



## Let's Make This Catapult



Here are the materials you need to make this catapult. Ten lolly sticks, a ruler, a pencil, scissors, a rubber band, and a roll of masking tape. The rubber band, when cut, should be at least 5 inches in length. Before you start making the catapult take a look at the lolly sticks and make sure they aren't cracked or weak.



Now cut the lolly sticks so you end up with what you see in the picture above:

- 3 pieces that are two inches long
- 6 pieces that are four inches long
- 1 piece that is three inches long (leave one rounded end on it)

supported by





- 1 piece that is four inches long (leave one rounded end on it)

Now take two of the four inch pieces and two of the two inch pieces and tape them end to end so it looks like one big long stick. The sequence should be short stick, long stick, short stick, long stick. (like this picture):



Now fold the assembly into a square and tape the final joint together. It should look like the picture here on the left. Use plenty of tape.

Now place a two inch piece on the inside of the structure like this.



And tape it firmly into place. Use at least three wraps of tape and do not put any tape in the center area of the sticks. I will show you why in the next picture.

stick into that space in the middle so leave the middle untaped. But don't do that later.



You will be inserting a that's why you should insert it now. We will

supported by



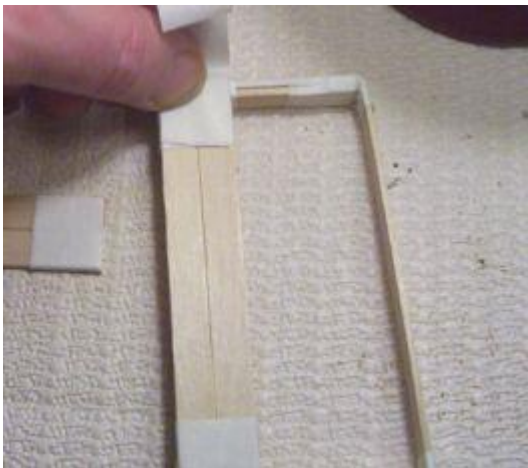


Now tape two of the four inch stick together side by side like this. You are going to do this twice. Make sure to use plenty of tape and do at least three wraps around.

this is what you end up with. Two two four inch sticks.



Make two of these and assemblies each with



Now tape these assemblies to your rectangular base. First you put tape on the long end like this picture shows.

way like this.



Then tape it the other

supported by







This is what you end up with. The base is completed and you are almost done. Just a few more things and one thing I want to point out about your taping so let's flip this base over and take a look underneath.

the tape forms nice tight triangles? This strength to the catapult base. So do at make it nice and tight.



See how, underneath, will lend a lot of least three wraps and

Now tape the rubber band to the three inch lolly stick as shown by laying it on the stick at the rounded end then wrapping it with tape. Do at least four wraps and make it nice and tight.



supporte

Now insert that assembly right into the base of the catapult as shown. It slides tightly between the two pieces that are taped together. You will need to use a little tool to open up a gap. Use a small screwdriver or the tine of a fork to get the gap to open up



just a little then force the stick in there. It should be a nice tight fit and should stand upright nicely.



This is what it should look like.

catapult. Stick a layer of tape right down side down). Yup, stick it right to the Then stick three more layers of tape end up with a piece of tape that is four layers thick. Now peel



Now we are going to make the hinge for the on your table (sticky table like shown at left. right on top of it. You layers thick. Now peel



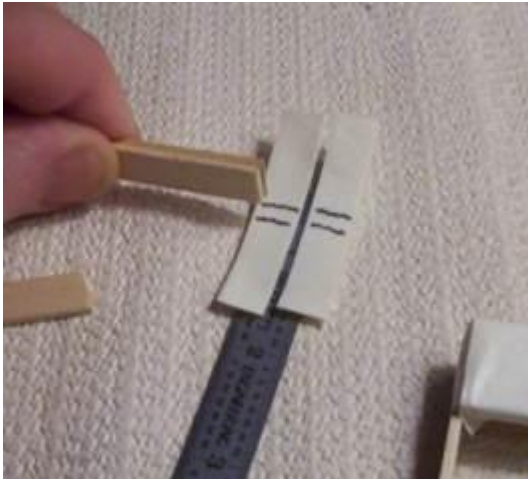
and trim it to two inches in length.

so you end up with two pieces that are



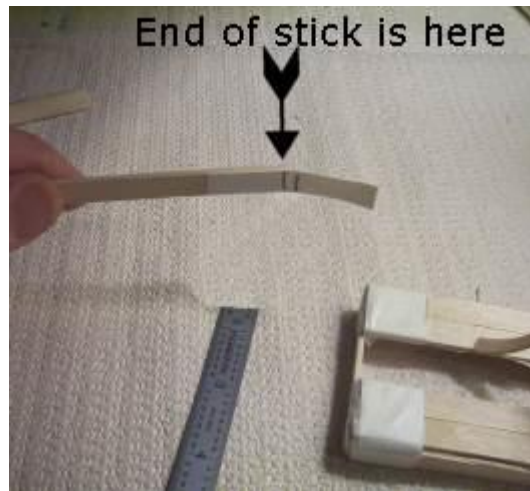
Now cut it lengthwise two inches long.

supported by



Now, using two lolly sticks as a guide, mark little lines about in the center of the tape pieces. This little area between the two lines is the actual hinge part.

hinge pieces to your remaining four inch flat end. The other end of the stick that picture is the rounded end. This is the



Now tape one of these lolly stick. This is the you can't see in the arm of the catapult.



Put the other piece of tape on the other side of the lolly stick so it looks like this.

supported by





Now pinch the free ends of the tape together so they stick to each other. And wrap at least three wraps around the stick so it all holds together nice and tight.

looking like this. Make sure the tape is This is the hinge of your catapult and we in the next step. Just remember that your tape are a guide to show you where no area is needed so the catapult hinges



You will end up with it wrapped nice and tight. will attach it to the base little black lines on the tape goes. That little free freely.

Now place the catapult arm into the base tape pointing up and wrap at least five so it is firmly taped to the upright piece.

as shown with the tab of wraps of tape around it



This picture shows me taping the catapult arm into place. Do at least 5 wraps and make it nice and tight.

supporte



Council





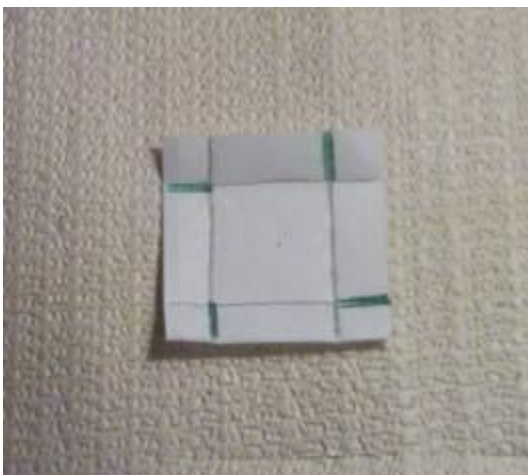


Test the movement of the catapult arm by moving it up and down. It should move freely. This is why we leave the little space between the black lines. It acts as a hinge.

arm. Tape it so in the relaxed state it is at an angle. This will give it some spring. can adjust it if you need to.



Now tape the rubber band to the catapult about a 45 degree. Leave it long so you



Mark up your two inch square of paper like this. The lines are about a half inch from the edges. Where you see the green lines in my picture cut with a pair of scissors.

supported by





Fold the paper into a square cup shape and tape it all together. Use plenty of tape.



Now tape the cup to the catapult arm and you are done!

Just make sure you leave enough on the end for you to press it down with your finger. Have fun with your new teeny tiny catapult and create some games with it.



supported by

