Kite: Make It

A Makers Workshop Book for Building a Kite

a FREE e-book by: Nic O'Neill - Fortuna Found

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A Makers Workshop Book for Building a Kite

Fortuna Found

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We have created a video series about some of the parts of this book. You can find it on our webpage, or on our Youtube Channel

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To find out more, head on over to Fortuna Found and join us on this journey to spread the love and joy of kite flying. There you can find the newest edition of this e-book, and more plans on how to make your next workshop a success.

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If you like what you have read here, would you consider supporting us as we continue to spread the love and joy of kite flying? Your patronage helps us continue to give away kites, create free resources for the community, and keep our kites in the air. Thank you

buymeacoff.ee/PgMtIHEhf

For more about kites, kite events, workshops, and so much more check out the
American Kitefliers Association

kite.org

Resources

Sometime, it is easier to buy the pre-made kits for a workshop. I highly recommend the following companies. They make quality products that are guaranteed to fly and are very simple to build. All of these companies have been building kids kite kits for awhile, and have worked out the various kinks. Most of their products are made out of a good quality Tyvek that will last for some time.

Phantom Star Kites - Specializing in no-sew kite kits. From a 48" traditional Rokkaku 'fighting' kite, to the smaller squiggly sleds. There is something for everyone.

Kites In The Sky - Various kite kits available from beginner to a intermediate. There are various shapes, sizes, and some 'ready to fly' kites available.

Kites On a Roll - Several different kinds of kite kits, including a traditional Malay Bird Kite.

Bridge Kite Shop - a collection of various kite kits ranging from the traditional to ones designed by modern master craftsmen

If you want to learn more about kites, kite flying, or events I highly recommend these resources. They generally cover almost all of the goings on in the kite community and provide countless resources for the beginner to the well versed kite flier.

American Kitefliers Association - kite.org - A nationwide non-profit that is focused on spreading the love and joy of kite flying. There is an events calendar, plans, ways to connect with other kite fliers, and more.

Kitelife.com - A nexus and general resource for those who enjoy either recreational or hardcore kite flying.

Drachen Foundation - A non-profit devoted to the increase and diffusion of knowledge about kites world wide.

Kitebuilder Forum- A long running forum with plans, resources, and interaction from many kite builders of varying skill levels.

Make It Unique

Not all workshops are the same, nor should they be. Over the years I have either hosted, been a part of, or witnessed several variations on the kite building workshop theme. Here is a list of some of my favorite ideas. By all means try them out for yourself, or even better create your own!

Found Objects - This is an all day workshop. In the morning participants are sent out to collect items on a walk. I have seen this include picking up garbage from the beach, or selecting interesting foliage in a wilderness space. In the afternoon, participants use their collected items and incorporate them into the kite building process. Some mix them into a paper pulp to create the sail, others use them as decoration, some use them to actually build the kite.

Kite Story Arch/Train - Participants are each given a kite to decorate. They are to add something that is uniquely them. These kites are then tied into an arch or a train and fly together. Telling a collective story.

Story Board - Participants are each given a kite to decorate along with several pages from a book, part of a story, or part of a poem. They then draw or interpret their portion of the story on to the kite. All of the kites are then flown together telling the story in the sky.

Paint and Sip - Participants are each given a kite kit (usually tyvek) and are guided through how to paint a particular image.

Collective Art - Using kite building concepts, a group is encouraged to make many simple kites, that may not actually fly. The point is to create a visual display. All of the pieces are combined together to create an art installation. For inspiration look up the artist Jacob Hashimoto.

Collective Kite - Based around a kite that will have many panels to be joined together like a quilt. Each person is given a panel to personalize. As a team finish building the kite using the various panels.

I am a maker. Wait, let me say that again. I AM A MAKER.

A Maker is a term that describes all of the independent inventors, designers, and tinkerers. It is for both the hackers and the artisans, it is about open source learning and creativity. It is about sharing your passion, and about believing in the power of creative play. We were all Makers at some point in our lives, some of us still are.

Kites helped me realize how to be a Maker. Kites have changed the way I look at life, how I connect with other people and my surroundings, they have radically changed the course of my life. As a Thank You, I continue to Make, and I continue to share that which I have learned.

This e-book is just one way that I can share that knowledge with others. I hope you find it useful. I hope you see it as a stepping stone to something else. I hope that you take it, make your own version of it, make something from it, improve it, and pass it on to the next person.

These ideas are not solely mine. I have gathered them from others, played around with them, and added my own 'flavor'.

Now it is your turn.

Nic O'Neill

Getting Started

Why did you grab this book?

Are you wanting to host a workshop of your own? Are you looking for tips on how to tweak one you are already doing? Are you just looking for a kite you can build easily? Do you just want something to read on a rainy day?

Whatever the reason, we can hopefully agree that one of the end results after reading this book is that you should be able to build a kite from start to finish AND be able to teach someone else how to do it.

What is laid out in this book is a simple how-to that can easily be sized up or scaled down. So it doesn't matter if you are making just one kite for yourself, or several hundreds to give away.

There are countless plans available online for those that want to be serious about kite building. Each one of these plans allows the builder to learn more about the kite, their style, and their skill level as they design and build them.

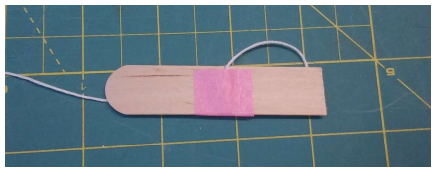
I love those kites, and often times I am found with a scratch pad and a pen trying to design new shapes. That isn't what this book is about. This book is about giving you the tools to teach someone else how to build a very basic kite, whether or not you are an experienced kite builder yourself.

The goal for them is to build the kite, the goal for you is to spread your love and joy of kite flying, and perhaps spark the creative spirit inside you!

- Bundle 10 popsicle sticks together, and wrap masking tape around the middle.
- Cut bundles in half in the middle of the tape.

- Lay out masking tape on cutting mat.
- Cut a series of 1 inch squares
- Cut a series of 1/2 inch squares

- Tie one end of the line to the half popsicle stick in the middle. Use 1" square of tape to secure in place.
- Place popsicle stick in 'jig' and secure
- Slowly spin the drill and work string back and forth in the middle of the stick to desired length.



- Tie an overhand loop on the end of the line.
- Use 1/2" piece of tape to secure the loop to the popsicle stick.

These work out to be some of the cheapest 'winders'. Which can be an advantage for some. They are not the best functionally, and they do have some downsides. They can unwind a few loops at a time, or if the person making them didn't also 'tape' the end of the string to the winder before winding, the kite could potentially come loose.

Often they are included in the 'how-to-host-a-workshop' workshops, to help encourage creativity and ingenuity when it comes to this model. They are not intended to be seen as the 'best idea'.

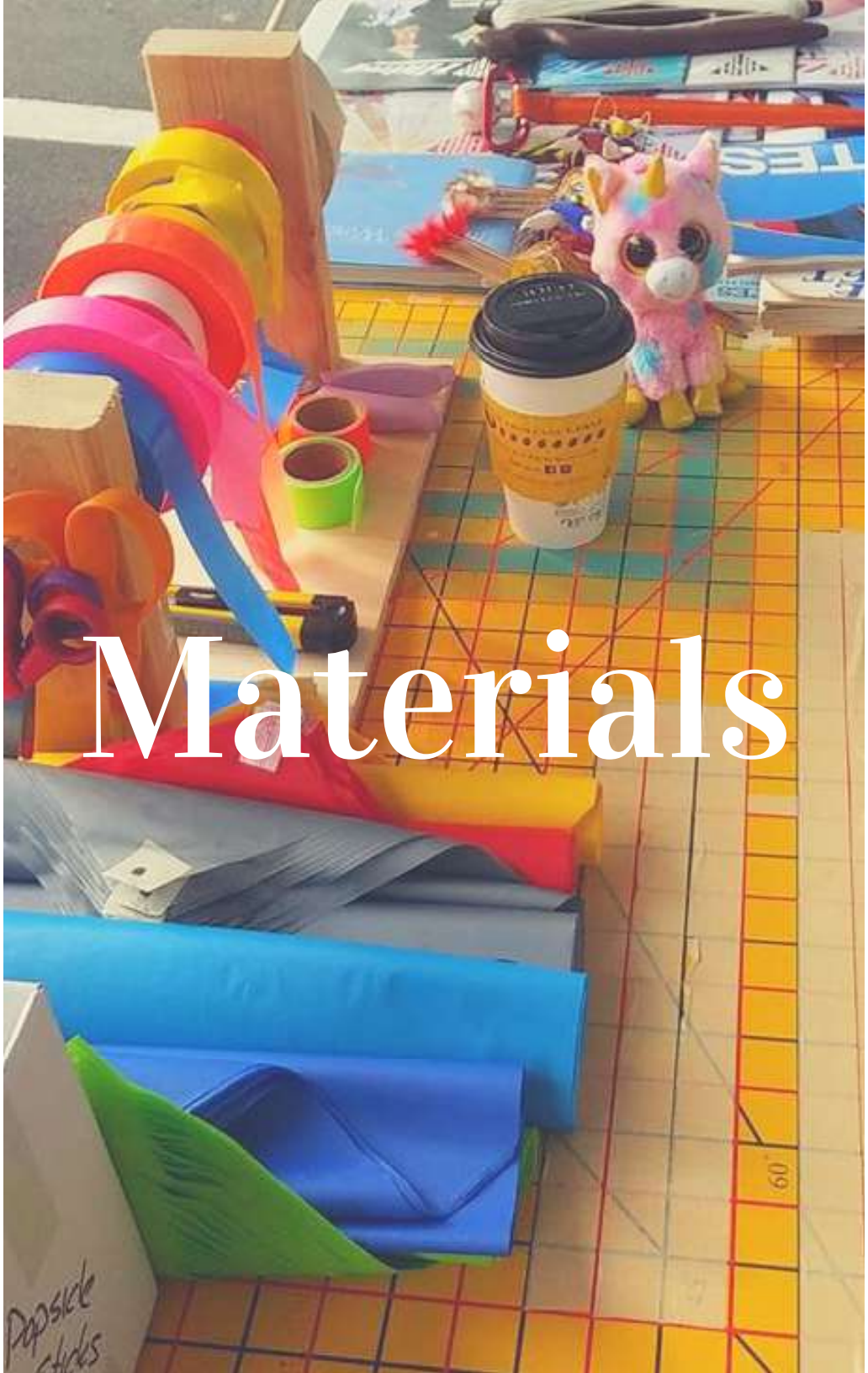
I like to think of it this way. This book is like a road map. You and I know where we are starting, and we generally know where we are going. I can give you a rough idea of how to get there, but ultimately, if you want to take a few extra left turns, or perhaps go off in another direction, that is AWESOME!

I am not your navigator, or your guide, you are. So if you see a way of making this better. Do it.

All I ask is that you share that knowledge with others. Just imagine what we might come up with if all of us worked together to create a better workshop.

Some Tips

- This whole book is designed with the idea in mind that you will be making multiples, and will need to work in batches. You will need to scale production accordingly to your specific needs.
- Gather all of your tools and supplies ahead of time. (Simple right? But, sometimes we forget this one)
- Working, creating, and playing is always better with a buddy. Gather friends to help you do this. (Maybe entice them with free dinner and a refreshing drink)
- Take some notes during the 'batch making' process, and during the workshop itself. These notes will help shape how you do it next time.
- Plan for a next time. There will always be a next time.
- You do not need the 'best materials', you need the materials that are available to you. Don't worry about getting exactly what is listed, find what is around you that you can use. Be creative, but test it first. :)



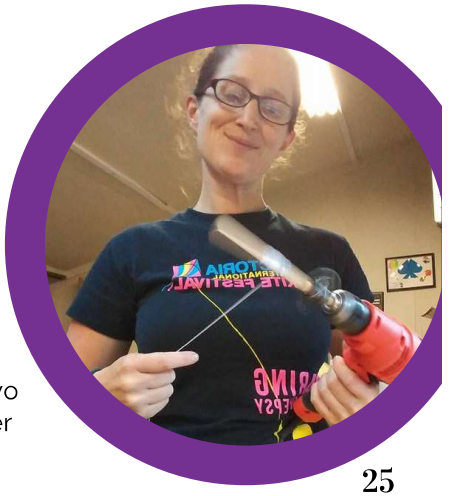
Materials

Popsicle Winder

At a Makers Faire one year we were building our simple sled with kids and using pre wound commercial winders. The line was a little loose on the winders, and their was almost too much line on each winder. It worked for what we were doing, but it presented a few problems. Especially, when kids were trying to unwind their line, extra loops would fall off and become tangled. Tangles and knots are a quick way to become frustrated.

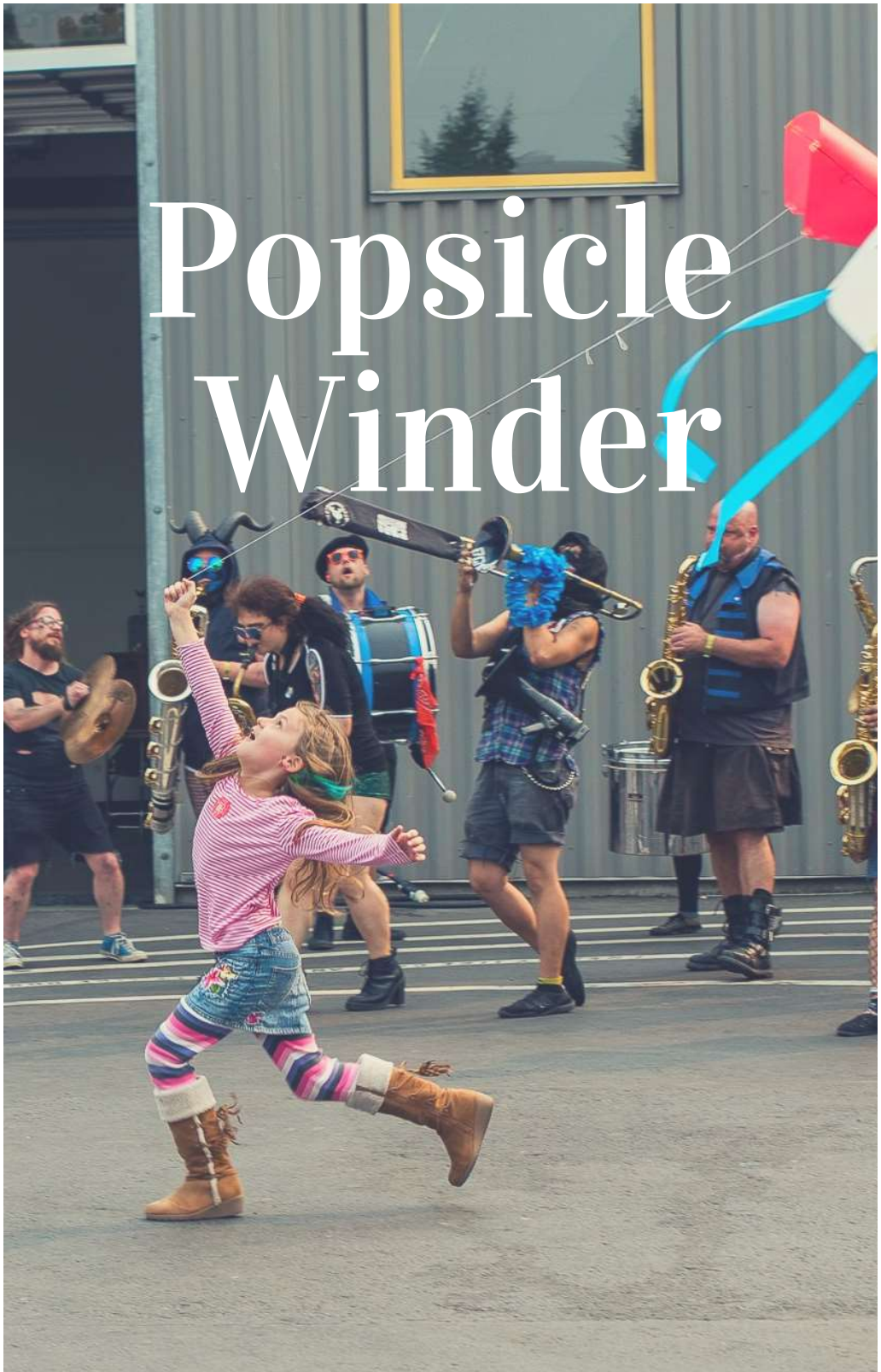
This happened to one young boy who after trying to undo the knot that developed, he chose to cut off the line and retie the winder to his new short line. But,in the process he lost his winder. In true Maker fashion, he realized he had the perfect replacement; a popsicle stick. He wound the new shorter line on the popsicle stick, and voila!

He was so excited to show us what he did, and we loved it and use it now. We don't think this is THE perfect solution to the winder problem, just one idea. Perhaps you have an idea for how to make it better!



What You Need

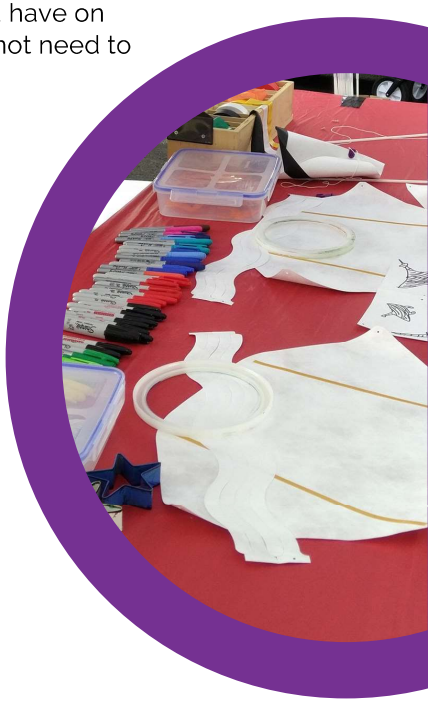
- Box of jumbo popsicle sticks
- Masking Tape
- Saw
- Kite Line
- Box Cutter
- Cutting Mat
- Drill
- Jig or Holder for Drill Bit (we use two pieces of flat bamboo held together with a clip.)



Popsicle Winder

Materials

This list is more of a guide. Use what you have on hand or what is available to you. It does not need to be exactly what is listed



Sails

Tyvek - A paper like material, commonly found as 'house wrap' or mailing envelopes. This is best bought by the roll from packaging supply companies. Tyvek tends to cost more than other materials. But the pre-made kits you can purchase are generally built from this material. It is very durable and will produce a longer lasting product. It is a great medium for almost any type of coloring. It does well with markers, crayons, Sharpies, paints, dyes, watercolors, pencils, ballpoint pens, and stamps without problems. Oil based paints tend to not work well.

Trash Bags - Your regular kitchen trash bag. Try to avoid any with the 'stretch' or 'flex' technology woven in. You are looking for simple sheets of plastic. For decorating use permanent markers.

Plastic Table Cloth - We love this one for the low expense and the fact that you can buy them as rolls of 100-250ft of continuous fabric. There is the added benefit of endless colors and patterns are available. For decorating, best stick with permanent markers.

Paper - Paper of various weights and sizes can be used for kite building; including handmade paper. Paper tends to crease and not easily return to a given shape, so it can be a difficult choice for some kite making. But a fun one for the artistic ones!

Spars or Sticks

1/8" Wooden Dowels - We buy these in bulk in lengths of 36" and 42" and have found them to be the most versatile for various projects. They have a generally good weight to strength ratio for their intended use, and when purchased in bulk are not expensive.

Straws - Good old fashioned straws. When taped together they can form any length. These can end up being flimsy, but they are easy to source and easy to replace.

Sticks or Twigs - Not a fan favorite, because of the variation in weight and size. It is almost impossible to find matching sticks for a kite. Plus, it is difficult to source the amount needed if you are hosting a large workshop like a Makers Faire. However, they can be successfully used in some workshops.

Split Bamboo Kite Spars - Available online in bulk. Or learn to split bamboo yourself. Hand-Split Bamboo has been the 'backbone' of kites for several centuries. Be careful when ordering this, as not all bamboo is the same. The good stuff comes at a price. Hand-splitting bamboo and shaping it for kite spars is an art form in itself. We love to do it, but due to the time involved with making each piece, we tend to make that either a workshop in itself or incorporate it into smaller art based workshops.

Fiberglass Rods & Carbon Rods/Tubes - These are the standard for the new generation of high performance kites. Different sizes offer differences in flexibility, differences in strength and weight. This versatility comes at a price. For high performance kites, or artistic builds the cost is more than justifiable. For building kites in a workshop space like this, it can be cost prohibitive.

Tape Sets

It is so helpful to have pre-cut tape when you need it instead of constantly tearing or cutting pieces off pieces

We like to pre-cut the tape into tape sets and do this by laying out parchment paper across our cutting mat. Then lay down strips of tape across the parchment paper the length of the cutting mat.

Using a straight edge and the lines of the cutting mat visible through the parchment paper, cut across the parchment every 2 inches. This will effectively create a 2 inch piece of parchment paper with several strips of 2 inches of tape attached to it.

Pre-Cut Bridle Line

For those kites needing bridles, it is fairly easy to cut large batches all at once. To keep things orderly during the workshop, we tend to keep bridles in batches of ten. Ten lines is easy to keep untangled, or easy to undo if they somehow get tangled. There are a few ways to accomplish this.

Set two water bottles ,or other weighted items, apart the distance you need the bridles cut. Wrap the line around the two objects. Cut accordingly.

Another way to keep bridle line orderly is to mark out on a cutting surface the length of your bridle. Lay out a strip of painters or masking tape sticky side up perpendicular to the bridle line at both ends. Lay out the line across the two ends, about 10 times leaving space between each bridle line. Lay another piece of tape or parchment paper on top of the line and tape thus 'trapping' the bridle lines between the two pieces. Cut the ends, or trim if need be.

When you need it in the workshop, simply pull one end of bridle line free at a time.

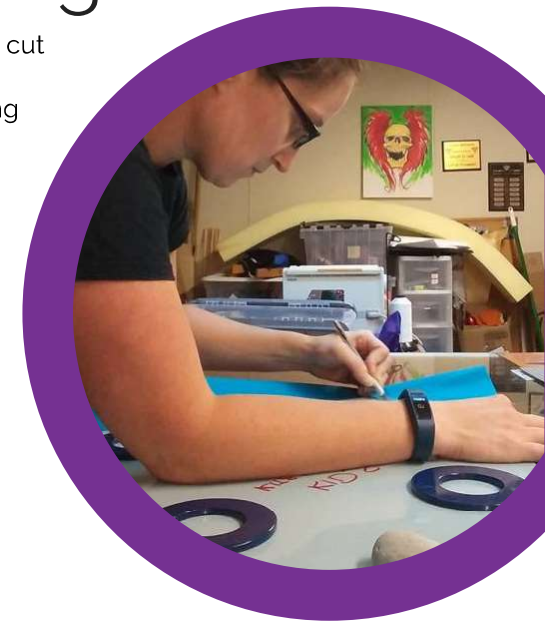
Ten is an easy number of bridle lines to have together that will keep relatively tangle free. Or if a tangle does develop, it is easy to pull the line you need free with out too much hassle.

Batch Building

In the studio we use a template cut out of linoleum. This material handles the edges of the cutting blade well and is not prone to accidental damage.

This allows for even pressure and makes a nice clean cut through the sail material. Linoleum can be brittle so if we need to travel long distances (via airplane) we will cut a paper template that can be used if we need it.

Some of the more serious folks will use a punch press. to cut out their sails.



With this method you can host a workshop on building kites for a workshop. Or easily gather volunteers with little experience and show them how to prep the materials. It also allows for the ability to easily create more kites when you need them.

Using the Template

- Roll out material the width of the template. Wider material you can fit the template on a few times. This will be your 'template set'
- Fold the material back and forth several times the width and length of your 'template set'. Leave a small amount of extra material so the template is not sitting on the edge of the fold.
- Place the template on top of the stack. Weigh it down. Cut with a box knife.

Thinner materials can be stacked multiple times and still be cut easily. To make sure things come out smooth, we have found that when using thin plastic, 20-25 folds is about how many times you can easily cut. With our set up this cuts out about 40-50 kites in one shot. I would recommend starting with a lower number and working your way up to where you feel comfortable.

String/Line

Spectra/Dyneema- These are the standard for 'kite flying' line. They are strong, wear resistant, and come in many different 'weights' and lengths. The weight tells how much pulling force it can handle. While this line is found with most higher grade kites, it can be cost prohibitive when building thousands of kids kites to give away.

Cotton/Polyester String - Perfect for most workshop kites because it is cheap, and easy to handle. (especially for little hands). You want to find the thicker stuff (size 10 crochet thread) but not full yarn weight.

It is not very strong, but most smaller kites will not be producing enough pull on the line to cause it to break. It is also easy to replace in a pinch. Just ask Grandma for her left over crochet thread.

For low wind/indoor specific kites we tend to not use this because the 'drag' caused by the fuzziness of the material can slow the kite.

Fishing Line - Not recommended for most workshop purposes because it is so slippery. Knot tying and winding onto winders proves to be difficult.

Winders

Pre-Made Plastic Handle Winders - This is tends to be available as pre-wound kite line on a plastic easy to use handle. Can be costly, but best bought in bulk.

Pre-Made Carboard Winders - This is something that comes with most tyvek kite kits, such as those from PhantomStar Designs. Small Cardboard winders (about the size of a kids palm) with approximately 50 feet of cotton line wound on them. Perfect for most kite workshops involving kids. Pre-cut slits in the winder make storing the line and preventing it from unraveling, easier.

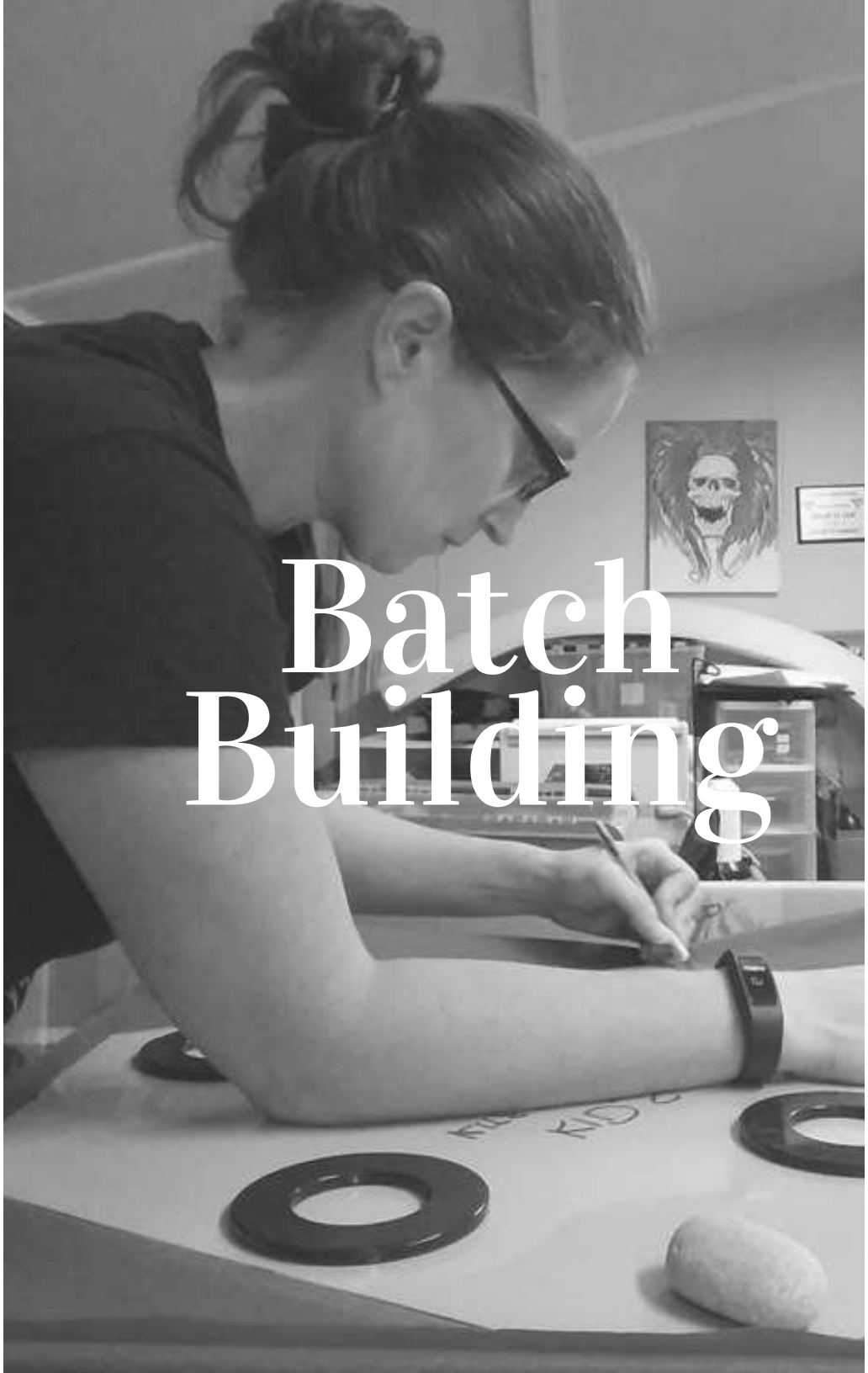
Popsicle sticks - This was something we discovered by chance at a Makers Faire. A kid had made a kite, lost his winder from his string, but had a popsicle stick from another project and wound the line on it. He was happy to show us what he did, and we saw that it fit in his hand perfectly and was easy to carry! We love that they are cheap, easily recognizable, and easy to find. See the section "Popsicle Winder' for details on how to make these.

Tails

Flagging Tape - Tails can be made out of just about anything, but we love the availability, colors, and weight of flagging tape. Easy to find and not too expensive.

Crepe Paper Ribbon - lightweight and easy to find. Tears easily, but adds a fun element in a variety of colors.

**Not all kites need tails to fly, if you want to learn more about that search for "Does a Kite Need a Tail' or go to: https://www.grc.nasa.gov/WWW/k-12/airplane/kitefor.html



Batch Building

Over the years one of the many advantages we have found to using this kite and this process, is that it some steps can be swapped. You don't HAVE to do the steps in a given order. It is easier to put the spars on before you attach the tails (the spars won't be enclosed otherwise), and you can't tie the flying line on till the bridle line is attached and a center point was created.

This helps when you have many different participants of different skill levels approaching at different intervals. A workshop leader can help an individual on one task and easily switch gears to another participant. Likewise multiple leaders can easily help the same person at different points in the process.

TABLE 1			
A	B	C	D

TABLE 2			
E	F	G	H

In this set up you could have 'A' drawing on their kite, 'B' attaching the sticks. Helping 'F' get their bridle tied on, etc... The build order for these individuals could look like this:

A Draw on sail, attach sticks, attach bridle, center point bridle, attach tail, attach flying line.

B Attach sticks, attach tails, draw on sail, attach bridle, center point bridle, attach flying line.

C Attach sticks, draw on sail, attach bridle, center point bridle, attach flying line, attach tails,

Tape

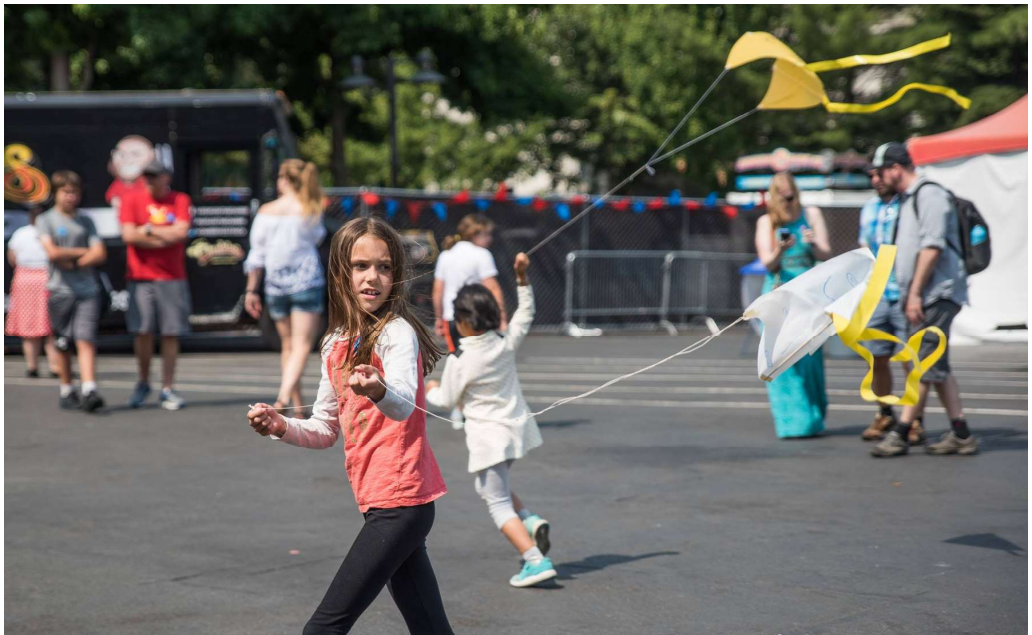
Fiberglass Reinforcement Tape - Once this tape is in place, it is strong and durable. It can be difficult to re-position if not applied accurately the first time. This tape needs pressure applied after placing it to make sure it 'seats' properly

Masking Tape - General good, all around tape. Perfect for workshops with lots of little hands. Easy to re-position or remove from unwanted areas. Sticks easily to most materials. Note that not all masking tape is the same, nor does it have the same 'stickiness'.

Packaging Tape - Not recommended for most workshop purposes because it can be difficult to handle. Packaging Tape tends to stick to everything, yet, if used correctly, is invisible and does not detract from the art on the kite.

Scotch Tape - Not a bad option if it is what you have on hand. Good for certain materials like paper, but not as good at remaining in place on plastic materials.

Standard Labels - Good choice. Easy to find in pre-cut sizes. Typically on sheets or rolls which makes it perfect for the workshop space.



Tools

Box Cutter or similar razor knife. Whether this is an Exacto blade, or full size box cutter. A rotary knife can also work.

Cutting Mat- Most of our cutting of materials is done on a large purpose-built glass cutting table, but we still find a need for a cutting mat. It is useful when cutting 'tape sets' and other measured materials; and is easy to pack in the kit that you take with you to the event for any emergency last minute creations.

Weights - These can be dressmakers weights, small weightlifting plates, rocks, small bags of sand. Anything that can help hold material in place when you are working with it. These will also come in handy at the workshop if you happen to be working outside.

Single Hole Punch - Old school single hole punch like you used in school.

Scissors - Have your 'good scissors' and your 'workshop scissors' with you in your kit. You will want your trusty good scissors when you need them. We usually also have a package of kids safety scissors with us so we don't have to lend out the 'good pair'.

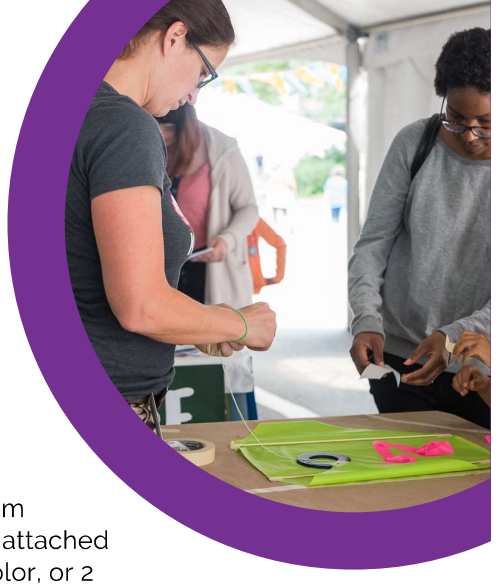
Optional Tools

Saw - If you are using wood dowels, a saw will be handy. Whether it is a hand saw, a table saw, or a chop saw.

Binder Clips - Useful for holding batches of items together.

1 to 2" Wood Dowel - If using flagging tape for tails, having a thick wood dowel about 2 feet long to keep all of the flagging tape rolls on helps keep them out of the way. Get fancy and build a stand for your Flagging Tape Holder. Ours holds the flagging tape, extra tape rolls, and our scissors; helping to keep the work-space orderly.

"Can you tie a knot?"



If they can, no matter what knot, let them tie the bridle line to the kite. Be mindful to instruct them that it needs to be at the end of the line, and the line should not be tight from one end of the kite to the other. While they are tying these knots (and we are double checking that they are secure) this is usually when we ask 'What color tails do you want?"

Each kite gets tails. We like giving them options, 1 looping tails (both ends are attached to the kite), 2 long tails of the same color, or 2 of different colors. About the length of the finger tips to the elbow if individual tails.

Cut the tails, and show them where to tape the tail to the kite. As they are taping the tails on, find the center point on the bridle, tie a double/triple overhand knot. Attach the flying line to the center point loop you just created

Voila! Ready to fly! As they leave, tell them the kite will fly better if they let a bit of line out and then run and see if it goes airborne. Keeping with the nature of the Maker Movement, we encourage them that if it doesn't fly very well to come back and figure out how to make it better. We sometimes get kids coming back wanting to improve on their kites, wanting to figure out how to make them bigger, how to make them lighter, what about changing the shape. We give them the tools and say 'go for it!'

A would be kite builder approaches, we ask them "What color kite do you want to make?" When they answer we grab the sail and lay it out in front of them. "Did you know you can draw on your kite if you want?" We say handing them some markers. As they are drawing this is time to pull out 1 tape set, 2 wood dowels and place them next to the kite.

When they are finished decorating their kite, we place the first wood dowel and say "I am going to do the first one to show you how it's done, but you get to do the rest of them. See how I am placing the stick in the corner here? Now I am going to take a piece of tape and put it under the kite, and then fold it up and over like this over on to the stick. Can you press it down for me? We want to make sure it is really secure!"

The next three corners are to be done by them. Sometimes they won't place the stick fully in the corner, and that is okay. If it is really far off, un-stick the tape and re-position it while explaining why it is important to make sure we tape it in the corners.

Depending on how busy we are, this is where we like to incorporate them in cutting the bridle line for their own kite. We have them hold one end of the line on their side of the table, then stretch the line out to roughly 2.5 times the height of their kite. That usually ends up being at our nose, or on top of our head, and depending on the age of the kid can be quite comical.

Simple Sled

Simple Sled

What you need

- Sled template
- Plastic Table Cloth Roll
- Masking tape
- Single Hole Punch
- Two 18" 1/8" Wood Dowels
- String for bridle line
- Kite line winder w/ line

NOTE: The size of this sled can be changed to suit your needs. Keep the ratio of the dimensions the same scaling up or down. Be cautious scaling this kite down smaller than these measurements; it may not have enough sail material to create the needed lift to compensate for the weight of the materials. These measurements worked for most workshops we have done as they create a usable kite, and minimize scrap material.

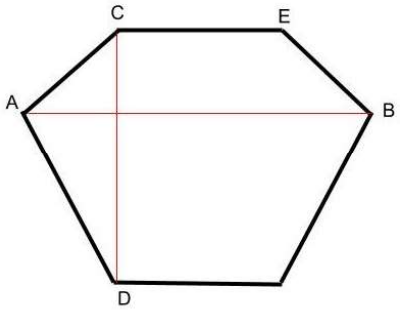
Create a template using material you can easily re-use or cut against. (cardboard, thick plastic, linoleum etc...)

Your template should measure

A - B: 23 inches

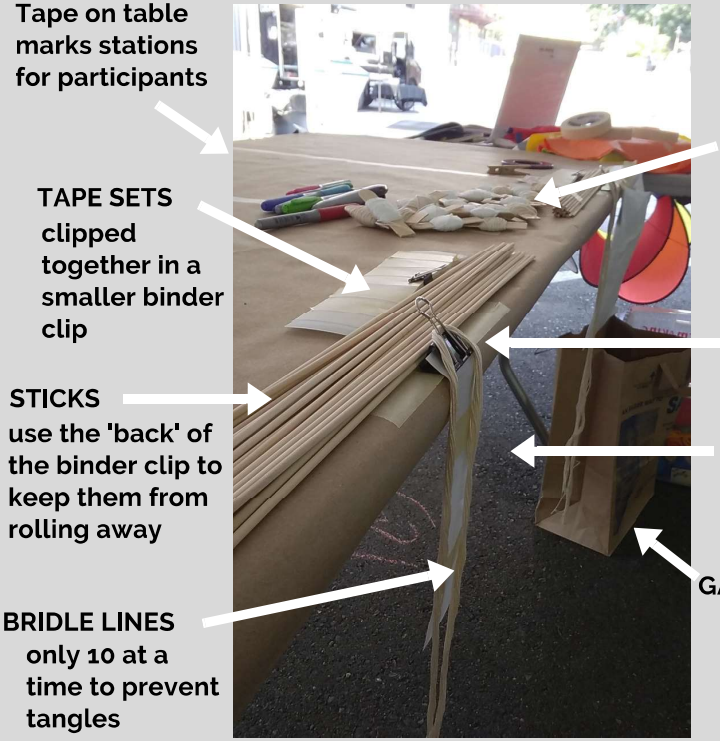
C- D: 18 inches

C - E: 9 3/8 inches



Make sure your template is symmetrical.

The bridle (string that allows the kite to take shape) should be about 2-2.5 times the height of the sled. So about 36-45 inches long. For these dimensions that is approximately the length from fingertips of one hand to just past your other shoulder. This doesn't have to be super precise, and can be a fun activity to incorporate as part of the workshop instead of pre-cutting them.



This solution has allowed four people to easily manage 20-30 kids at a time on 6 tables and be able to move between participants and tables.

The bulk of the supplies are kept in a storage bin, and pulled out in small batches to replenish the 'material locations'

Additionally we keep several weights and pens available for each 2-3 stations. Things can become a mess as many folks are rushing through building kites. With this setup it is very easy to keep everything cleaned and organized.

All of these pre-made parts are then placed in a 'kite kit box' with a label on top that shows what our starting supplies are. Here is a list of everything you can find in that box.

KITE KIT BOX

- Kite sails - taped and punched, bundles of 25
- Kite sticks - bundles of 50
- Tape Sets - 6-8 pieces of tape per set, bundles of 25
- Winders
- Cotton String Skeins - several 1000 ft skeins
- Flagging Tape - Multiple rolls in multiple colors
- Flagging Tape Holder/stand
- Masking Tape Rolls - Always need extra
- Good Scissors - for facilitator use only
- Single Hole Punch
- Safety Scissors - multiple sets
- Box Cutter - for our use only if needed
- Cutting Mat
- Binder Clips - useful for holding things together, or on the table
- Weights
- Permanent markers - Sharpies
- Craft paper/tyvek roll - to put down on table to protect the table from coloring materials.
- Grocery Bag for trash (500 kites makes about 1 full bag of trash)

At The Event

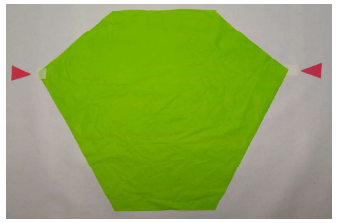
Because of the work done ahead of time, and the bundle numbers, it is easy to work through several hundred of these kites without creating too much of a mess and staying organized. Even if there are multiple people helping.

Set up your table with a small number of the materials you need for a kite near each kite building 'station'. On a 6 foot table we fit about 3-4 stations (marked off by tape on the table), and have 2 materials locations. There is usually about 10-15 kites worth of materials at the 'materials locations'. This keeps the table from becoming cluttered and is easy to replenish as needed. A 'materials location' usually consists of a large binder clip taped to the table. Bridle strings hang from the binder clip. Sticks are then placed against the binder clip, then tape sets are clipped in. Between stations we keep the winders. Kite sails are kept separate.

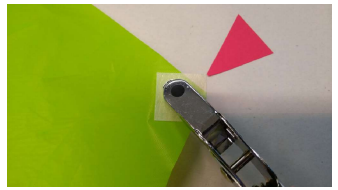
Build The Kite

The red arrows in each photo are there for reference to highlight where to do the step next to the photo.

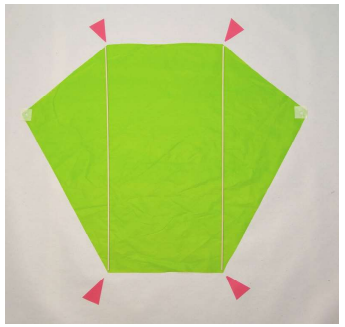
Take a 2" piece of tape, place half of it sticky side up on the 'underside' of the kite, then fold in half over the side corners for the bridle attachment. Thus creating a reinforced area.



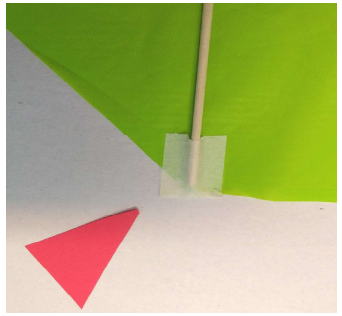
Using a hole punch, punch a hole wide enough that you can easily pass a string through.



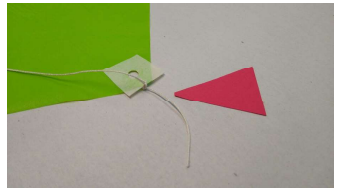
Place the wood dowels on the sail vertically, lining up the end of the dowel to the corner.



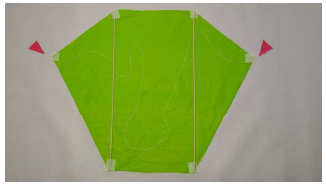
Place tape under the sail at the corner, sticky side up. Then fold over on top of the wood dowel securing it in place. Pres down along the wood dowel to make sure the things are secure.



Tie the end of the bridle line to the bridle attachment point securely. Tie close to the end of the bridle line.

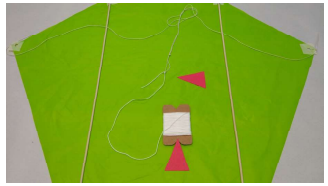


The line should be loose between the two bridle attachment points.

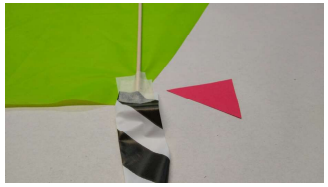


Find the center point of the bridle line, Tie a double or triple overhand knot.

Tie the flying line from a winder to this knot.

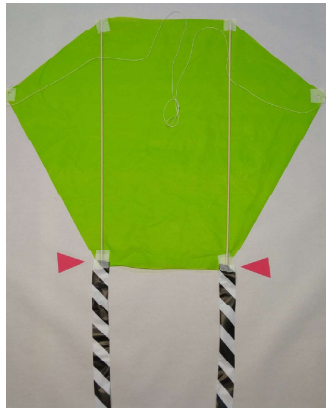


Cut 2 tails that are at least as long as the kite up to two times the length of the kite. Using a 2" piece of tape, attach one tail to the bottom of the kite on top of the wood dowel.



Attach the other tail on the other side. You are ready to fly!!

The side the sticks are on is the side that should be facing you when you fly.



Simple Sled

Workshop Example

This is our most common workshop hosted for Maker Faires, or similar fast paced events. With all of the 'heavy' prep work done ahead of time, it takes about 1 minute of instruction time to teach a child how to build this kite. One person can easily manage multiple kids building kites at different stages with this.

Before the event we estimate how many kites we will need. (Mini Maker Faires range from a few hundred to 1,000) Then we select the colors for the event and cut the needed sails from plastic table cloth material.

We tape and punch the bridle attachment points on the sails. If you have the luxury of time (Not a Maker Faire) then let the participants do this.

Finished sails are bundled in batches of 25 and rolled together. Using masking tape stuck on to itself (so it doesn't stick to the sails), we then secure the sail bundles and label them.

Next we bundle the wood dowels in stacks of 50. Wrapping masking tape around the ends of the bundle, and tape around where the cuts need to be made. This makes it easier to run multiple bundles through the chop saw.

For this workshop we generally do not pre-cut all of the bridle strings, because we like to get others involved at the workshop, and this is an easy step for them.

We like to pre-cut the tape into tape sets and do this by laying out parchment paper across our cutting mat. Then lay down strips of tape across the parchment paper the length of the cutting mat. Using a straight edge and the lines of the cutting mat visible through the parchment paper, cut across the parchment every 2 inches. This will effectively create a 2 inch piece of parchment paper with several strips of 2 inches of tape attached to it. If sized and placed correctly, you will have 6-8 pieces of tape per strip of parchment paper. Which happens to be the amount of tape needed to complete one kite

**If you are using a different tape, test this first. Some tapes will fuse with the paper, and you won't find out till you get to the event! Ask us how we know that one. :)