Combat Arrows

These are instructions to make Amtgard legal combat arrows. Approximately four months of construction, testing, redesigning, rebuilding, and retesting went into this design. The old method called for wrapping the end of the arrow shaft with a wad of tape, then taping a coin to the end so that the arrow did not punch through the foam and impale the target. The wad of tape at the end made those arrows heavy and it was impossible to make a batch of them identical in weight and flight. These designs will make uniform arrows that have a greater range and speed and will fly true, and they are completely safe.

What you will need:

- Arrow shafts. I prefer carbon arrows as they tend to flex when stepped on instead of bending like aluminum or breaking like wood.
- Round head machine screws (8-32 X 1"). They need to be long enough to screw into the tip of the arrow, but not so long that they overhang the end of the arrow by more than a quarter inch when completely screwed in.
- T-nut washers (8-32). These will make a platform for a larger washer to sit on.
- 1-1/4" flat washer. The hole in the middle needs to be small enough that the head of the machine screw will not slip through it.
- Foam balls at least 2-1/2" diameter.
- An Aqua Swim School – Learn to Swim 1 2 3 kickboard, or some other flat piece of fairly dense yet still soft foam about 1-1/2" thick. These will be cut into short circular pieces with a 2" hole saw.
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- A tube of kitchen and bath caulk to glue everything together.
- A container of Loc-Tite, or some other thread locker. I use Permatex, Threadlocker Blue as it is about $10.00 cheaper and works just as well.
- Some brightly colored cloth or girl's tights to make the cloth covers.

Process:

- Use the hole saw to cut several holes out of the foam kickboard. The "holes" will have a small hole through the middle of them due to the design of the hole saw. The arrow shaft will be inserted through this hole. When cutting the hole be sure to keep the drill as straight as you can. If you end up with a crooked cut it could throw off the balance of the entire arrow.
- Slide the cut out "holes" onto the arrow shafts and leave them there.
- Slide the machine screw through the flat washer and move the washer all the way up to the head of the screw.
- Place a drop of Loc-Tite near the washer and screw the T-nut washer down to the flat washer. The Loc-Tite will ensure that the T-nut washer does not loosen.
- Place a drop of Loc-Tite at the end of the screw that will go into the arrow, and then screw the assembled piece into the end of the arrow shaft.

- Squeeze some kitchen and bath caulk along the arrow shaft from the screw and washer assembly to about 1" down the shaft. This will secure the foam "hole" to the under side of the flat washer.
- Squeeze the kitchen and bath caulk onto the top of the flat washer and the head of the screw covering the entire surface with about ¼" of caulk. This will adhere the foam ball to the top of the arrow.
- Cut a small portion off of the foam ball to create a flat side to it. Place the flat side of the ball on top of the arrow.
- You can spin the arrow to determine if it is balanced. If it does not wobble it is good. If it does wobble try moving the foam ball around until it does not wobble when you spin it. If you have problems with the ball coming off the arrow when you spin it you can wait about ten minuets and try again. The caulk will have set a little but you should still be able to move the ball around to adjust it.
- When you have the arrow balanced keep it upright by leaning the shaft, not the ball, against something that will not get moved around for several hours.
- Once the caulk has set you can either place one foot of a pair of girl's tights over the head of the arrow and cut them to fit, and then tape the material to the arrow shaft, or you can sew your own fitted arrow covers for a better appearance.