

MAKING WOODEN ARROWS

This is intended as a basic guide to making your first set of wooden arrows, so whilst there may be better (or at least alternative) ways of doing things, this should be fairly straightforward...

Choosing your components

Thanks to the increasing interest in traditional archery, there is an ever growing choice of materials and components for your arrows. To avoid getting into the pros and cons of every option, a good starting point would be 5/16" shafts (pine or spruce), 5/16" taper fit plastic nocks, 5/16" 100 grain screw-on brass bullet points, and 3" parabolic or shield feathers (either left wing, LW, or right wing, RW; it makes no difference which, so long as they are all the same).

Straightening your shafts

Unlike your 'off the shelf made to precision tolerance' modern shafts, we're talking about bits of tree. Even if you can get them matching exactly in spine and weight, don't expect them to behave the same as they wiggle their way from bow to... well let's be realistic... grass. One thing you can at least do something about is making sure they are straight. When you buy them, they won't be, nor will they stay that way, so it's a good idea to learn how to straighten them.

By hand - Look down the line of the shaft and spin it to spot the high spot in the bend. If you have a nice flat table, you could roll it instead. Hold the high spot against the heel of one hand, and bend the shaft against it with the other. You'll get a feel for how much pressure you need to use, but to start with just do a little each time and check in between.

With a round edge - You can buy specially made arrow straightening tools; basically a small roller. Alternatively, something with a round edge; a tent peg is particularly good, putting the shaft into the curved end. Roll or slide along the high spot with a bit of pressure. This compresses the fibres on one side of the shaft, pulling it straight. Again go a little at a time and keep checking it.

Fitting the nocks

If you have one end of the shaft that is straighter than the other, then use this for the nock end; it may be you can lose the bent end when you cut the shafts to length later on, but regardless it is easier to straighten the point end of an arrow later on, rather than the end that has feathers stuck all over it.

Nocks and points can be bought as a taper fit, and the ends of the shaft need to be cut at an angle to match. This is very simple to do with an inexpensive taper tool; effectively a pencil sharper with two holes for the two different taper angles for nocks and points. I'm hoping you don't need instructions on how to use it... insert end of arrow shaft, twist...

The spine of the arrow is always measured with the wood grain in line with the force applied (think also of how the arrow bends around the bow). If you look at the end of the shaft, you will see the lines of wood grain; these should be at 90° to the bow string (ie horizontal), so it is important to make sure the nock is aligned correctly when gluing.

I have found the best glue to use for both nocks and points is epoxy resin. Go for the standard stuff, as the faster setting varieties tend to be softer when set, so not as strong. A useful tip is to put a line of glue along the taper, push on the nock firmly, keep on the pressure and twist the nock full circle to spread the glue all the way round. If you coat the taper with glue all the way round, the nock will keep popping off, as the glue seals against

the plastic as soon as the nock is put on, trapping air at the top of the nock. Make sure you end up with the correct nock alignment to the grain of the wood when you've finished twisting. Any excess glue seeping out the bottom can be gently wiped off.

Painting and varnishing

To give a nice smooth finish to your shafts, start by using a fine wire wool to remove any surface fibres. If you have access to sanding sealer, then apply this first before the wire wool. If you want to add paint or wood stain, do this before varnishing; in fact, for a neater finish if painting the nock end of the shaft, do this before gluing on the nocks as it's easier than trying to paint a neat line or mask off the nocks. Otherwise do your painting and varnishing after gluing on the nocks, so you have something to hold that won't be sticky.

Most standard varnishes (other than yacht varnish as it stays slightly soft) will work fine; ones designed for wooden floors should be more hardwearing for your arrows. You will only need a little tin. To apply the varnish, using a dipping tube is quick, easy, and gives an even finish, however it's wasteful of varnish especially if you're only making a dozen arrows. Brushing takes a little longer, but gives a perfectly good finish. I have found triangular make-up sponges better than a brush, as you don't get bristle lines, and they provide a firm but flexible edge. Go for two or three thin coats, rather than one thicker one; they will dry faster, be less likely to run or drip, and give a harder coating.

Cutting to length and fitting the points

Arrow length is measured from the throat of the nock to the back of the point, but be wary when measuring to cut that you don't forget to allow extra length for the tapered bit that fits inside the point. To check how much you need for this, cut the point taper on the end of the uncut shaft and measure it; you'll be cutting this off anyway. Cutting the shafts can be done either with a saw (smaller toothed blades like a hacksaw are better to avoid splitting the end of the shafts), or by rolling a knife blade deeply all the way round the shaft, then carefully snapping it off by hand. Cut the point tapers with your taper tool, then glue on the points using epoxy resin in the same way as the nocks. Again, wipe off any excess glue that squeezes out the bottom.

Fletching

Most fletching jigs have a wide range of adjustments to allow for different fletching configurations. For a standard straight fletch, it is worth spending a bit of time to make sure the clamp will place the feather perfectly parallel to the shaft, and exactly in the middle. It is easier to do this with a feather held in the clamp. Nocks often have a small mark to indicate the cock-feather position; you can use this to help set the clamp in place.

If choosing to glue your feathers, whilst there are non-specific glues that may work fine, there will be others that are too brittle (meaning the feathers will come off as the arrow flexes), or too soft to hold the feather straight (they have a natural curve). It is safer therefore to go with a purpose fletching glue from an archery retailer. Make sure to leave the clamped feather in place for the recommended time, before moving on to the next one.

Alternatively, you can use fletching tape, which is much faster and less messy. You can buy this from archery retailers, but it is usually much cheaper online in the form of '3mm super strong double sided tape' or similar.

Ensure the nock is fitted fully in the jig, and rotate the jig ready to fit the cock-feather; again, there is usually a mark on the nock to indicate this position. When putting the feather into the clamp, make a note of where the back edge lines up; often there is a scale marked along the bottom edge of the clamp, if not you can make a pen or pencil mark. This will help to make sure all the feathers are placed in an identical position across the whole set of arrows. Apply the glue or tape to the underside of the feather and slide the clamp into place, pressing it down firmly onto the shaft. If glued, leave it for the required time until set; if using tape, press in place firmly for ten seconds. Open the clamp and lift it out of the jig. Rotate the jig to the next position, and repeat... etc.

Finally, to make sure the feathers don't catch and lift when burying themselves in the ground (speaking from experience!) place a small blob of glue over the front of each feather's base, onto the shaft.