

# Eryndor Presents: Arrow Design 301 - Advanced Design

## Design Key:

- Shaft of Safety Glass Arrow
- 3/8" EVALite
- 1/2" EVALite
- 2" Unifoam
- Fabric Cover
- Hockey Tape
- Duct Tape

## Products Used in the Tutorial:

1. 2" Unifoam
2. 1/2" thick EVALite
3. 3/8" thick EVALite
4. Duct tape
5. Hockey Tape
6. DAP Contact Cement
7. 30" Safety Glass Arrows (any 30" shaft would work)

## Product Notes:

Safety Glass arrows are still a bit tricky to locate. Online, the cheapest we've been about to find them is about \$3.50 for each arrow, although some people have found them as cheap as \$1.25 per shaft. Safety Glass arrows are made of a type of pliable fiberglass that makes it very unlikely that the shaft will ever bend or snap, even when people trample on the arrow.

The closed-cell foam product EVALite and Unifoam can be purchased from McMaster Carr ([www.mcmaster.com](http://www.mcmaster.com)). Although a little more pricey than other foams, these products are absolutely fantastic.

## Tutorial Notes:

The left image is the side view of the arrow, while the right image is the front view of the arrow (as though its about to hit you in the eye).

## Approx. Cost of Weapon:

**\$2.50 - \$5.00**

*cost dependent mostly on cost of Safety Glass arrow.*

## Approx. Time to Complete Weapon:

**30 minutes** for one arrow

**75 minutes** for six arrows

*(time savings are by precutting foam at once and Dapping each step for each arrow at once)*

## Difficulty:



*for precision cutting, intense need to balance the arrow head perfectly so it flies properly, and confusing duct taping procedures.*

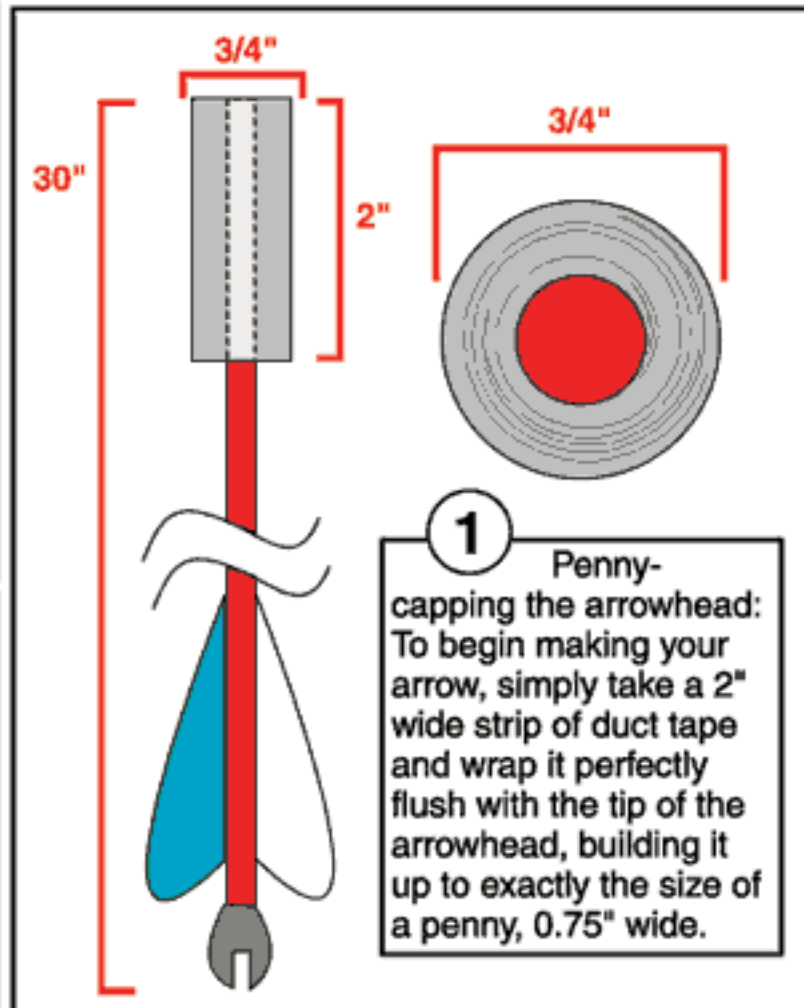
## Created by: Athron

A special thanks to Zagref of Eryndor for teaching me this excellent arrow design.

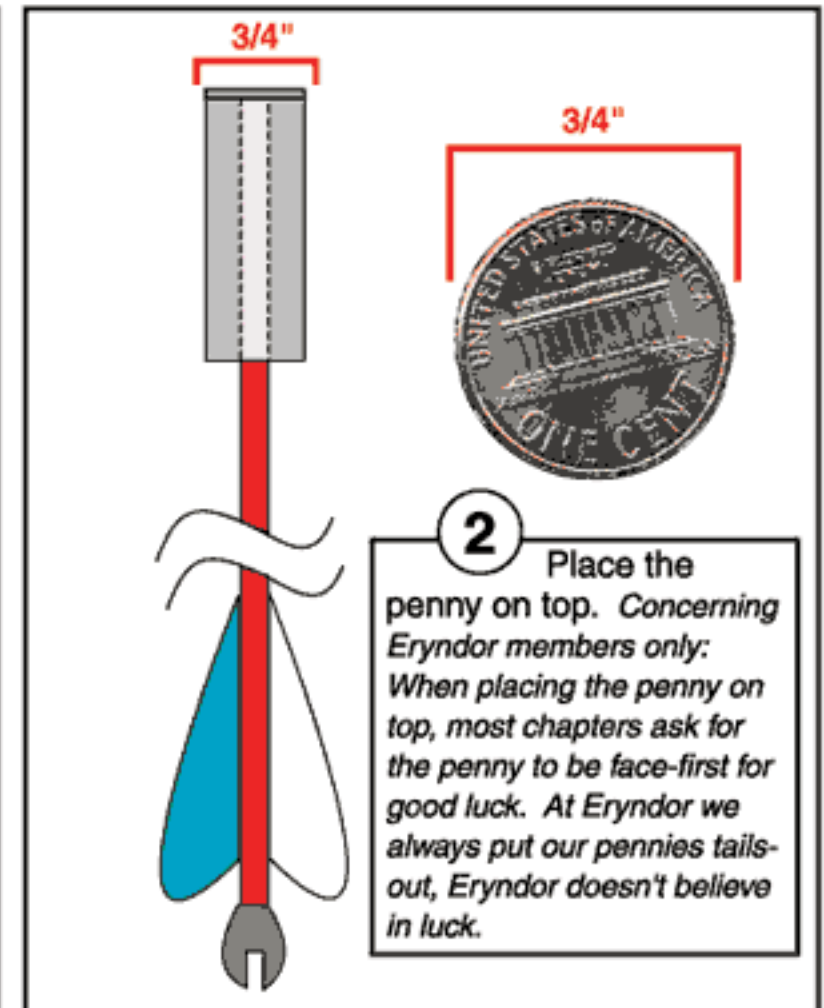
**Last Updated:** 3-25-2005

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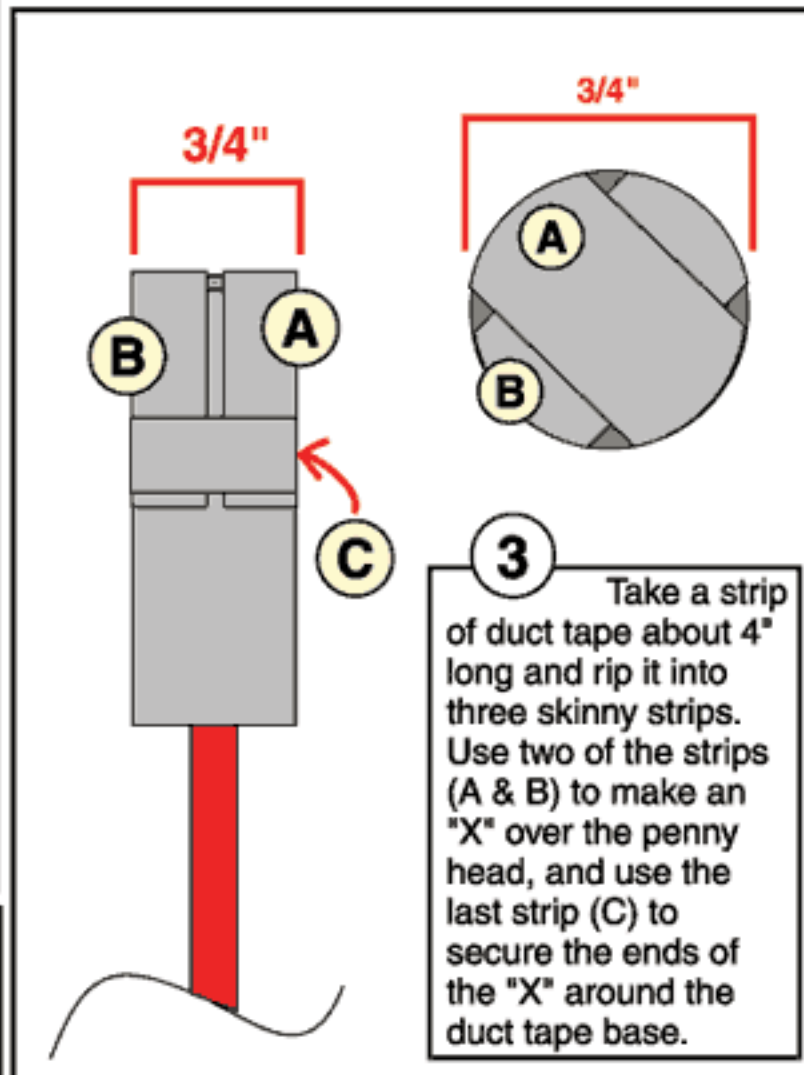
This weapon is designed to meet the safety specifications per RWC XIX.



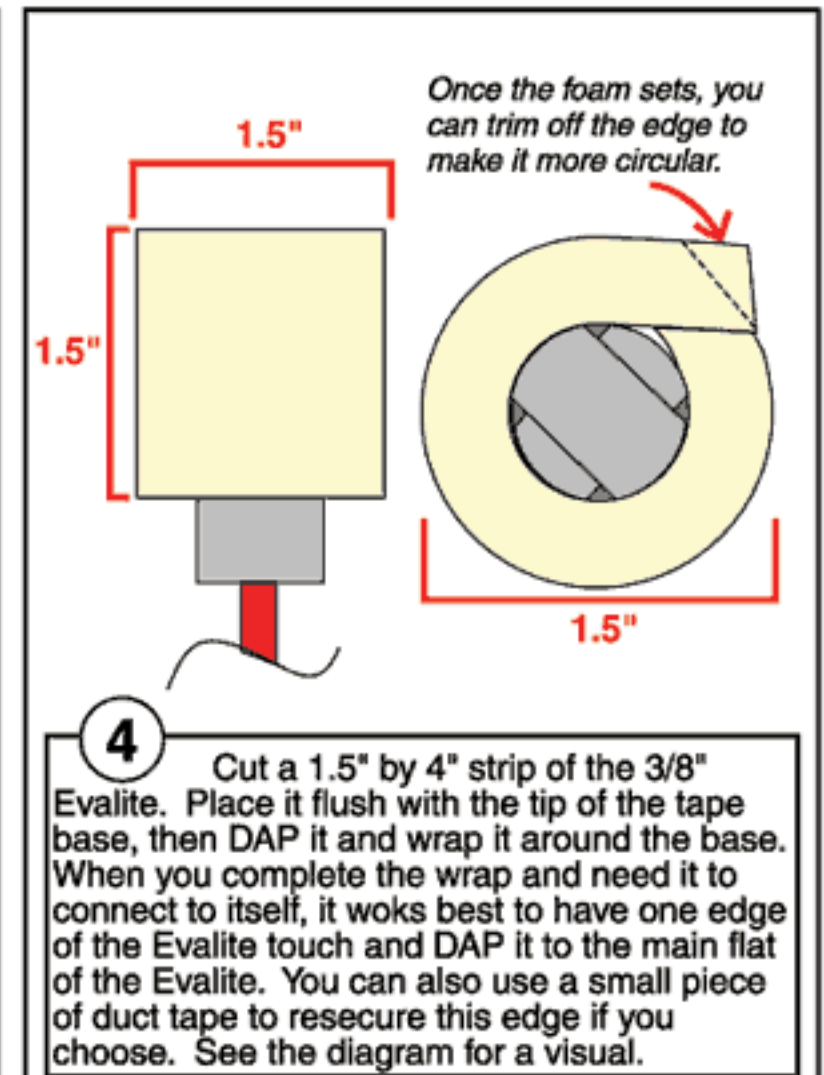
**1** Penny-capping the arrowhead: To begin making your arrow, simply take a 2" wide strip of duct tape and wrap it perfectly flush with the tip of the arrowhead, building it up to exactly the size of a penny, 0.75" wide.



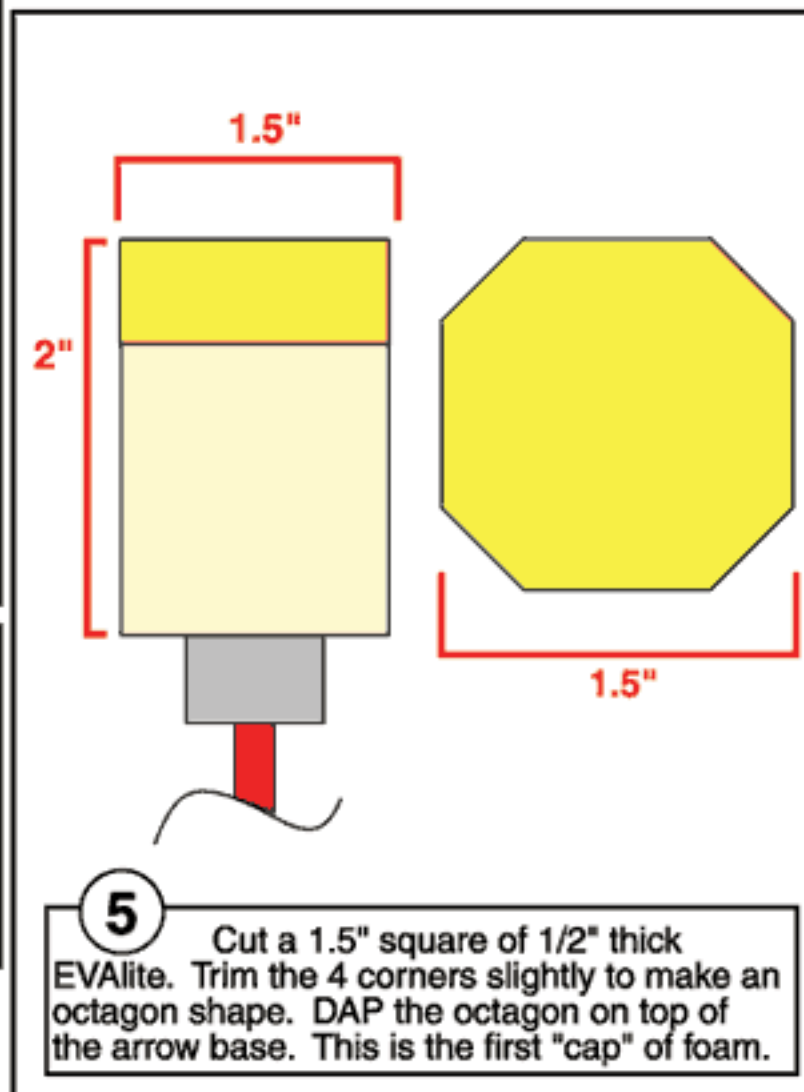
**2** Place the penny on top. Concerning Eryndor members only: When placing the penny on top, most chapters ask for the penny to be face-first for good luck. At Eryndor we always put our pennies tails-out, Eryndor doesn't believe in luck.



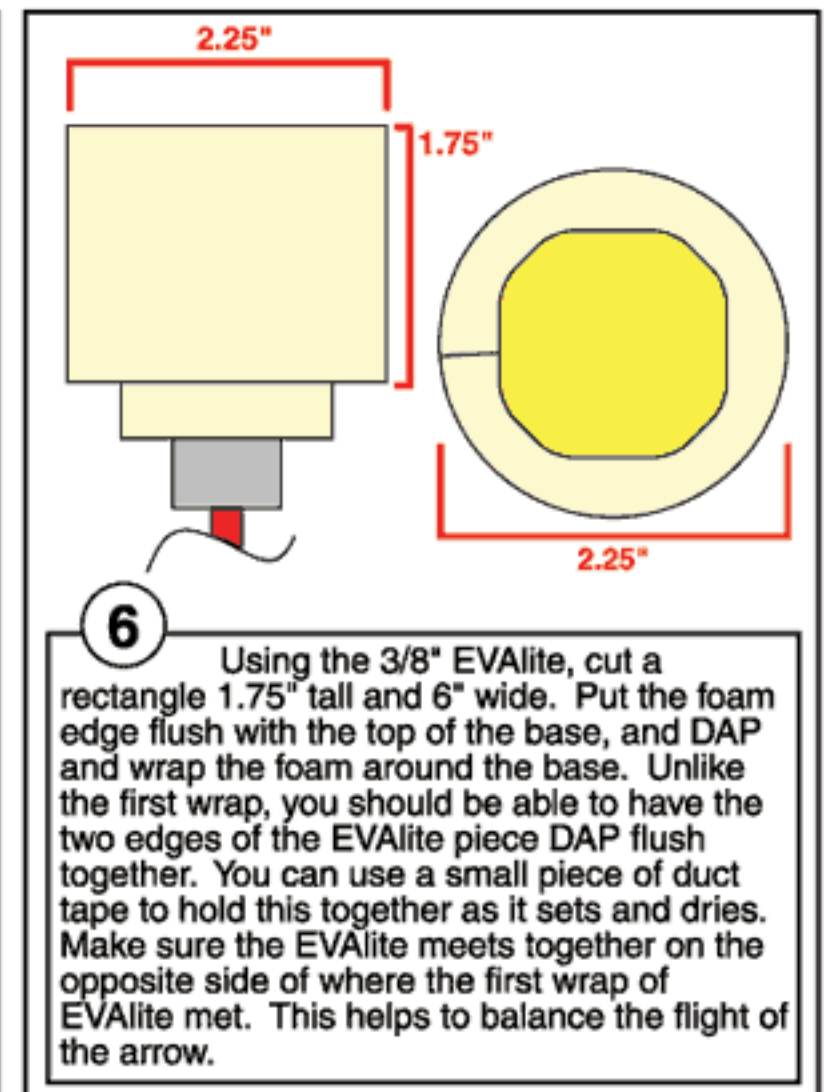
**3** Take a strip of duct tape about 4" long and rip it into three skinny strips. Use two of the strips (A & B) to make an "X" over the penny head, and use the last strip (C) to secure the ends of the "X" around the duct tape base.



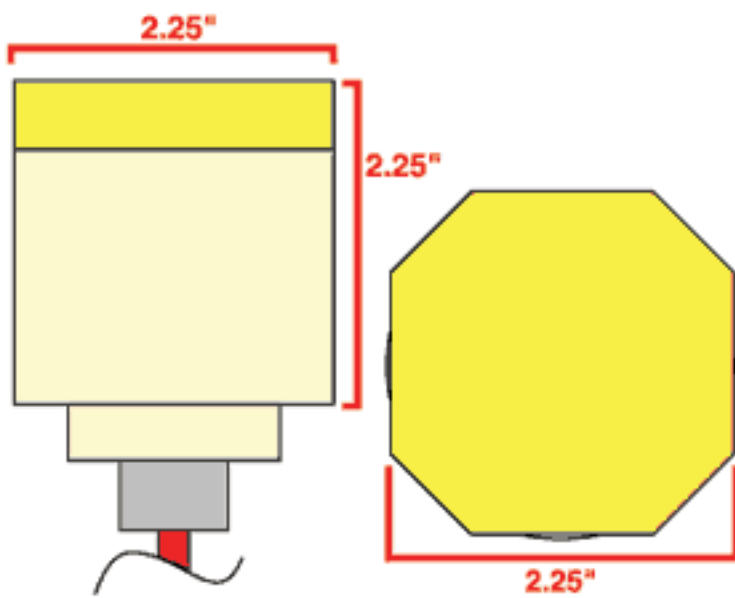
**4** Cut a 1.5" by 4" strip of the 3/8" Evalite. Place it flush with the tip of the tape base, then DAP it and wrap it around the base. When you complete the wrap and need it to connect to itself, it woks best to have one edge of the Evalite touch and DAP it to the main flat of the Evalite. You can also use a small piece of duct tape to resecure this edge if you choose. See the diagram for a visual.



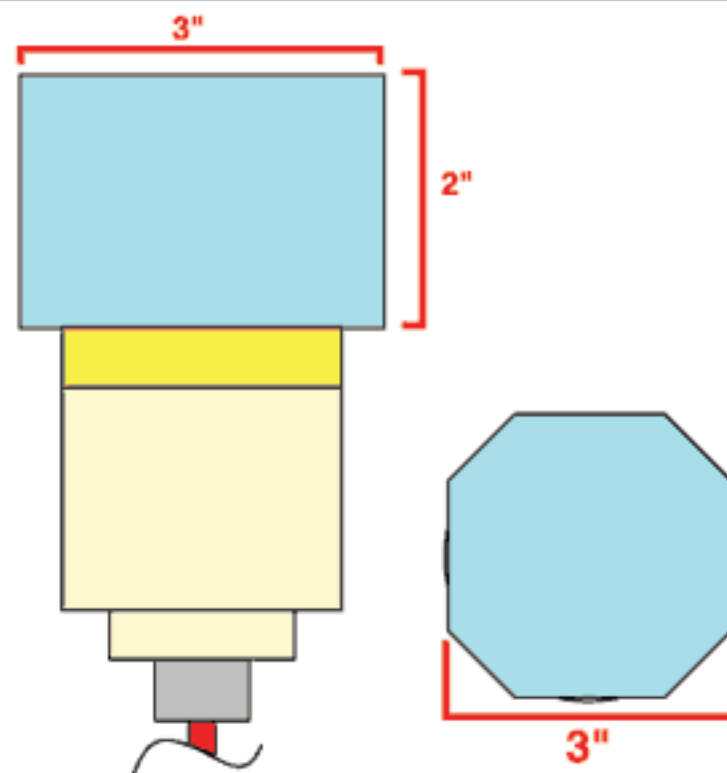
**5** Cut a 1.5" square of 1/2" thick EVALite. Trim the 4 corners slightly to make an octagon shape. DAP the octagon on top of the arrow base. This is the first "cap" of foam.



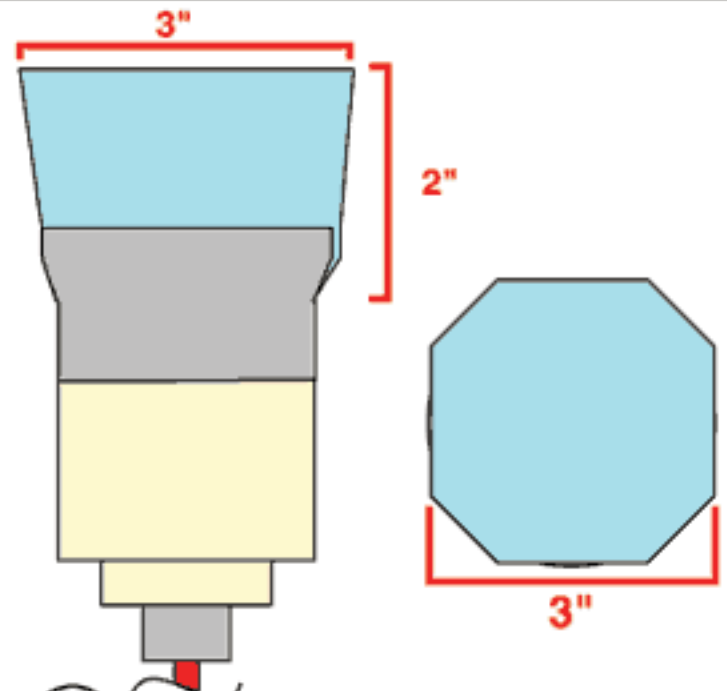
**6** Using the 3/8" EVALite, cut a rectangle 1.75" tall and 6" wide. Put the foam edge flush with the top of the base, and DAP and wrap the foam around the base. Unlike the first wrap, you should be able to have the two edges of the EVALite piece DAP flush together. You can use a small piece of duct tape to hold this together as it sets and dries. Make sure the EVALite meets together on the opposite side of where the first wrap of EVALite met. This helps to balance the flight of the arrow.



**7** Cut a 2.25" square of 1/2" thick EVALite. Trim the 4 corners slightly to make an octagon shape. DAP the octagon on top of the arrow base. This is the second "cap" of foam.



**8** Cut a 3" square of 2" thick Unifoam. Trim the 4 corners slightly to make an octagon shape. CENTER the octagon on top of the arrow base perfectly and DAP it in place. This is the foam that will be hitting your opponents in the face first.

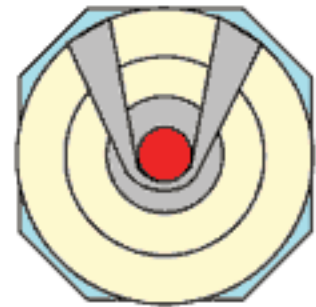
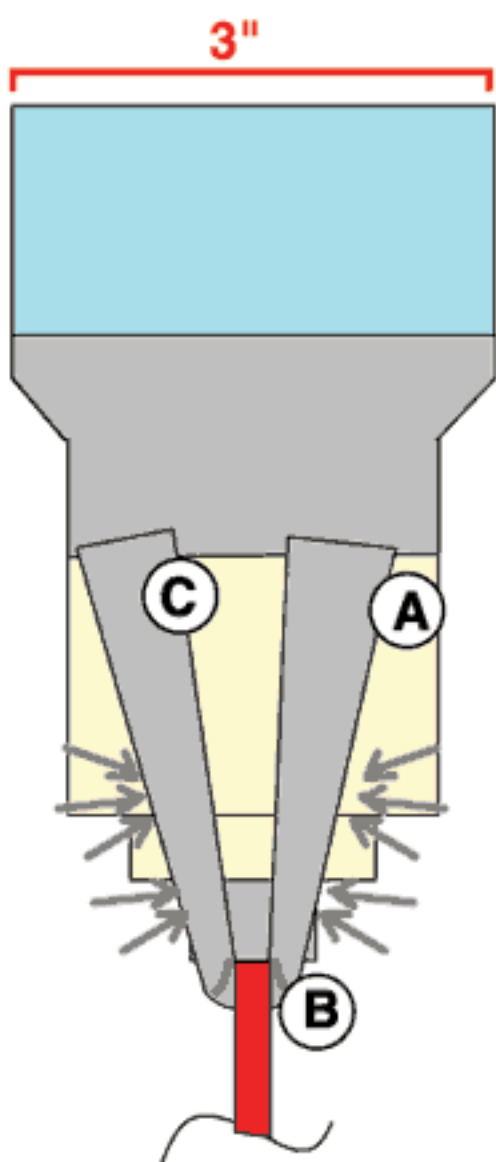


**9** This is one of the tricky duct tape parts you'll have to practice and develop a feel for. Take a length of duct tape and line it equally on the Unifoam and on the Evalite foam. Pull the overhanging Unifoam tight to the arrow base while wrapping the the duct tape around the head. Do it evenly so the Unifoam block stays even and becomes nice and flush with the base of the arrow.

**10** Welcome to the trickiest part of the arrow building process. I have yet to see a tutorial that describes this step well, and even if you do understand perfectly after reading this, you'll still have to spend a lot of time developing the finesse to do it the best way possible.

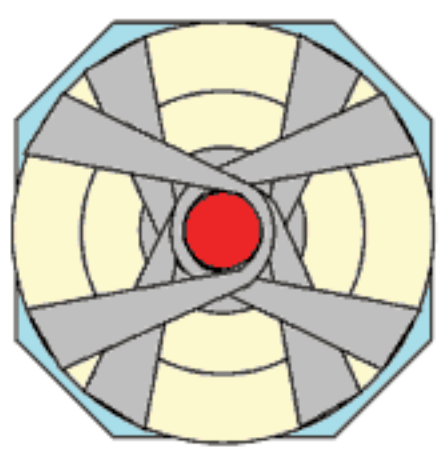
Look at your arrow right now. Its nice and safe, and will hit someone well. Now lightly wiggle the head a little bit. There is a little shiftiness and wobble in the head. Right now its not dangerous, but if you use this arrow for any amount of time, the wobble will become greater and will make the arrow fail by any competent weapons checking process.

What we're going to do in this step is minimize, if not eliminate, the wobble and secure the arrowhead even better to the shaft. We're going to do this by taking thin strips of duct tape and wrapping them in such a way that they start on the lower part of the arrowhead we made, wrap around the exposed arrow shaft, then secures back onto the arrowhead. We're going to do this 4 (you can do it up to 8) times at various angles to make the arrow nice and secure, as well as perfectly balanced (this is the step that makes or breaks whether or not your arrow is well balanced).

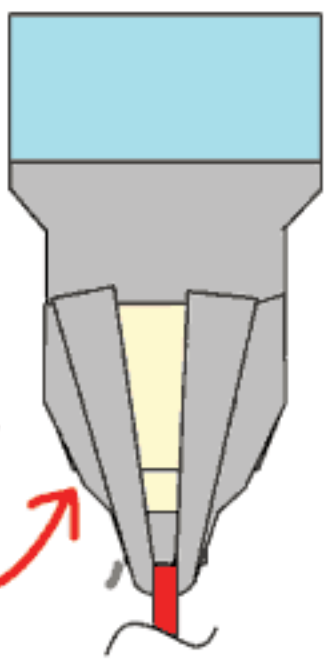


View is from the tail-end of the arrow.

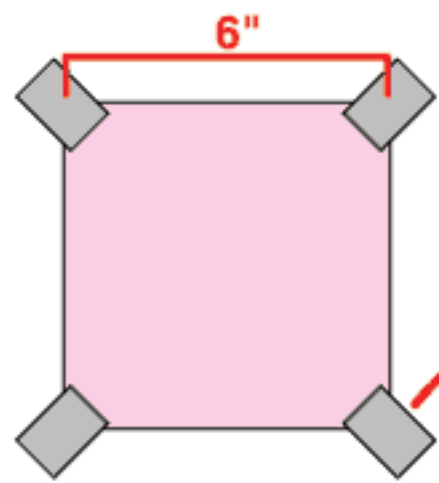
\*After applying the four wraps, it will look something like this:



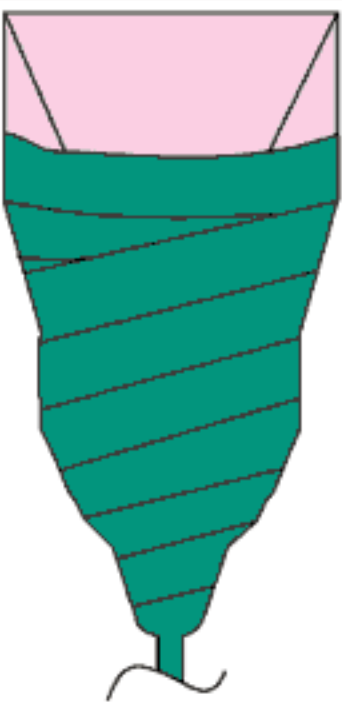
Note how the bottom of the foam arrowhead is compressed near the base, but NOT up by the top where it strikes the opponent. This design is an excellent example of progressive resistance.



Take a third of a strip of duct tape. At point A on the image, begin to progressively pull the foam arrowcore tighter into itself as you approach point B (the green lines show where you need to compress the foam). At point B you wrap the duct tape behind the exposed arrow shaft, then come back up around, and finishing at point C. Note that this step is going to "pull" the arrowhead to one side. We're going to do this step 3 times from separate corners of the arrowbase so that it becomes balanced. In other words, each strip of duct tape will counterbalance the other pieces, allowing you to center and secure the arrowhead. This step IS tricky, and it will take finesse. This step is the difference between a "passes but crappy" arrow and a "passes and awesome" arrow.



**11** Congrats. You made it through the trickiest part. Now, test the balance of your arrow. Twirl and spin it in your hands. Does the head seem nice and balanced, or does it wobble slightly because the foam leans to one side? If the lean is just a little bit, you can fix it while putting on the cloth cover by tugging the cover down a little harder on the opposite side of the lean. When putting on the 6" square fabric cover, take the four corners of the fabric square you cut and put a tiny piece of duct tape on each corner. Use this to secure the four corners down far on the arrowhead so its easy to center the fabric so it looks sexy and stays balanced as you finish it.



**12** Almost done. Finish the arrow by wrapping the sides in athletic tape or nice colored ducttape. Add a drawstop at the 28" mark on the arrow (you probably won't have to... these arrows usually draw max right at 28"). Take a few practice shots at some backs to be sure its safe. Lay on!