

BUILD A KITE OUT OF RECYCLED MATERIALS

YOU'LL NEED:

- Two plastic grocery bags, used large plastic envelope/mailer, brown paper grocery bag, or newspaper
- Two straight sticks – sticks/twigs, dowel rods, drinking straws, or skewers
- String
- Glue
- Ribbon
- Tape
- Scissors
- Ruler or yardstick
- Pen or marker

HOW-TO:

Prepare: Research kite designs. There are MANY sites that can provide instructions and inspiration for building your kite. Gather your materials based on your desired design.

1

Create your frame. Cross one stick over another, making a "T" or cross shape. One stick needs to be 4-6 inches longer than the other stick. Secure the sticks together where they meet by wrapping the string around that spot several times. Secure further by taping around the wrapped intersection.

Next, use string to create the kite's shape, outlining from point to point to create the diamond shape. Glue the string at the base of your t-shaped frame and then wrap around that point a few times. Pull the string tight to the end of the next stick. Repeat until you've wrapped all the way around the frame.



2

Create your sail using a flat sheet of your selected material. Cut the handles off your plastic bag, make a single layer from your mailer or brown bag, or lay out your newspaper.

Lay the kite frame on the flat sheet to make sure it fits. If your frame is too large, create another flat sheet and tape it together. This will be your sail.

Using your ruler, measure and use a pen or marker to make a line on the sail that is one inch wider than the frame. Set the frame aside. Cut along this line. Then, cut in one inch at every corner.

3

Time to combine your pieces! Place the frame back into the center of the sail.

Fold the edges of your sail sheet over the string on the frame. Tape along the entire length of each folded edge to secure.

4

Create the kite's bridle and attach. Poke two tiny holes in the sail material of your kite near the top of the frame and two more near the bottom of the frame. Measure out a piece of string the length of your longest stick (the vertical piece of your frame) and add four more inches. Cut the string using scissors.

String the string through the holes you just made and tie a knot at each end.

Secure the top and bottom points using some tape.

Repeat the steps again, only this time making two tiny holes on either side of your kite near the ends of the shorter, horizontal stick in the frame.



5

Create the fly string or lead. Your fly string can be as long as you want. You'll likely adjust it. You can leave your string on the spool and not cut it. You can cut several feet of string. Or, you could create your own smaller spool of string using a toilet paper roll and some string. To attach your fly string, tie where the bridle strings intersect, which should be about a third of the way down the frame.

6

Create the kite tail. This is for fun and function! It adds stability and decoration.

Cut at least three feet of string. Tape the string to the bottom of the kite. Cut pieces of ribbon and tie these to the string about every 4-6 inches.

7

Let's fly a kite. Flying a kite is fun, but it can be a bit challenging. You can start by letting it go and running forward with it trailing behind you. You might need to have a friend toss it in the air to catch a breeze as you run.

As you try, be sure to only let about three to four feet of the fly string out at a time until it catches air.

Bonus: Make modifications as you fly. Add additional tails or ribbons. Adjust your fly string length. Discuss and research why this changes a kite's flight.

Discuss terms such as *lift*, *drag*, *drift*, *gravity*, *tension*, *thrust*, and *flight stability*.

Make another kite in a different shape. Compare how they fly.

Discuss your weather conditions. Measure wind direction and speed.

Need to simplify? Use just the recycled grocery bag and string. Simply tie a few feet of string through the handles.

