

Where do you start

- some ideas about which kite to make
- some general ‘rules’ tips and handy hints
- some information about materials and where to get them
- FAQ’s
- some kite patterns

There are any different styles of kite, some with sticks and some without, some large some small, Although they fly in different ways there are some general rules worth considering when you planning to make a kite.

Which kites are best to make in which class

Kite type	Easy...hard	instructions	
Mini-kite – no sticks	Easy	Instruction sheet INS1	All ages very quick Very simple and cheap – can be used for investigations
Diamond kite with single bridle point –	Easy if you have a template	Instruction sheet INS2	Can develop for
Sled kite	Easy		Good example to scale up from original
Della porta	Easy ish		2 point bridle is more complicated
Ohashi Japanese kite	Easy ish		2 point bridle is more complicated
Vietnamese binbag kite	Easy ish		2 point bridle is more complicated
Trepanier Trapezoid (from Drachen)			
Square Shaped Diamond kite	Easy ish		2 point bridle is more complicated
Paperfold A4 kite	Easy		Very simple and cheap – can be used for investigations
Zig zag paperfold A4 kite	Easy		Very simple and cheap – can be used for investigations
More to follow			

* See full table with progression for some of these kites - on request

** information on sport kites, acrobatic, 2 line and 4 line kites - on request

Materials

Generally, kites can be made from everyday materials such as paper, plastic bags, carrier bags, bin bags, wool etc.

Paper

For small kites – ordinary A4 copier paper is fine – the brightly coloured sheets are particularly good for a quick effective make. There is something about the finish applied to them which makes it easy to remove and re-apply a misplaced piece of tape without tearing the paper – very handy.

If you are colouring the kites with water based pens the paper can start to curl a bit and then it might not fly so well. School poster paint is a bit thick and heavy to use on small kites.

Plastic bags

Pedal bin and swing bin liners (on a roll) are very flimsy and floaty and come in lovely pastel shades. Apart from the awful scent they often have – they are very lightweight and can look good in the sky but due to the flimsyness they can be difficult for children to work with (and adults too sometimes. They gather static and tend to jump up to meet your sticky tape – at the wrong moment. The tape doesn't peel off well if its n the wrong place – if you pull – it can tear.

Ordinary black or coloured large bin bags tend to be best - they can be used for kite sails and for tails (roll up and cut into strips – great job for a parent or child who needs a job to do.) Recycled plastic is fine but some can be a bit dull when you hold them up to the light. Also some recycled plastic has the same problem as the flimsy bags – it stretches and tears too easily when you make a mistake.

Garden bags and rubble sacks tend to be **too heavy and too thick** – also can be opaque so you lose the colour in the sky. Some of the cheap shops sell a bright blue rubble sack which is probably useless for rubble but is quite light and translucent. You need to check before buying.

Reused carrier bags

These can be fine as long as you can work around the logos and designs which are often dominant. Maybe use them in a more patchwork approach. Strips can be stuck together to form a tail.

Sticks

For kites these need to be lightweight and sometimes you need flexible ones.

Flower sticks are good if you can get them but the green ones tend to have dye that comes off. They are usually about 3mm x 400mm and can be a good size for making a binbag sled kite of 400mm height. They are not very bendy so no good for kites that need a curved spar. (£ shops sometimes have a pack of 50 for £1)

A **bamboo roll-up blind** bought from a hardware or housewares shop usually only costs a few pounds and provides enough sticks for more than one class to make more than one kite each. A 60cm blind is a good size to buy or a 90cm width. These sticks are very easy to snap or cut to length, but also easy to snap in use – still you have hundreds left with which to replace the broken one. Sometimes it's a good idea to fix two of these together for the vertical spar and leave the horizontal one single

and flexible – this can help the dispersal of the air. Some bamboo table mats are made from the same thin bamboo and can be taken apart but these are usually a lot more expensive and a bit short.

Bamboo skewers (the longest you can get) are an option but are rather stiff for their length and therefore can be a bit heavy for a kite. If you can get some that are at least 12" (30cm) long they might work especially for a small sled. (you need to cut the pointy ends off in advance as they are pretty lethal). Best to go for the bamboo blind!

Drinking straws are great for small kites – although it's difficult to get ones that aren't bendy these days. I always have to cut the bendy bit off.

Laminated sheets cut into strips (old display work you are finished with)

These are not really strong enough to be spars but in very small kites can just add a bit of strength across the back of a kite and stop it folding in half when the wind catches it.

Line

Wool is the best option for most of the kites in our packs. It's strong but not too strong (in case it gets wrapped around something it shouldn't.) It's brightly coloured, you can see it easily and the children enjoy using it. It's pretty cheap and you might be able to get someone to donate some to you. It's readily available – I buy it in cheap shops – double knitting for less than £2 a 100g ball. One ball will probably be more than enough for a kite each for a whole class but it's best to have a few balls on the go otherwise you will wait for ever for each child to measure off their length.

Fishing line

Cheap kites are sold with thin nylon fishing line as their line on a small winder. It may be cheap but its probably quite dangerous – you cant see it easily and it could cut you if it got wrapped around your hand. Avoid it.

String

You could use ordinary string – but it might be a bit heavy, or a thinner one might not be strong enough and could snap.

Cotton thread/ sewing thread

This can be good for minikites – especially with older pupils, and you can buy cheap packs with 30 or so small bobbins of different colours. However – if you drop the end it can roll away and get tangled in everyone's kites very easily. Not for younger children.

Line Winders/ handles

Cardboard is best for this and don't make them too small. The smaller it is the more winding you have to do to reel it in. You can cut up old cardboard boxes for this – but you probably need a sharp knife for this job so maybe it's not a job for the children. Cardboard is pretty difficult to cut with scissors.

Cardboard offcuts from picture framers

This is one of the best bits of scavenging I have managed. Picture framers seem to produce bagloads of offcuts of mounting board which are ideal for kite winders – usually a bit bigger than a credit card (I think they are cut out from portrait photo framing.) Ask and you shall receive.

Tapes and Glues

Clear sticky tape or masking tape

Clear Sticky tape is best for plastic bag kites as you can hardly see it when its on. Masking tape can be good for paper kites and is easy to tear – but some masking tapes are designed to peel off (for decorating) and can peel off when you don't want them to. Some makes of sticky tape are sold as easy to tear – if you don't have dispensers then this might be useful. If you don't have dispensers – get dispensers; they are so useful for kite making and other crafts too.

Glue sticks

These are probably not what you need to stick most kites together. They don't have the power to fix a stick to a surface. They could be useful for sticking coloured shapes to plastic kites as it can be difficult to decorate plastic with pens.

Sticky labels

Ordinary sticky labels (address labels for envelopes) can be used when working with paper. They might be ok on plastic too – but they tend to show up more. The advantage of using labels is that you can cut a strip of them for each child (use the guillotine in advance) and then they have easy access to small ready cut pieces of sticky paper. You could even cut them in half to make them go further. They might not be so good on a kite where you have to stick a label on the front face – eg the minikite design – but you could make a feature of it!

Labels can be a bit thick and not so easy to burnish into place – test them first so you know what to warn the children about. I found they could tear when I did the finger nail nip and burnish, however it is unlikely that the children will be so fastidious with the burnishing

Equipment

Stickytape dispensers are very useful and you need enough to share easily otherwise it will take ages to get finished. Preferably at least 1 to 4 pupils.

The heavy ones which are made for small rolls are best and easiest to share – but the cheap plastic ones are not bad and you can often buy a pack of 4 of these quite cheaply.

Rulers – if you are measuring your kite sail from a plan then you'll need a ruler. If you have a cardboard template to draw round you shouldn't need one.

Templates

With some age groups and abilities – you might need to provide a template for the kite shape rather than expect pupils to measure and draw their own. A stiff paper template is easier for the child to cut out if they are making their own. A card template is best to draw round but harder to cut out (probably with a knife not scissors).

Pens to decorate.

If you are working on paper, then you can use pens, pencils, crayons, paints as normal, although if the paper gets too wet then it will curl and warp.

If you are working on plastic and want to decorate – you might need permanent pens. Try to get waterbased permanent pens as these are non-toxic and don't smell – however, they do take longer to dry especially on plastic. And the same way they don't come off plastic – they don't come off clothing – so aprons on and sleeves up. Oil based pastels work quite well on some plastic as long as the pressure used doesn't stretch or tear the plastic.

You can cut out shapes from other plastic bags to stick on – use a contrasting colour and it's quite effective. Shapes cut from sticky backed plastic can work well too – or shapes cut from sticky paper labels – which could then be coloured in, although in the air they will be more like silhouettes due to their opacity.

General rules handy hints and tips

rule number one

The kite should be symmetrical. I.e. each side of the kite around the central vertical midline should be same shape, weight and size. Specialists do make asymmetrical kites and they do fly but they need to be bridled in such a way that they balance correctly and that takes experience. Stick with the symmetrical ones at first.

Rule number two

The angle at which the kite hits the windstream is very important and needs to be right for the kite to fly well. If the angle of attack is too shallow and the kite sits almost vertical against the wind it will struggle to lift off the ground, and if it is too close to the horizontal it will probably lift up but does not offer enough resistance to the wind which will pass underneath it. The same kite might need to have its bridle angle altered to suit various wind conditions – flatter if the wind is light and more upright if it's strong.

Sticking things down well with sticky tape. This can't be emphasized enough – if you are applying sticky tape to hold a stick to a piece of paper or plastic – you should ensure the tape has as much contact with both as possible. Diagram

Take extra care at all the points or corners – make sure that sticks are well fixed to the points – preferably by wrapping the sticky tape over the point from the back to the front of the kite. Burnish the tape to make sure it's well fixed – this means rubbing it to stick it down - you could use fingers, fingernails, or the blunt end of a pen or pencil. Try to use roughly the same amount of sticky tape on each side.

Measuring off the wool.

Ask one child to stretch both hands out one either side holding a piece of wool and measure how long this piece is – it should be around 1m. (it might be worth mentioning that your arm stretch fingertip to fingertip is approximately the same as your height – but that we want them to hold the wool and not stretch right out so this measurement won't be quite as long as their height. Approx 1m will be fine as a guide.

Now show them how to stretch and pull, passing the wool from hand to hand so that you end up with say 10metres. It's not as easy as it looks but it's a good co-ordination skill for them to grasp. It's best to let the ball lie on the ground on one side of you and let the new wool gather in a loose heap on the other side of you. When you reach 10m, ask someone to cut it for you and pass the ball on to the next pupil. DON'T pick up the 10m of wool, don't try to move it to another place until you have wound it onto the card winder. That way lies the world of knots! Take the winder which you have already made a small cut in one side of; wrap one end of the wool around the card, through the slit and tie a double knot; then wind, wind, wind till it's all on the card. Invariably some children will pick up the wool bundle and it will get into a knot quite easily. If you take time and loosen the knots it can be undone – but for speed it might be better to run off another 10m and deal with the knotted one later.

An alternative method if you have a big space is to leave the ball of wool at one side of the room and walk to a given point (someone could measure their pace (about 1/2m) and then pace it out) - then you need someone at the ball end ready to cut for

you. Once again don't move the wool if you can help it. Get it wound onto the winder as above.

Both methods are good and if explained well can help children to gain spatial awareness and an understanding of human measurement without using rulers or tape measures. Of course that would be another way if you want them to practice measuring but we don't need it to be that accurate.

FAQ Frequently Asked Questions

<p>Does a kite need to be symmetrical? When you are starting out its best to keep it symmetrical. Not all kites are symmetrical but most are and it makes life so much easier when you come to bridling. Save the asymmetrical kite for a later challenge and aim to keep the symmetry either side of the centre</p>
<p>What is a bridle line? The bridle line connects a kite to a flying line. It may be a 2 point bridle, a 3 point or more. The more points of contact between the line and the kite the more stable the kite will be in flight.</p>
<p>Some kites have bridle lines and some don't. Why is that? Some kites have only one point of connection so the flying line is tied direct to the kite</p>
<p>Some kites have tails and some don't. Why is that? Some kites are stable enough without a tail just because of their shape – usually if they have a dihedral (wings angled backwards) or bowed shape which directs the wind either side and beneath the kite, they are less likely to need a kite. If the kite is wobbling and careering from side to side – it needs a tail or it needs a longer tail. In stronger winds, kites which have flown well before with a shorter tail may need a longer one</p>
<p>Why does my kite keep lurching to one side?</p>
<p>Why does my kite</p>
<p>Tbc.....</p>