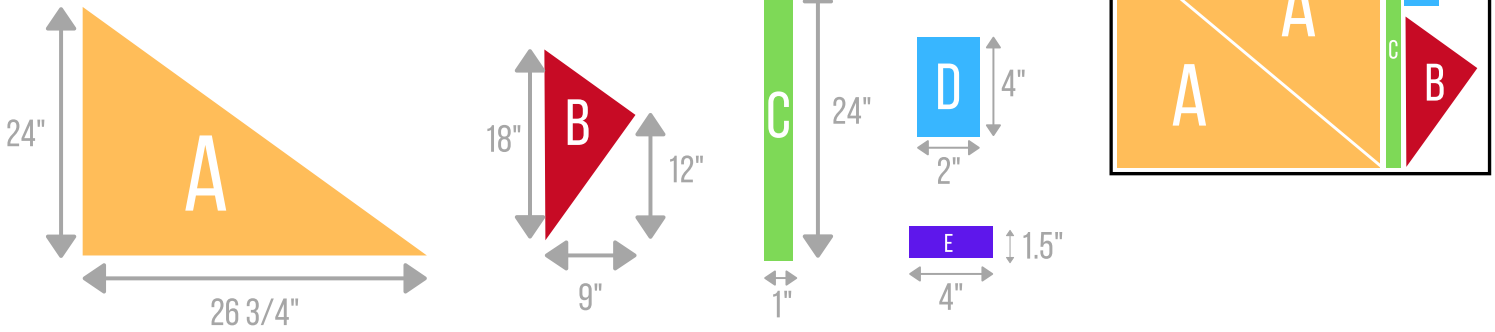
### SIDE VIEW



## STEP 1 Cutting out the sail

Using the ruler and the quilters pencil, mark out the cut lines for the various pieces you will need. All of the pieces will fit on a single piece of fabric if laid out like this:

Note that you need two of 'A' and two of 'E'.



## STEP 2 Lining up the Sail

Take the two 'A' pieces and line the 24" sides up together. This will be your spine. Place a piece of masking tape on each sail near the spine. This will help you identify the spine of the sail versus the leading edge or trailing edge, and what side is the 'back' of the kite.



## STEP 3 Making the Spreader Pockets

Cut piece 'D' into two 2"x2" squares

Take one square and fold it over into a triangle.

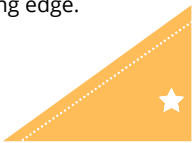
Fold it in half again in a triangle.

Repeat for other square.



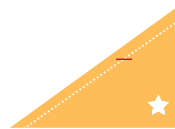
## STEP 4 Prep the Leading Edge

Working on the back of the sail. Mark a line 1 inch inside of the leading edge.

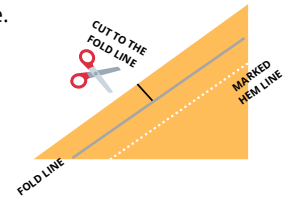


Fold the edge of the fabric over to meet the line. You will be creating a 'sleeve' that is 1/2" wide. Crease the fabric to help it stay in place.

Measure along the drawn line, and place a mark at 21" that is perpendicular with the spine.

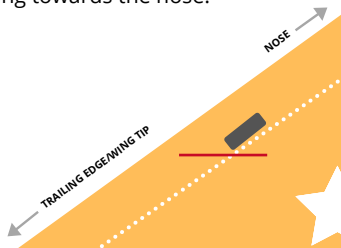


With the fabric folded over, measure 2" from the bottom on the drawn line. Make a perpendicular cut to the fold line.

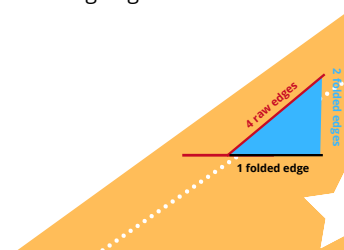


## STEP 4 Placing the Spreader Pockets

Using your mark on the leading edge, place a small piece (~1") of double stick tape or glue towards the outside of your marked line going towards the nose.

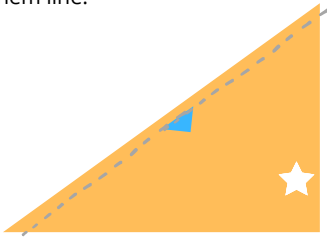


Place the folded spreader pocket so the single folded edge is on your mark towards the trailing edge, and the four raw edges are facing the leading edge.

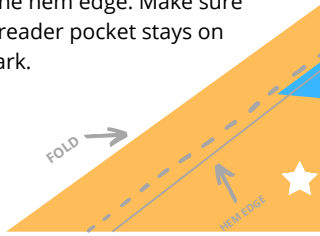


## STEP 5 Sewing the Leading Edge

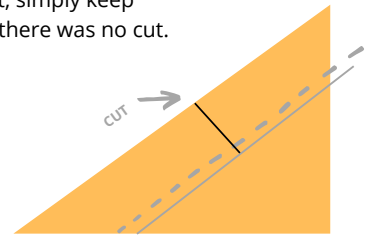
Sew the leading edge to the marked hem line.



Keep the stitches about 1/8" from the hem edge. Make sure the spreader pocket stays on the mark.

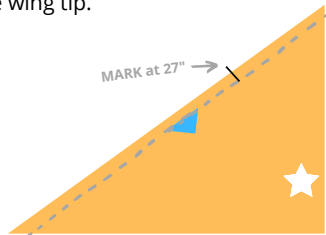


At the wing tip where you made the small cut, simply keep sewing as if there was no cut.

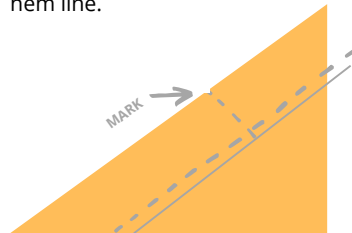


Repeat this for the other half of the sail. Making sure that the hem folds towards the back and that the spreader pocket is placed on the back. This is a good time to hold the two halves up together and make sure they are even.

On the back side of the kite, measure along the new outside leading edge line, and place a mark across the leading edge at 27" from the wing tip.

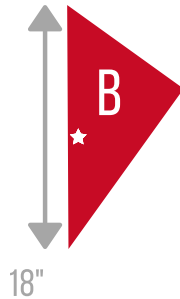


Sew along this mark from the edge of the leading edge to your stitched hem line.

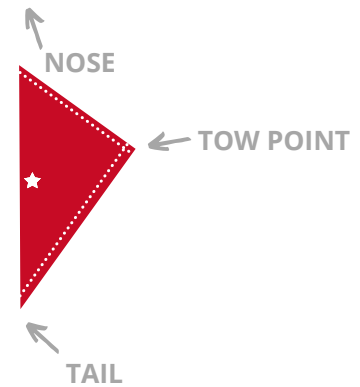


## STEP 6 Hem the Fin

Grab piece 'B', find the edge that is 18" long and place a piece of masking tape near that edge.

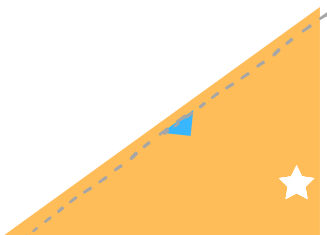


On the non marked edges, fold the edges over 1/4 of an inch. Then sew them in place



## STEP 7 Connect the Sail

Lay one sail down, so the back of the sail is facing downward. Then, line up the un-hemmed edge of the fin with the spine of the sail. The tip of the fin furthest away from the tow point (the tail) should line up with the 90 degree corner of the sail. The nose of the fin WILL NOT meet with the nose of the kite.



Layer 1



Layer 2

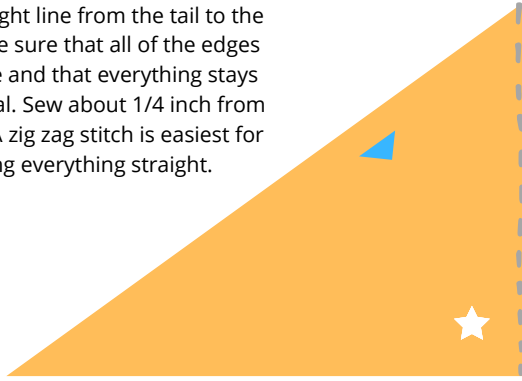


Layer 3



Ripstop nylon can be slippery. If need be, use double stick tape or glue to hold everything in place as you sew the spine together.

Sew a straight line from the tail to the nose. Make sure that all of the edges stay in line and that everything stays symmetrical. Sew about 1/4 inch from the edge. A zig zag stitch is easiest for keeping everything straight.



Unfold and lay flat the kite. You should now have the fin on the front of the kite, and the hems and spar pockets for the sail on the back of the kite.



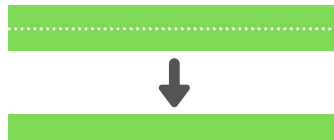
LOOKING AT THE BACK OF THE KITE

## STEP 8 Sewing the Spine

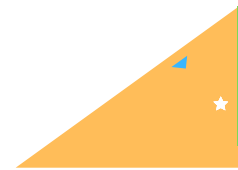
Take piece 'C', cut to 18 inches long.



Fold in half lengthwise, creating a piece that is 1/2 inch wide and 18 inches long.



Place folded strip over the spine of the sewn sail on the back. This should be covering your previous stitches. Match the top of the strip to the nose of the sail.

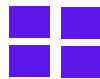


As you sew the spine strip on to the kite, make sure to keep the edges of the strip in line. Slow is pro, go slow as you sew through this section to make sure everything stays in place. Use a single step stitch and sew about 1/8th of an inch from the edge of the spine strip. At the nose of the kite, sew across the spine strip in line with the leading edges. At the bottom of the spine strip, keep sewing towards the tail of the kite. Trip the extra fabric from the nose, after the new line is stitched.



## STEP 9 Wing Tips and Keel

Take pieces 'E', and cut them in half. Into 1.5 inch by 2 inch rectangles



Set one aside.



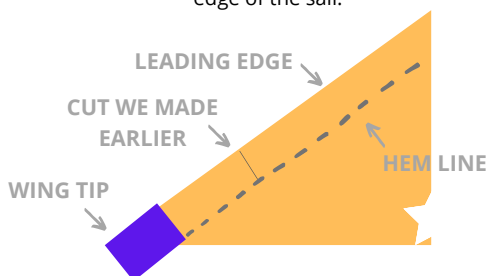
Fold 3 of the pieces in half lengthwise, so you now have a piece that is 3/4 of an inch by 2 inches.



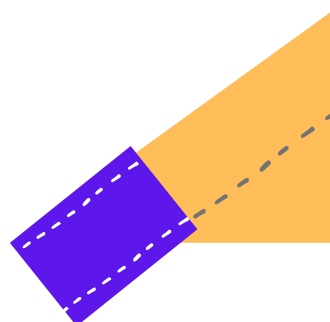
Fold in half again, so you now have a piece 3/4 inch by 1 inch.



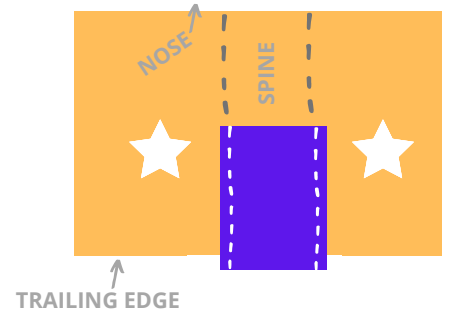
Place the folded 'E' piece on the wing tip, lining up one of the edges with the leading edge, and it overlaps part of the trailing edge of the sail.



Sew on the wing tip pocket on the edges of the pocket. Try to stay 1/16-1/8th of inch from the edge.



Do the same on the tip of the spine at the trailing edge.



## STEP 10 Tow Point

Use your set aside cut square from 'E'. Fold in half lengthwise and crease, then unfold it.

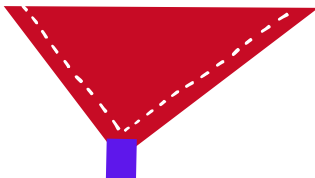


Fold the edges to the middle.

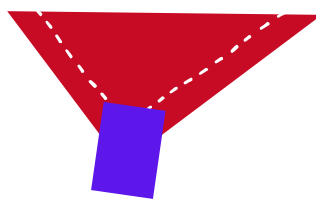
Fold at the center line. The 'raw edges' will now be on the inside.

Fold in half, so you now have a piece that is 3/4 of an inch by 1 inch.

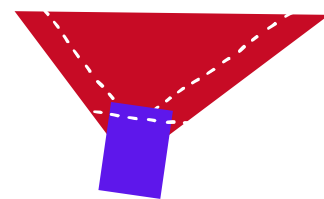
Attach the folded tow point to the tow point of the fin.



About half of the folded tow point should be hanging off of the fin. Creating a loop you can tie your flying line to.



Sew across the top of the tow point into the fin.

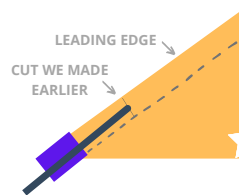


## STEP 11 Cutting Leading Edge Sticks and the Spine

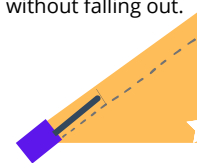
Cut 2 sticks 26 1/4 inches long. These are your leading edges. Cut one stick to 22 1/4 inches long. This is your spine.



Find the cut on the leading edge near the wing tip. Push the stick inside the sleeve all the way till it comes to the sewn stop above the spreader pocket.

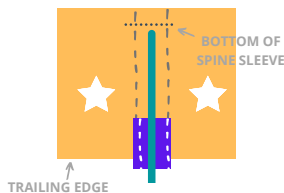


Stretch the wing tip pocket until you can place the end of the stick snug into the pocket. If it is too difficult, trim the stick a 1/4 inch at a time until it fits easily without falling out.

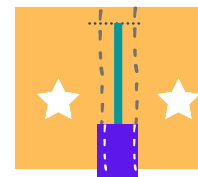


Try to make your leading edges the same exact length. If you have to trim one side to make it fit better, than trim the other to the same length.

Take your 22 1/4 Spine stick and slide it into the spine sleeve on the back of the kite



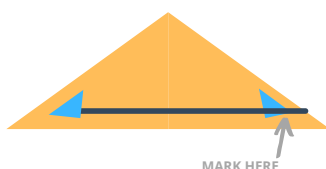
Do the same thing you did with the wing tips. Stretch the tail of the spine pocket until you can easily put the end of the spine safely in. Trim the spine 1/4 of an inch at a time if need be.



## STEP 12 Cutting the Spreader

Lay a stick across the back of the kite with the sail completely flat at the spreader pockets.

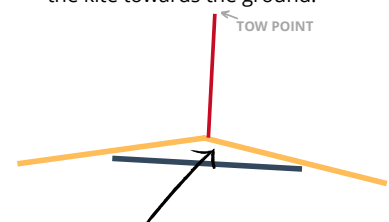
Place one end of the stick into a spreader pocket, and push it as deep as it will go. Mark the deepest part of the other spreader pocket on the stick



Remove the stick, and cut at the mark. Place stick back into the spreader pockets to see if it fits easily without falling out.



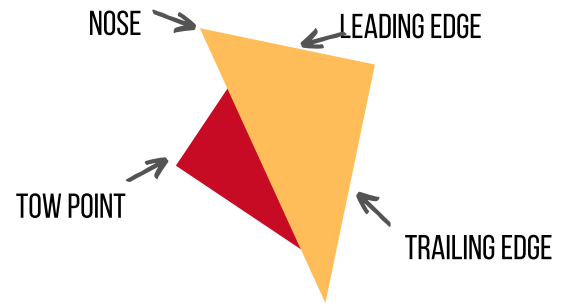
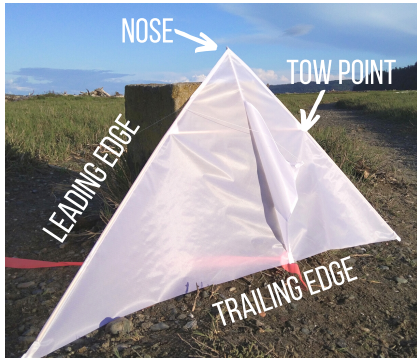
You will need to trim the spreader so that the kite flies correctly. The best way to figure out how much to trim away is to hold the kite by the tow point, with the back of the kite towards the ground.



You want about the thickness of your pinkie finger between the spine and the middle of the spreader.

## TIME TO FLY!!

Tie your flying line to the tow point, set the kite up downwind of you and let it loose! It may be a touch wiggly the closer the kite is to the ground.



If it still is turning and falling out of the sky after it is up more than 15 feet, try attaching a tail to it. The easiest way to attach a tail is to tear off a piece of flagging tape about 5 feet long or longer, and tie it to the exposed spine on the back of the kite. You can also tie the flagging tape to the small portion of the exposed leading edge.