

# Make a tiny, transparent kite from broom bristles.

by [Kiteman](#) on July 27, 2009

## Table of Contents

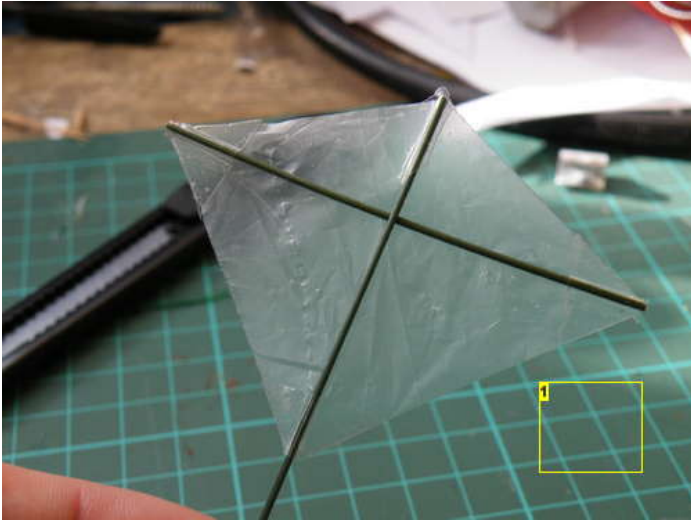
- intro: Make a tiny, transparent kite from broom bristles. .... 2
- step 1: The Template ..... 2
- step 2: Cutting the sail. .... 3
- step 3: Adding the spars and dihedral. .... 3
- step 4: Adding the flying line. .... 4
- step 5: Adding the tail. .... 5
- step 6: Storage ..... 6
- step 7: Flying the kite ..... 7
- Related Instructables ..... 7
- Advertisements ..... 8

## intro: Make a tiny, transparent kite from broom bristles.

This isn't the smallest kite in the world, but it's probably the smallest that most people will make.

Add to that the fact that it is made of no specialist materials at all, and you're ready to make a tiny marvel.

(I'll **highlight** the materials you need as we go along, but you can substitute many other materials at most stages)



### Image Notes

1. With the spars taped on, the kite itself is finished.

## step 1: The Template

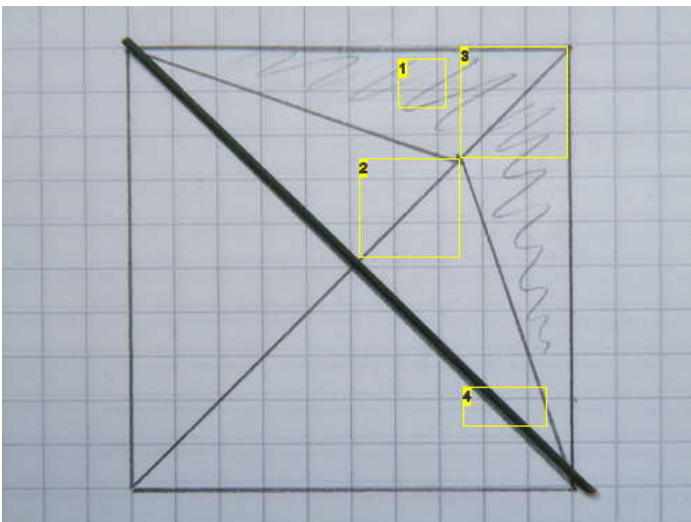
This kite is a shape known as a *false eddy*.

The Eddy kite was revolutionary in its day, the first diamond-shaped kite to fly without a tail, thanks to a unique bagginess to the sail. This version needs a tail because it has a traditionally-taught sail, and has simpler proportions.

The size is not important, but the proportions are. Based on a square, it is trimmed off by one quarter of one diagonal. The shortened diagonal is the centre-line of the kite.

The size of this kite is governed by the spars I used. For no particular reason, I chose to use the **bristles from a yard-broom**. The bristles were just over 7cm long, which made the basic square 5cm on a side.

I drew the template out on squared paper (the squares are 5mm across) to save the effort of constructing a proper square on plain paper.



### Image Notes

1. Scrap part.

2. One quarter of the diagonal.

3. The template is 10 squares on a side. One quarter of 10 is 2.5, so we count 2.5 squares along the diagonal and scrap that part.

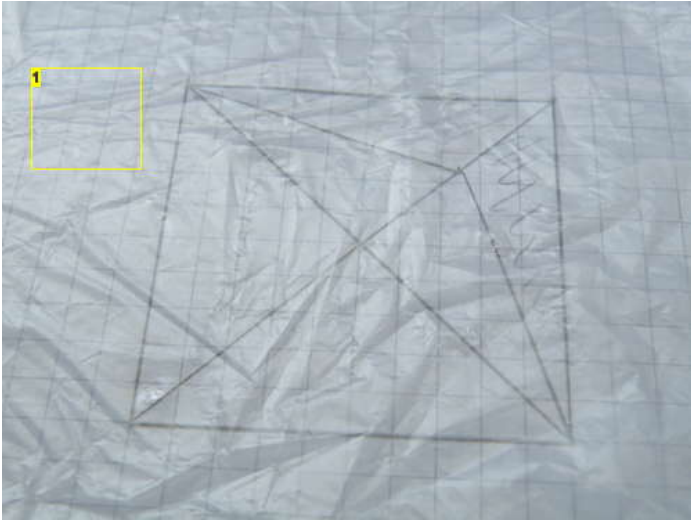
4. This thick line is actually a bristle from a nylon yard-broom.

## step 2: Cutting the sail.

I decided to use a piece of clear carrier bag for the sail.

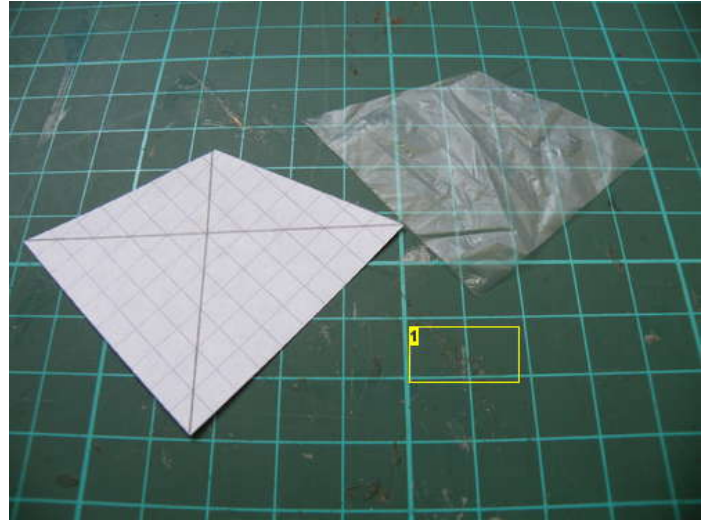
This made it very easy to cut the sail, as I simply laid the plastic over the template, and used a sharp **craft knife** and **metal ruler** to cut it out on my **cutting mat**.

It is important to press firmly with the ruler, and to hold the knife-blade at a shallow angle when cutting the thin plastic film.



### Image Notes

1. Clear plastic laid over the template on top of my cutting mat.



### Image Notes

1. Cutting out the sail also cuts the same shape from the paper.

## step 3: Adding the spars and dihedral.

The spars are fixed with **clear tape**, but it is *very, very fiddly* to stick them directly to the sail.

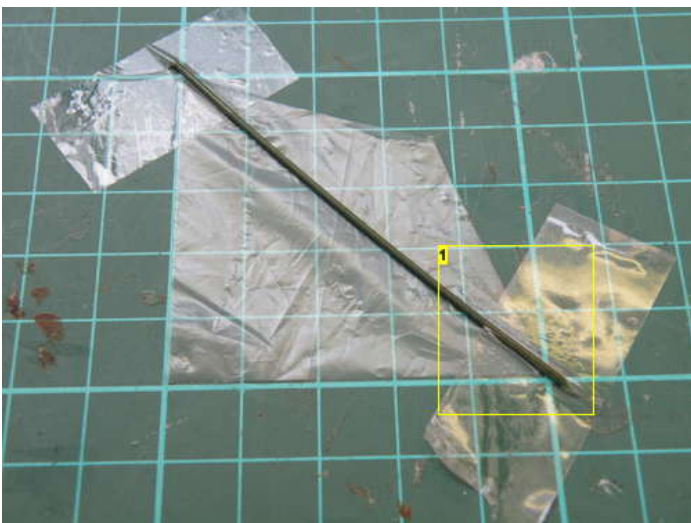
Instead, I tape the spars down to the sail onto the cutting surface. The tape needs to be pressed down firmly, probably with the edge or back of your **finger nail**.

Once it is firmly fixed, I use the knife to trim around the edges of the sail, leaving some of the tape on the mat.

You will see that I also trimmed off the ends of the side-to-side spar at this stage, to make them exactly the same length as the width of the kite.

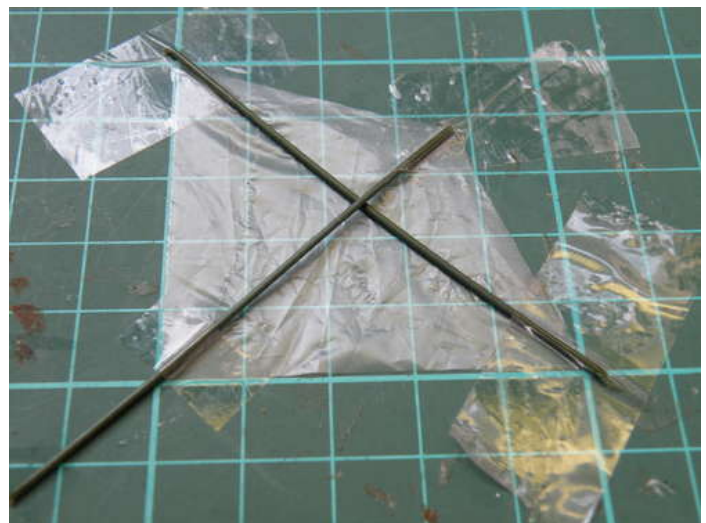
I did *not*, however, trim the longeron (the front-to-back spar). Instead, I matched it up to the front corner, and left the rest sticking out the back - I am going to fix the tail to it later.

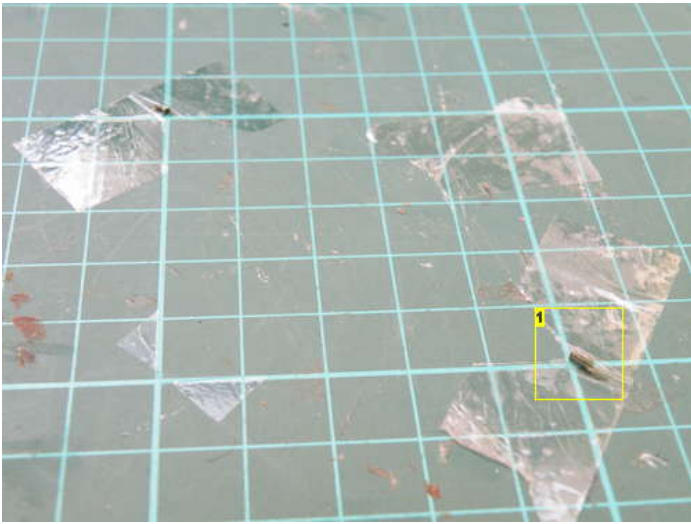
I then gave the spar a slight bend at the centre-point. This bend is known as the *dihedral angle*, and adds stability to the kite. Generally, the more the dihedral is bent, the more stable the kite is, but the less lift it has. Finding a balance between the two is a trick that can only be learned by *doing*, but as a rule of thumb you should start at an angle around  $135^\circ$  and work from there - windier weather need a sharper dihedral, calmer weather needs less.



### Image Notes

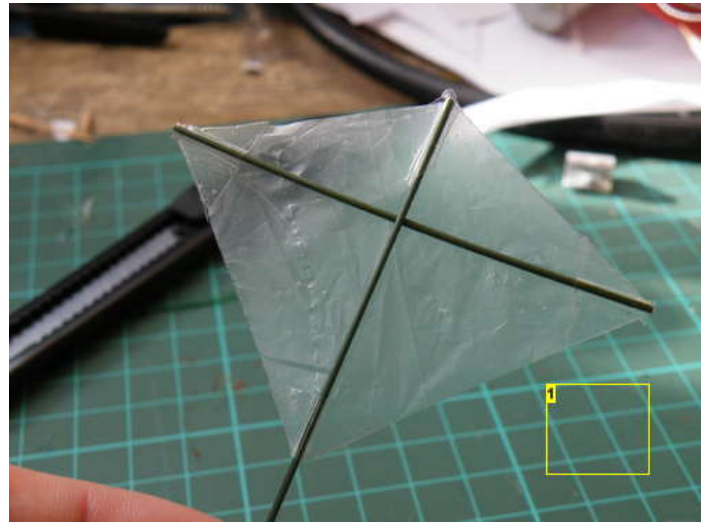
1. Tape stuck to spar on top of sail on top of cutting board.





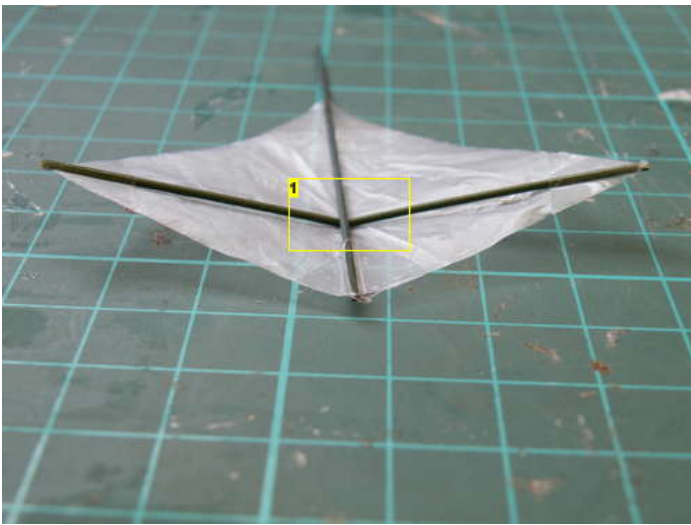
**Image Notes**

1. The trimmed-off ends of the spar.



**Image Notes**

1. With the spars taped on, the kite itself is finished.



**Image Notes**

1. A slight bend here (the dihedral angle) adds stability.

**step 4: Adding the flying line.**

A small kite needs light flying line and **ordinary sewing thread** is ideal.

Pierce the sail slightly, and thread the end of the flying line through the sail from the front, around both the longeron and the spar, back out the hole you started at, and tie a small knot.

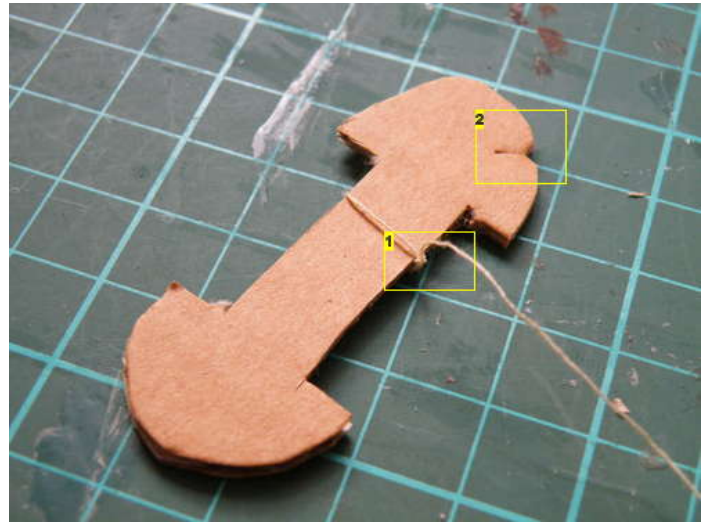
The hole can be a careful cut, or you can thread the line onto a needle and poke it through.

For a kite this small, you don't need any more than about three metres (10 feet). I tie the other end of the thread to a small winder made of corrugated card, with a small slit min the side of the winder to stop the thread unwinding at the wrong time. Wind the line up, and get ready to add the tail.



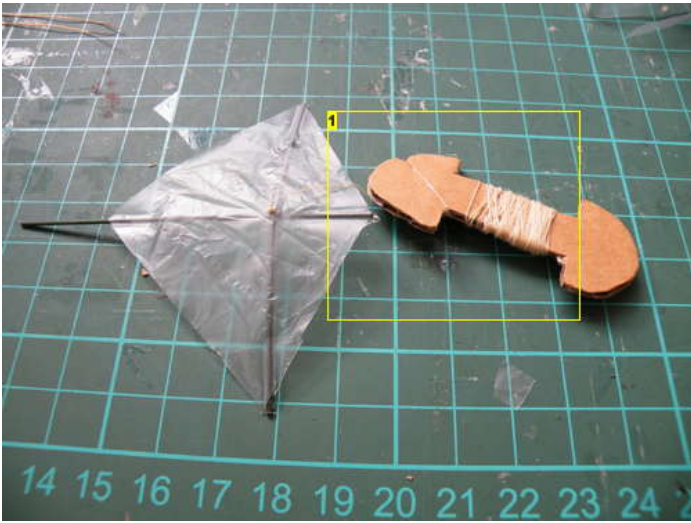
**Image Notes**

1. The thread goes in the front, round both spars, back out and tied in a tiny knot.



**Image Notes**

1. Tied on.  
2. Anti-tangle slot.



**Image Notes**

1. Wound up and tangle-free.

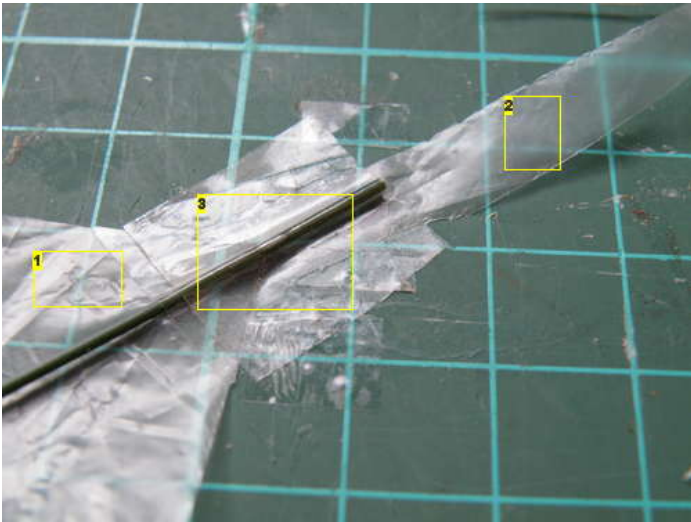
**step 5: Adding the tail.**

The tail is made of **the same clear plastic bag as the sail**. I cut strips about 5mm wide, and used small pieces of tape to join them into a single tail just over a metre (about three-and-a-half feet) long.

For this kite based on a 5cm-square, I trimmed the excess longeron sticking out the back of the kite to about 1cm in length.

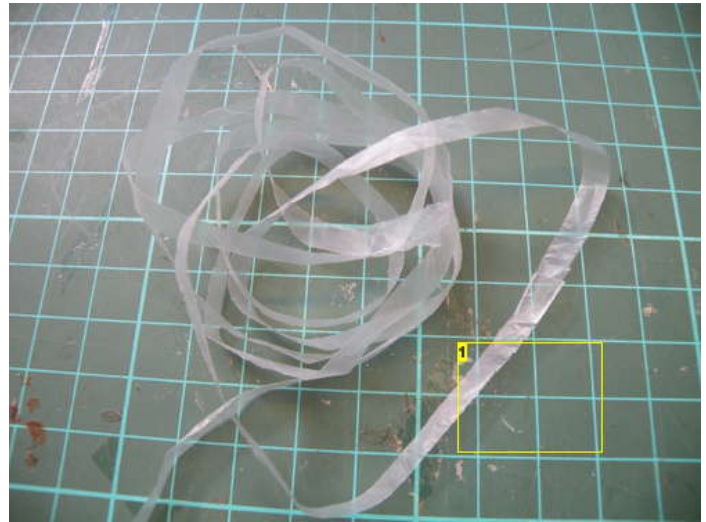
I then cut a V-notch into one end of the tail, and taped it to the front side of the longeron and to the cutting board, just as when I added the spars to the sail.

Again, I used the craft knife to trim off the excess tape, and carefully wrapped the tail around a piece of scrap paper.



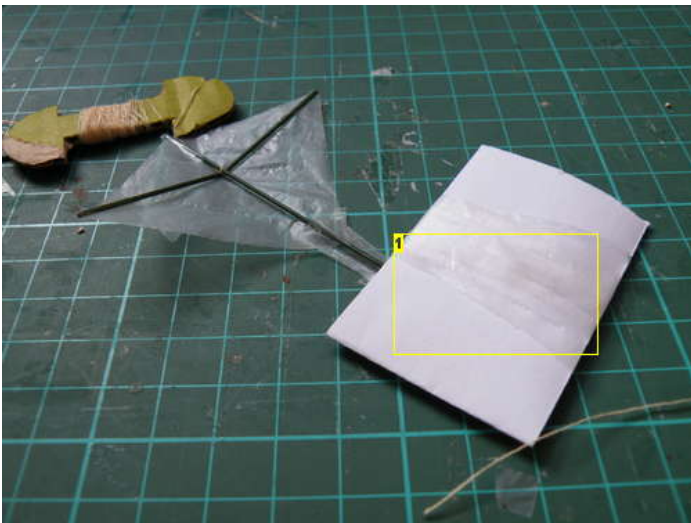
**Image Notes**

1. Sail
2. Tail.
3. Tape on top of spar on top of sail and tail.



**Image Notes**

1. Static city! the tail tangles easily if you are not careful.



**Image Notes**

1. Tidy tail.

**step 6: Storage**

Large kites can be dismantled for storage in a bag. This one can't be dismantled, so it needs a box.

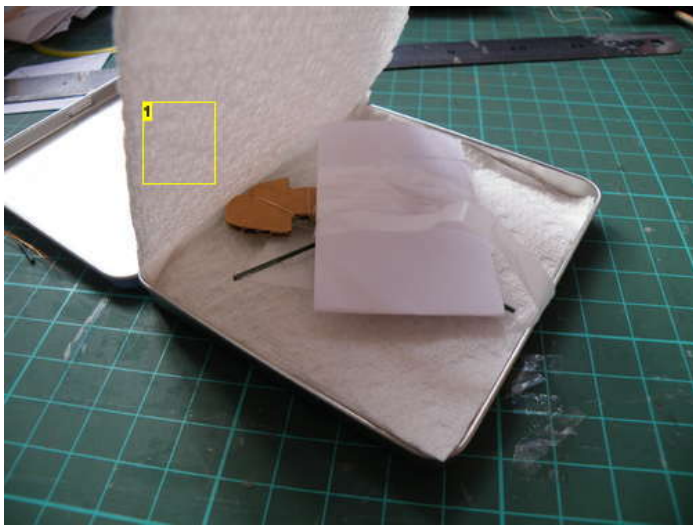
The box you use depends on how big your kite is, and on what you have available.

I used a flat cigar tin\*. I didn't particularly like the tobacco-based decorations, so I ground them off with my rotary tool. The grinding created a lot of irritating dust - if you do this, wear goggles, a dust mask, and wipe down your surfaces with a damp cloth afterwards.

Unfortunately, I also rapidly went off the ground-metal finish of the tin (it didn't feel very nice), so after finishing the photos for this posting, I spray-painted the tin green (it is drying as I type).

The tin is conveniently flat, so it can live in a jacket pocket to come out to fly as the slightest provocation.

\* I don't smoke, but I know a man who does.



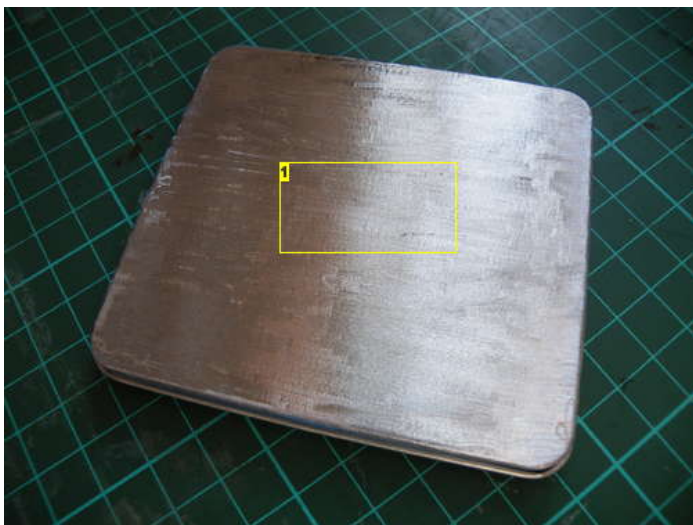
**Image Notes**

1. A couple of layers of paper towel to prevent rattling.



**Image Notes**

1. Indeed.



**Image Notes**

1. Too industrial-looking for a kite, and it feels rough.

**step 7: Flying the kite**

"Micro" kites are almost always launched and flown using a modified solo launch technique.

The kite is tiny, so gloves are not needed, and you will need to take extra care to keep the kite out of your body's *wind shadow*.

You can also probably fly the kite without any actual wind, walking steadily around a large room, or moving your arm in a smooth figure-eight pattern.

You could fly this kite at some quite astounding speeds as well, simply by walking it down the aisle of a moving train or aeroplane.

Enjoy.

**Related Instructables**



**Some Kiting Basics** by Kiteman



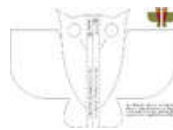
**Bell Tetrahedral Kite** by emilyfis



**How to Make a Kite** by Kiteman



**Creating our Kite: Traditional Kite** by mutambara



**Harry Potter Challenge: Owl Post Kite** by Kiteman



**How to Make a Kite: The Tabloid Sled.** by Kiteman



**Traditional Polynesian Ice Canoe (Ice Proa) - How to Kite Ice Sail** by ewilhelm



**HOW TO KITE JUMP** by willhere

